Quartus Software Products

[Benchmark](#)	How fast is your Palm? Benchmark tests your Palm system and accurately reports how fast it runs relative to other models.
[Clearhack](#)	Do dots drive you to distraction? ClearHack removes those annoying dotted underlines in the MemoPad, To Do List, Address Book, etc.
[Quartus Forth](#)	Quartus Forth is a complete development environment and compiler that runs entirely on-board the Palm.
[LeftHack](#)	Southpaws unite! LeftHack shifts most scroll-bars over to the left-hand side of the screen.
[LightHack](#)	Having trouble reading your Palm in the dark? LightHack reverses the backlight on your Palm, so that light becomes dark, and dark becomes light.
[The Oracle](#)	A hundred questions a day. Here's something that might help.
[PassPhrase](#)	Need help choosing a new, secure password? Give PassPhrase a try!
[SCX Calculator](#)	The SCX calculator is an easy-to-use, high-precision, large-digit calculator that has built-in Cost/Sell/Margin buttons for quick retail and sales calculations.
[SecretAgent](#)	Who's looking over your shoulder? SecretAgent hides your password from prying eyes.
[ShiftHack](#)	ShiftHack turns control over shifting back to you!
[StreakHack](#)	Does your Palm show 'streaks' on the screen? This can help.
[SwatchHack](#)	Swatch Internet Time -- on your Palm!
[TickHack](#)	Tick tick tick! TickHack adds audible feedback to your Graffiti input -- handy when you're looking away from your Palm while you write.

This document holds all the Quartus Handheld Software discussion forum messages from December 17, 2000 to 8:15pm, August 24, 2001.

The links in the document all work -- but please don't try and post new messages to the Forum via the buttons in this document, as the subject threads may eventually be archived form the web site.

Enjoy!

Neal Bridges
Quartus Handheld Software
http://www.quartus.net

QUARTUS

📁 **General** August 24 - 06:10 pm [358]

Questions and discussion about Quartus products.

📁 **Quartus Forth (PalmOS version)** August 24 - 08:37 pm [2590]

Questions and discussion about the Quartus Forth on-board compiler for Palm/Visor/WorkPad handhelds.

📁 **Quartus Forth (Royal daVinci version)** April 26 - 10:53 am [74]

Questions and discussion about the Royal daVinci version of the Quartus Forth on-board compiler.

📁 **Other Quartus Products** June 27 - 05:05 pm [28]

All other (non-Forth) Quartus products.

📁 **Everything else!** August 24 - 06:16 pm [255]

Anything else you'd like to talk about!

Back to the Quartus Home Page

NOTE: When posting Forth source code, to preserve indentation, format it using the **\pre{** tag like this:

```
    \pre{
: hello
  \ A simple message:
  ." Hello World!"
  10 0 do
    i .
  loop  cr
;
    }
```

If you wish to include a **}** character, enter it as: **\}**

General

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- [Possible hiccup in the discussion board software](#) 8/19 01:48pm [2]
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- [Oop](#) 2/16 09:56am [12]

Welcome to General. You may enter any of the discussions below by clicking on the appropriate link. Or, to start a new discussion of your own, click on the "Create New Conversation" button.

Problem with III xe

By **E. Ross Helton** on Thursday, August 23, 2001 - 05:57 pm: Edit

Hi Gang,

I was wondering if anyone had ever had this problem. I have a IIxe. Every so often when I turn it on it is asking me to do a reinstall of the hacks, and if I check the date hasn't rolled over.

Does anyone know of a software which can cause this. Also what is the software which can keep the buttons from turning on the Pilot by accident?

Thanks

Make it a good day!
Ross

By **Steve Bohrer (Skb)** on Thursday, August 23, 2001 - 06:28 pm: Edit

Ross, I hope this is not too vague to be useful.

The "re-install hacks" prompt is how hack master responds to a reset. So, my assumption is that some program caused a reset at a time you were not actively using your palm. Do you have any hacks that do stuff at midnight? Or, it could be a non-hack app that wakes up via an alarm (or perhaps via some other mechinism?)

I think the date has not rolled over because the system is in a funny suspended state while hack master has this prompt active: I think that hack master hooks into the reset process (or perhaps it just catches a reset startup code broadcast) and does not let the reset process continue until you answer its prompt.

By **Mark Beckman (Mbeckman)** on Thursday, August 23, 2001 - 07:14 pm: Edit

Ross, if Steve is correct you can at least relieve the symptoms by using X-master instead of Hackmaster. X-master has the option of automatically restoring your hacks after a reset (after a 2-3 second pause so you can cancel).

Also of use to people that program on their palms:
There is a Hack, "Crash" by Daniel Seifert that will intercept fatal errors that

require you do a reset, and do it for you (after a pause).
X-master is freeware at www.linkesoft.com. Version 1.3 is the most current, non-beta release.
Crash is "Cardware" at www.dseifert.com. I believe that version 1.2 is the most current.

By **Neal Bridges (Nbridges)** on Thursday, August 23, 2001 - 10:52 pm:
Edit

One solution for your other query -- keeping the application buttons from turning on the device -- is here:

http://palmgear.com/software/showsoftware.cfm?prodID=3043

Neal

By **E. Ross Helton** on Friday, August 24, 2001 - 10:24 am: Edit

Thanks for all of the suggestions. I had been playing with the hacks to see if one of them could be the problem. I had a Daylight savings hack that I thought could be the problem, but after unhooking it, I found it wasn't the issue. I deleted some others which I really wasn't using and still had the problem. The button on issue I solved, because I found there wasn't any way it could accidently be that problem.

So I will try "Crash" and "XMaster". Hopefully in a few days I will see good results.

Thanks for the suggestions for for taking the time to answer.

Make it a good day!
Ross

Add a Message

Username:

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This is a public posting area. If you do not have an account, enter your full name into the "Username" box and leave the "Password" box empty. Your e-mail address is optional.

Possible hiccup in the discussion board software

By **Neal Bridges (Nbridges)** on Sunday, August 19, 2001 - 05:02 am:
Edit

I had a couple of reports of trouble with the discussion board today; please let me know if it's still happening.

Thanks!

Neal

By **Kris Johnson (Kdj)** on Sunday, August 19, 2001 - 01:48 pm: Edit

Everything seems fine now.

What I saw: I posted a message, and got the "Internal Server Error" page. I hit the Back button on the browser and submitted it again, and got a page saying that the message had already been posted. After that, I couldn't see anything: the Last Day and Last Week links had the "This forum is awaiting your messages" smiley face. The Topics and Tree View were empty.

-- Kris

Add a Message

Username:

Password:

This is a public posting area. If you do not have an account, enter your full name into the "Username" box and leave the "Password" box empty. Your e-mail address is optional.

E-mail:

E-mail:

What's up out there?

By **Neal Bridges (Nbridges)** on Tuesday, August 14, 2001 - 06:16 pm: Edit

A soapbox here. Let us know what you're working on!

Neal

By **Kris Johnson (Kdj)** on Tuesday, August 14, 2001 - 10:25 pm: Edit

I'm going to try to finish up the JacksOrBetterTutorial on the wiki. I'll try to do one topic per day, so it should be done in a week or so.

I'd like to say I'm doing other more interesting things with Quartus, but I can't. My day job is taking up all my time and energy. But once this project is over, I plan to have a lot of free time…

-- Kris

By **Jamie Cairns (Jamie)** on Tuesday, August 14, 2001 - 10:35 pm: Edit

I'm working away on my "Trucker's Little Helper" program, learnng Forth and the Palm OS at the same time. (almost have UI down pat, working on DB now) If I had more than a couple hours a week to spend on it, maybe the learning cliff would become a learning curve…

Jamie

(Neal - I'll reg as soon as I get one working app…)

By **Brian Chirgwin (Bchirgwin)** on Tuesday, August 14, 2001 - 11:35 pm: Edit

I am learning Forth right now. I have a list of applications I want to develop, but I need to learn the language and programming the Palm OS first.
I am thinking of a source code (or generic memo/doc) revision manager and bug/feature app that works on the palm. This will definitely not be my first app as it is beyond my current capability and I need to crawl before I try to get to the moon. If and when I complete it I will release it. Anyway, I've put quite a bit of thought into this and it doesn't seem too difficult, well at least not once I learn the language, the OS, etc… I do need to test performance of some of my ideas, but Forth code seems small, so I don't think the Palm will have a problem. Would anyone other developers have an interest in such a product?

By **Kris Johnson (Kdj)** on Wednesday, August 15, 2001 - 01:31 am: Edit

I would definitely be interested in a revision control system for my source memos. I've thought about doing such a thing myself, but it's low on my priority list.

-- Kris

By **Trevor Steele** on Wednesday, August 15, 2001 - 03:25 am: Edit

I have now finished my latest update of my Scorebook application, which now supports the US and Canadian targets. I have also been approached by some smallbore shooters (in the UK and Brazil!) to do a similiar application for their discipline. I'm currently investigating the possibilities, however work has been taking up a lot of my time lately.

I still enjoy visiting the forum on a regular basis although it's some time since I've posted anything. Keep up the good work Neal.

Trevor Steele

By **Barry Ekstrand (Ekstrandbb)** on Wednesday, August 15, 2001 - 08:06 am: Edit

I am in the process of updating WealthBuilder, which meant I had to first split it into modules to allow for further growth. I have a couple of other projects in the planning stages; as always, time is the limiting factor.

Barry Ekstrand

By **Jim Hendricks (Jimh)** on Wednesday, August 15, 2001 - 08:27 am: Edit

Working on a game for shareware release, hope to have it out within the next 2 months. Will then return to some of my previous projects to see if I can turn them into a source of revenue.

Jim

By **John Newell** on Thursday, August 16, 2001 - 07:50 am: Edit

Working on a utility which will produce a memo/Doc source file, for Forth/C, from a Resource database but with meaningful labels.

E.g. A resource file called Pri1 with a menu bar with an About menu item, an About alert, and a form entitled "Source List Generation" which has an OK and Cancel button would produce

```
1000 constant PRImb_mbar   \ Menu Bar
1010 constant PRImi_About   \ Menu Item
1000 constant PRIal_About   \ Alert
2000 constant PRIfo_SLG     \ Form
2910 constant SLGbu_OK       \ Button
2920 constant SLGbu_Cancel \ Button
```

The layout of the labels will be configurable so you could end up with "OK_bu2910".

Should also generate the Quartus Forth "make file".
John

By **JOhn Newell** on Thursday, August 16, 2001 - 07:51 am: Edit

What about you Neal?

John

Ok since I've been posting for quite some time and have yet to release a finished app, you guys can take this list with a grain of salt. Although not actually finishing anything, I have been having a lot of fun tinkering with Quartus as I have time---and that's what counts, no?

Apps:

Solar System Explorer---this is the animation toy I was recently posting about. I still intend to write up something on the wiki about the pitfalls of color and double buffering.

BF Virtual Machine---search back in the archives. Search way, way back. Yes, I still haven't finished this. Recently, I did re-architect a lot of it.

PAGT---the Palm Abstract Game Toolkit. This is a series of modules for making it easy to do up 2 player ab games (chess, shogi, trax, etc) in Quartus and as soon as I have a beta (alpha?) done, I'll release it for others to play with.

Finally, I, too, have been thinking about some sort of version control system. Given that other folks have expressed interest in this, I'll go ahead and open up a topic for this.

Regarding version control and resource helpers, you might want to take a look at the http://sleepless-night.com/cgi-bin/twiki/view/Main/QuartusForthDevelopmentEnvironment topic in the wiki.

-- Kris

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Critic on Quartus

By **Harry Winter** on Monday, August 6, 2001 - 03:08 am: Edit

Critic on Quartus?

In her latest book on ANSI Forth, <Forth Application Techniques>, E. Rather begins with a definition by Wil Baden:

< "Forth is a language for direct communication between human beings and machines. Using natural language diction and machine-oriented syntax, Forth provides an economical, productive environment for interactive compilation and interpretation of programs, low-level access to computer-controlled hardware, and the ability to extend the language itself." >

Every implementation of a "somewhat standard" Forth, be it quartus, quintus, sextus, or whatever, will have most of the above characteristics. What I am concerned with here about "Quartus" are two items, the <direct communication> and the <low-level access to computer-controlled hardware>. The first item apparently has to do with the "specialized" characteristics of the Palm OS, which is quite different from the "general purpose" features of the Windows OS's. The very nice Windows programming interface provided by Forth Inc. are a good example, but the simple or even primitive interface of Fig Forth or the MaxForth implementation for the Motorola chips (HC11, HC12 and 68000), which I am now using, provides a simple, easy to understand direct interface.

In Windows systems you can still use the RS232, Com1/2 with up to 1Mega Baud rate and connect it to a simple text editor suitable for Forth programming. The two RS232 ports of the Palm OS apparently have no such general-purpose nature. So why does Quartus not provide a "Hack" to do so?

A feature of most Forth system is the ability to "vector" EMIT and KEY to different types of drivers, and maybe Quartus can do it, but where is the "simple" explanation of how to? The only driver for the RS232 I am aware of is the one described in Handsprings publications, the <Keyboard Support Remote UI>. [Terribly complex, Header, Body, CRC, and a whole bunch of other crap] Then, of course, there is the <HotSync> feature, which works with USB, but also IR and simple RS232 at better than 230 Kbaud on my basic Visor. Where is the <low-level access to this computer-controlled hardware> in Quartus for all of this? And by-the-way, has anyone read Handsprings<White Paper > about the <Springboard Interface>? Their basic idea is that new <peripherals> for Palm Computers will become the big driving force in proliferating the PDAs. Where are the "hooks" in Quartus to operate this interface? (The only drivers I am aware of are in C language.)

Having the OS completely divorce the programmer from the hardware is the antitheses of Forth! --- It's a sacrilege! ---- Ok, I believe I know your answers - you can get this feature on this web-site and you can buy that part here, and you can "include" this and that etc.,etc.. It's like saying you can get the missing tires for our car at Sears and you can buy the headlights at Farm and Fleet and you can get the left seats at ….. Well, I rather have a car I can drive of the lot!

The ravings of an old man,--- Harry

By **Mike Will** on Monday, August 6, 2001 - 08:38 am: Edit

I agree, Harry. I must say though, that Neal is in a tough spot. Folks like you and I are always asking for more transistor control, while others want object template libraries!

On the weekend, I found a review of Quartus where it was criticized as being too "spartan". Isn't that a *good* thing? On PC's and embedded systems, I use eFORTH (how's that for spartan?)

Mike

Harry, while Quartus Forth does provide high-level access to the Palm OS, it certainly doesn't divorce you from direct control of the hardware. In fact, you can control individual lines of the RS232 port if you so desire.

Low-level control of the Palm's DragonBall hardware is accomplished via memory-mapped ports. You can access them directly in Quartus Forth, and quite simply (with !a and @a and friends). The exact addresses and values for controlling various aspects of the hardware change as the hardware changes; the Visor Deluxe is different from the Palm m505 which is again different from the Handera, and so on.

If I read you correctly, you want to redirect RS232 input to use it as a terminal interface to Quartus Forth. That's harder to do on the Palm OS than it would be on most desktop operating systems, because the Palm doesn't support streaming, file handles, and redirection in the same way that, say, Windows does.

That said, it wouldn't be impossible to work something up, but it wouldn't be as simple to do as it might be on a larger OS.

Neal

One "feature" of Palm OS is that all the applications run in Supervisor mode, so there is nothing preventing anyone from accessing whatever low-level hardware features they want. Just check the DragonBall documentation to find out the CPU instructions and the memory locations to poke/peek, and you can accomplish whatever you want.

I don't see a reason for Neal to provide nice "wrappers" for such things. Anyone who needs them should be able to whip up whatever they need.

-- Kris

I'm having a difficult time understanding the problem…

I'm having difficulty with the language being as 'seemingly' low-level as it is, since I'm used to the old Algol-like procedural languages, but from my understanding of the design concept of Forth, in general - not Quartus in particular - is that it is the small footprint, extensibility and the size and efficiency of the compiled object that are it's prime advantages. If a specific word doesn't exist in the kernel, or core, or whatever you want to call it, write one.

Allegories about cars from companies that quit selling them over 50 years ago seem misplaced - if you want a vehicle that does everything but drive itself, you can get it off the lot - at a price. But, if you want a real performance vehicle, then you do have to go here for some parts, and there for others - the stock "off-the-lot" car doesn't cut it as a race-car.

Quartus Forth, with it's small, efficient compiled objects, seem to be a good indicator of what's wrong with many oversized, complicated, very verbose languages out there.

Speaking for myself (not Harry), I'm not advocating nice wrappers. I'm advocating a complete, low level tool with which to develop commercial grade apps. That includes beaming, launchcodes (done), callbacks, re-vectored I/O, etc. What about Neal's built-in float package? Wasn't that written to protect us from the vagaries of the PalmOS?

Mike

Yes, one of the reasons that the built-in float package is there because floats were unreliable in the earliest versions of the Palm OS. However, it's not practical to try to wrap all the low-level hardware functions of each Palm device. The Palm OS itself does this to some degree, and if you're stepping outside of those bounds, you're in difficult territory -- the hardware is a moving target.

Neal

Neal, here's what we want:

- Tighter integration with the operating system

- Less dependence upon the operating system

- Take advantage of Palm OS

- Be more like Windows and DOS

- Direct low-level access to every hardware feature of every handheld model that uses Palm OS (current and future)

- High-level abstractions on top of the hardware

- More features

- Smaller footprint

- Low price and outstanding no-cost support

- And please have this done by tomorrow.

Seriously, I don't understand why people spend their time complaining about the "deficiencies" of Quartus. It's simple, it's easy to customize and extend. If there's a feature you want that it doesn't have, you can probably add it yourself.

Expecting Neal Bridges to do all the digging through documentation to find out what memory locations to strobe for every single handheld is not reasonable. If Neal had a staff of people available to do that, and if he charged what Forth, Inc. and other vendors charge for their products, then maybe we could expect that. But that's not how it is.

Right now, we have direct access to the hardware. If Neal was to put together a vectored I/O system and streaming I/O in the kernel, then people would be complaining that Neal's stuff takes them too far away from the bare metal. And really, how many people are there out there who need to communicate via an RS232 interface? I find the screen works pretty well for direct communication with the hardware!

-- Kris

Well, I hope you have at least a few of the items on that list already. 🙂

Seriously, that's the nail on the head. Quartus Forth is an extensible system; most anything can be added to it, and the contributions here in the File Area and the exemplary entries in Quartus Forth Wiki are a testament to that.

Neal

I do *NOT* want things that can be added with higher level words. In the biggest app I've written so far, I spent 2% of my time writing higher level Forth and 98% of my time trying to interface Quartus with the PalmOS (and dealing with the PalmOS on its own).

Kris, have you tried beaming or inserting a sorted record from within a Quartus app? Modifying the kernel is something that only Neal and God can do. When Neal tells me he no longer wants suggestions, I'll shut up. I don't make idle request just to waste our collective time. In fact, if anyone has argued in favour of keeping blubber out of the kernel in the past, it's yours truly.

Mike

Your suggestions -- and everyone's -- are certainly appreciated, Mike.

Neal

My comments weren't really directed at your comments, Mike. I'm sorry if I left that impression. I agree that there are some features that would be nice to have in the kernel.

-- Kris

The Palm OS is really the problem. When the Palm first arrived on the scene it was far better than any other PDA before it. However, I personally believe the Palm OS has had its day in the sun and we are seeing the end. When I can put a full Linux implementation running Xwindows on an iPAQ, "Why use a rudimentary OS like Palm?" is more than a casual query. Quite frankly, the Palm OS simply isn't "good enough" for what developers and users are demanding from their PDAs at this point in time.

The Palm was a breakthrough device that expanded the concept of personal computing as it was previously understood by the non-technical public; but (BIG mistake #1 by 3COM) it was merely marketed as an "organizer" instead of a computing platform. Palm has stayed on the "organizer" bandwagon to this day despite other companies finally "getting" that PDAs and mobility are the future of computing platforms.

The things everyone wants that are mentioned in the above posts are already available in operating systems like Linux and Windows. The real question is "Does the world need another fully functional OS?" Whether "yes" or "no", I doubt that Palm has the capital or technical resources to actually develop, let alone successfully market such an OS.

As much as I have enjoyed the Palm device, I am seriously considering the future of PDAs sans the Palm OS. I frankly expect be able to use my Palm OS based device for another year at best. I think Palm, Inc. has seen the handwriting as well. Their recent spin-off of the OS portion of the company from the products division places them in a position to make the same mistakes others have before them: "we're an OS only company". Which begs the question "Why would you purchase an embedded OS when there are so many free ones out there?"

Like fully functional and still usable operating systems such as CP/M, DOS, Windows/286, Concurrent DOS/386, and OS/2; the PalmOS may hang on in the sidelines, but I don't think it is going to be known in the mainstream PDA future.

Quartus forth, to me, was the greatest Palm app ever developed. It opened the device up to me to

write the apps I wanted, when I wanted, whereever I happened to be. The biggest frustration was my own inability to program at the low levels I sometimes needed, but the people on this forum have always been the best Palm resource ever. I have never had as much fun with any computing device as I have had with my series of Palm devices and Quartus forth. But that will not save the Palm. 😟

Fully functional operating systems with the myriad development and end user features we all expect in a "real" computing environment are possible where megabytes of RAM, powerful processor, and 1gb drives the size and weight of a quarter are commodities. And in the case of Linux, there thousands of developers working on base operating system enhancements and improvements daily on over 20 different hardware platforms. An app developed on Linux runs on all of them; hence the potential marketplace is a lot larger than in the Palm vs. Win/CE userbase.

It is harder and harder to personally justify the efforts required to overcome the limitations of the Palm OS. (Where's the fully functional graphics API that'll allow me create an app that'll draw images on my PDA at a job site, turn them into DXF files on the shop floor and upload them to the CNC Router?) Neal can't do it all alone, and there are just too many "we need"s out there pulling in too many directions.

Enjoy Quartus forth for what it is: a powerful tool that helped redefine how people thought about and used computing devices.

By **Neal Bridges (Nbridges)** on Thursday, August 9, 2001 - 11:31 am:
Edit

Thanks for the kind words about Quartus Forth. It sounds like you're playing "Taps", for the Palm, though, Dave. 🙂

The Ipaq is a powerful device, no mistake. But it still fills a different niche than does the Palm. The Palm has far greater battery life, and is much smaller and lighter than the Ipaq; this means the Palm gets carried more places and is more ubiquitous.

The next step for Palm is an ARM-based PDA. Where that will take them remains to be seen.

Neal

By **Mike Will** on Thursday, August 9, 2001 - 01:20 pm: Edit

Well, perhaps we're going in too many directions at once here, but…

1) I personally don't need the Palm to do anything more than what it already does; I would just like Quartus to fully support what's there now. This would allow me to abandon CodeWarrior and keep Quartus, which is my goal.

2) I agree that Quartus is the coolest piece of software ever invented. Neal's support for it and its users is unbelievable. I wouldn't ever ask Microsoft or Sun or Oracle for the stuff I routinely ask Neal for, yet I pay them many thousands of dollars each year. However, I also don't say kind things about them when they're not in the room, as I do for Neal.

3) I always enjoy reading the thoughful posts of fellow Quartuscans like Kris and Dave (what ever happened to Erwin? 🙂)

4) I see the future a bit differently than Dave. I think the PC has been shrunk almost beyond its useful limits. You still need a lot of bulky I/O (especially graphics) to make it useful as a PC. I see more progress in the opposite direction: smaller, simpler, lower powered devices that can move ever closer to real human symbiance. I expect to see implantable human memory expansion in my lifetime. Anyone who thinks that a true man-machine interface will be based on Windows (or Unix) is dreaming in Pan-O-Vision.

5) I have re-established Chuck Moore as one of my personal yogis (thanks to Kris' Wiki content). His horror at bloatware is refreshing and entertaining (but seriously Chuck, "what up with that crazy

ColorForth dealio? Must be some seriously good weed in silicon gulch these days.").

Mike

By **Neal Bridges (Nbridges)** on Thursday, August 9, 2001 - 02:20 pm:
Edit

Mike, if it will make you feel better, please do send me thousands of dollars. ☺

Neal

By **Mike Will** on Thursday, August 9, 2001 - 05:27 pm: Edit

Thanks, Neal. It would.

But first, I must write a commercial grade Quartus app ☺

By **Kris Johnson (Kdj)** on Thursday, August 9, 2001 - 09:16 pm: Edit

The message that opened this topic suggests that Quartus is somehow not really Forth, because it does not provide "direct communication" nor "low-level access" with the hardware. I think that is clearly wrong, as Quartus provides whatever low-level access one could want. There are some "mid-level" OS integration issues that could be improved upon, but I don't think that really has anything to do with the "Forth-ness" of Quartus.

But there's a much larger discussion (flame war?) about what really constitutes Forth. The quote from FAT is one definition, but not the only one (or even the "official" one). Other Forth users feel differently. Depending upon who you talk to, Forth is

- a high-level programming language
- a low-level programming language
- a machine language
- a scripting language
- a command processor
- an operating system kernel
- a philosophy of software/hardware design

None of these is completely right, and none is completely wrong. Different people use Forth for different purposes, and as long as it serves those purposes, they are using it correctly, in my opinion.

As long as you have a dictionary and two stacks, you have Forth, as far as I'm concerned. The rest is just a matter of taste.

-- Kris

By **Harry Winter** on Friday, August 10, 2001 - 03:27 am: Edit

From the <Grouchy old man> who opened this discussion. (I too have a name Kris, besides my self appointed title.) And you are right, I should not have questioned the "Forth-ness" of Quartus, it is really the Palm OS that I am so pissed about. Neal did precisely what many critics of Forth have demanded for so many years, <provide a tighter and better integration into the operating system of the computer>. Trouble is, if the OS is too specialized and limited, then so is the Forth compiler/interpreter.

What Dave Bennett writes in his post, beginning with <The Palm OS is really the problem … > is what I had strongly felt on an "intuitive level" This OS provides no general purpose I/O and I have the "feeling" that the control over the LCD display will also be too restrictive. (I have to face the display problem when my <Tricorder> peripheral design is finished.) Just as the early operating systems from Microsoft would not provide the performance needed by PC game developers, the Palm OS restricts program development for anything that does not do an "organizer job".

[Concerning the display, very likely, you are all too young to remember these early days of PC games. Programmers had to violate many rules (laws?) of Microsoft's OS, and it took a long time, and the growth of a multi-billion dollar game-industry, befor Bill Gates to got the message. No one took the game programmers to court for violated the laws of Bill Gates, --- it is not a crime Neal!]

What is Forth Kris? My personal "Bible" for this is Phil Koopmans book, STACK COMPUTERS, about the virtual Forth engine, but I am really getting to old for all the "new-fangeld" stuff, e.g. I have no idea what an <object template libraries> is.

For me, a "good old Forth" is something that has a TIB and a PAD, which I can use in compile as well as in run mode. And there are other variables in RAM for KEY and EMIT, which point to Control Blocks for the input and output routines. These routines always came with the Forth system; I never had to write them myself! Did you know that the <CodeWarrior> people also found it necessary to use the serial link (RS232) for the communication job in their Console Mode when using the debugger?

Page 8 of < http://www.handspring.com/developers/tech_faq.jhtml > and their version R7 also supports debugging through USB. However, the instructions for getting this to work takes a whole paragraph, and all the buttons you must push or not push takes more than ten fingers. (And a younger brain than mine.)

To find out how fast the DragonBall (The MC68EZ 328, 16.58 MHz for the basic Visor) can operate its serial links, I downloaded Motorola's specs, -> 300 to 115 KBaud standard rates and 1 Mega-byte max. It has a 12-byte input and 8-byte output FIFO. That makes for a RELATIVELY POWERFUL PERIPHERAL INTERFACE. The USB, however, is only a slave version to be connected to a host processor. (Not a peripheral)

Neal, for all the different versions, there must be a place in the Palm OS where it does all the vectoring for the I/O registers, including the UART control registers, after all, it is the same processor chip. If you should ever find the time to write any new routines, such a serial I/O would make this old man very happy, and maybe many other designers of peripherals for the Palm computers also. (Don't listen to Kris for this.)

The present Palm OS provides no "simple" and "general purpose" interface to any peripherals. What is provided is specialized and complex "plug-and-play" stuff for computer-complete-illiterates.

Harry, retired.

By **Kris Johnson (Kdj)** on Friday, August 10, 2001 - 06:23 am: Edit

The future of the Palm OS is hazy. On the one hand, its simplicity is beneficial. As long as Palm wants to continue selling 256K devices, I think they will need Palm OS.

A "real operating system", like Linux, running on a handheld is nice, but there are some tradeoffs. It needs more memory, and requires more sophistication on the part of the user.

I haven't tried an iPaq, as they are so expensive. I played around with Agenda Computing's handheld for a while. It was nice to have Linux on a handheld, but I really got tired of having to go to a console to kill processes that wouldn't die.

If Linux is going to succeed on mass-market handhelds, developers are going to have to make it as easy to use as Palm OS. Based upon what is happening with Linux on the desktop, I don't think things will ever get that simple. If you have a complex operating system, then developers write complicated applications for it.

But Linux handhelds would be great for specialized applications where you can assume a certain level of sophistication and training for the users.

-- Kris

Why I like Chuck Moore's writings so much is that he is very hesitant to concede that complexity = power. I wouldn't be too quick to discard the PalmOS as underpowered. Finicky and weird, perhaps, but quite nimble for single task, single user apps.

Witness apps like thinkDB (a relational database with good features and performance). When I run thinkDB on my Vx and put it next to my PIII-800 Oracle workstation at work, it's hard to see much difference in performance for small databases! There are also some smooth, compelling games I've seen for the PalmOS (Zaxxon, SimCity).

I'd like to see a palm operating system written from the ground up in Forth (or Lisp). Perhaps someone could whisper it into Microsoft's ear so they could then claim to have invented threaded languages and make them a commercial success.

Mike

I agree. I'm quite happy to continue using Palm OS as is for what I do with it (organizer, note-taking, and games).

But as Harry notes, the simplicity and "single-mindedness" of Palm OS is leading to a lot of customized, incompatible interfaces for peripherals and other features. Every OEM is extending things just a little bit to suit their needs, but they are all going in different directions. And the proliferation of Hackmaster hacks and other system extension tools makes things chaotic and unstable.

Unfortunately, it is often true that generality = complexity.

-- Kris

Palm down 93% from 52-week high.
Handspring down 96% from 52-week high.

Maybe none of us will need to worry about the PalmOS for much longer.

Mike

Stock price doesn't necessarily have anything to do with whether the companies will stay in business.

But, as someone who bought PALM at $44/share, I've certainly been paying attention.

-- Kris

True. The entire tech stock market is greatly deflated nowadays; Palm's poor showing is on par with their competition, plus or minus depending on which leg any particular company was putting its weight when the bubble popped.

Neal

I don't want to put words in Harry's mouth, but it seems the key issue he is fussing about is the relativly less "interactive" nature of Quartus than many forths on the desktop: Graffiti is way slower for most of us than keyboards, and it seems that Harry wants to plug in a serial terminal and have at it. Harry, have you tried a Palm keyboard?

Also, of course, Quartus does not have the dictionary in compiled apps, so executables do not have access to the full forth system. This makes Quartus different than most desktop Forths. I have no direct experience, but I know many "embedded" Forths are cross-compiled on a PC to generate code for a simple device. I imagine that such systems also leave the dictionary and interpreter behind. I believe that this is a valid design choice for a limited device like the Palm, as well.

By **Mike Will** on Saturday, August 11, 2001 - 11:05 pm: Edit

It seems strange to label a 16MHz 68000 machine with 8Meg of RAM as a "limited device" for Forth. Harry: this thread of yours is starting to make me feel like a fossil too!

Mike

By **Harry Winter** on Monday, August 13, 2001 - 07:03 am: Edit

OLD AGE HAS "ONE" ADVANTAGE

One gets to look back on a lifetime of "evolution in electronics" to see the trends.

My first experience with (FIG) Forth was on the RCA chip-set, the time of the 8008, the 6500 and the first ATARI with 8-bit micros at one and two MHz . The serial I/O was a 300 Baud RS232 driven by a "bit-banger". (Anyone still know what that is?)

Do you really believe Mike that I consider a 32-bit 16MHz 68000, with all its high-speed I/O, a "limited device"? I don't, but Intel, TI and Motorola are cooperating on the specification of a new v6 ARM chip to replace it. (EETime, August 6, page 45) -<<< Texas Instruments, for its part has pledged to develop an ARM based wireless processing platform optimized to support the Palm OS. >>> Are you reading this Neal and Dave? It means we will have to live with the Palm OS for many more years to come, and with all its limitations.

What are these limitations? I believe Kris has said it quite nicely: >>> the simplicity --- [I would have said "useless complexity"] and "single-mindedness" of Palm OS is leading to a lot of customized, incompatible interfaces for peripherals and other features. Every OEM is extending things just a little bit to suit their needs, but they are all going in different directions. And the proliferation of Hackmaster hacks and other system extension tools make things chaotic and unstable. <<<

How important are the peripheral interfaces? I believe that, historically, they were "vital" for the incredible business success of the PC. Just imagine you had to use your PC without a printer, without a modem, without a floppy or CD drive and no standard ISA or PCI bus to plug-in other peripherals. The lack of good interfaces for very early PCs created a whole new (cottage) industry. (A Company in Acron Ohio, Quartek, which I know quit well, made a multi million-dollar business just with providing fast RS232 and printer ports and the software-drivers for it.)

The Palm computers are apparently also at this very early stage, and even while the "hardware" is providing the necessary I/O, the OS throws it all <into one pot> to cook it on their <Hot-Sync stove>. [A one-pot stew or what the Germans call an "Eintopf"!]

This limitation is "the one vital flaw" that Jon Titus is not aware of when he wrote his editorial on the Pam computers. And I believe that this "Eintopf" I/O is what's holding back the development of the peripherals Jon Titus is predicting. Since Forth was the original instrument control language, I believe it has the "duty" to provide these missing software-drivers to enable the already existing and powerful hardware I/O.

Here is the article by Jon Titus again, (Just erase it Neal, if you hate repetition.)

TEST POINTS -- USA-special edition, September, -- Europe-edition, Oct./Nov.

PUT AN INSTRUMENT IN YOUR PALM, by Jon Titus, Editorial Director, Test&Measurement World

When IBM introduced its first PC in 1981, it did a smart thing. It provided information about the computer's bus and its software, so almost anyone with some software or electronics experience could produce add-in cards or software for the computer. If IBM had offered a proprietary bus and had hidden the workings of its software, its PC would have been a footnote in history. Instead, the IBM PC became the starting point for many innovative designs.

Another type of small computer lurks, ready to tackle instrumentation tasks. It comes with a built-in display, a touch screen, I/O connection, easy connection to a PC, and an IrDA port. Surprise, it's the computer in all those portable digital assistants, or PDAs, that many of us rely on to store information. Most users wouldn't think of a PDA as an instrument controller, but most IBM PC users didn't think of their word processors as instrument controllers, either.

Recently I bought a Handspring Visor PDA. The Visor runs the Palm operating system (Palm OS), and it comes with an open slot for Springboard modules. I'm intrigued by the possibilities of that open connector. Various companies already offer memory-expansion, modem, game, and camera Springboard modules. Data-acquisition and I/O modules won't be far behind. If you prefer the original Palm PDAs, now you can buy data-acquisition add-ons from Datastick (www.datastick.com)

The specs for the Pam OS and for the I/O connections on these PDAs are open, and you can download them from the Palm OS Web site (www.palm.com). No, you won't have to code in assembly language. You can use freeware tools such as GNU, or buy the Code Warrior C/C++ compiler package from Metrowerks (www.metrowerks.com) for a few hundred dollars. And you can even find a version of Forth for Palm OS (www.quartus.net)

Granted, a Palm Pilot won't control high-speed ATE, but it might suit many portable instrumentation needs. How about a basic DMM module, or a simple logic-analyzer module? Yes, screen sizes are small, and you may dislike using graffiti lettering for data entry, but improvements are coming and accessories such as full-size keyboards are here now, Just remember, IBM PC came with only with a monochrome monitor that displayed simple character-based graphics. Not much potential there, right?

The Palm devices all have three "Hardware types" of I/O, two very high-speed serial (RS232 type) one for wire, one for IR; a USB port to host processors only and a parallel port which is a derivative of the PC-Card bus. (The PC-card bus, the Memory card slot for Palm and Springboard for Visor --- all are 99.9% similar, but just as incompatible as the 99.9% identical Genes for Apes and People!) And the serial I/O, which is "standard" at the hardware level, is all thrown into one pot for one type of application. [Hot-stink]

Is this done for or with "simplicity" Kris? Apparently not, because if I ever had any daubs about what "complexity" was, I would study the very many pages on the Palm web-sites you gave me, which describe the serial I/O routines.

http://www.palmos.com/dev/tech/docs/palmos/SerialCommunication.html --- and:

http://www.palmos.com/dev/tech/docs/palmos/SerialManager.html

I will try to get the "Forth source-code" for the serial program of the DragonBall 68000, provided by Newmicros Inc.. Like most micros, there are only four or five registers to handle the RS232 links, transmit and receive data register, status register and control register and the Baud-rate register. I suspect that the size difference between Palm Inc. and Newmicros Inc will greater than 100.

Mike, the "complexity" which Chuck Moore hates so much is the one that "lowers" the power and totally restricts what you can do with it! Just look at his NC4000 (RTX2000), they are "simplicity

incarnate" with super performance. I do the same type of designs with one difference, what Chuck can do in ten weeks takes me ten years to do.

To get a good idea about what Chuck does, take another look at my second last post in "Every Thing Else"--- "Second Forth revolution"--- "Very late Letter to Darren Cook". It's the quote from Wright, just replace "cellular automation" with Forth. I send this article to Chuck many years ago and he was delighted enough to send me a long answer.

Is this the longest posting on this web-site? Sorry about that, --- Old people repeat themselves, and here is another repetition, specifically for Neal.

I believe Forth has the "duty" to provide the missing software-drivers to ENABLE the already existing and POWERFUL HARDWARE I/O of the Palm computers.

Harry

By **Mike Will** on Monday, August 13, 2001 - 11:41 am: Edit

That's interesting about the quote from Wright on cellular automation. One of my favourite books is "Artificial Life" by Steven Levy (Pantheon 1992). It's all about cellular automata and parts of it read like a Forth instruction manual. Neal, if you like biographies of great names in math and computer science, this is a must read if you haven't already.

Mike

By **Neal Bridges (Nbridges)** on Monday, August 13, 2001 - 02:19 pm:
Edit

I think Bob Cunningham holds the record for longest post, Harry, but keep trying. 🙂

I daresay it's tough for a programming language to have a 'duty', as such, but certainly if you need something that you think is missing, the best way to make it exist is to create it. I'm happy to help, as always.

Neal

By **Neal Bridges (Nbridges)** on Tuesday, August 14, 2001 - 05:53 pm:
Edit

I'll check that book out, Mike -- thanks!

Neal

By **Harry Winter** on Wednesday, August 15, 2001 - 03:48 am: Edit

Well Neal, so you are asked your "customers" what they are using your Forth compiler for? It's a good idea, but I hope you realize that the results you are getting also have a "reverse side". Indirectly, they will be telling you for what they are NOT USING your compiler! (And I believe that will be "professional programs", defined as $100,000 and up. The cost of 6 engineering/programming man-month.) However, in today's World markets you can earn money with nearly anything, such as coffee cups for left-handers or compilers for "geeks", as long as it appeals to a small group of people. (A niche market) I see nothing wrong with that Neal - money is money! The question is, is that what you want to do and want to be recognized for?

Don't know if you are aware of it, a Forth compiler for a small hand-held computer is nothing new. The giant Japanese company <Matsushita Electric, Ltd.> commissioned such a program for their "Quasar" Hand Held Computer, a 1MHz 6500. This was in 1982, before your time, and the job must have taken at least several programmers. It was a BIG job and Matsushita very likely paid millions to get it done.

I believe, the fact that your Quartus uses ANSI Forth makes no big difference, the performance of Forth has not advanced much in the last 20 years. The million-dollar Quasar compiler created

stand-alone program capsules, interfaced with all the sophisticated calculator and other routines, but most importantly could be cross compiled on a desk-top computer (the Apple 2) and drive its own ROM burner. This little thing was teaching me Forth, I even managed to write a decompiler for the tricky "token threaded" Forth code they were using. (It worked 99% of the time)

Why did the other "engineering Geeks" and I buy this Quasar with the Forth compiler? Because I was a "Geek" at the time, meaning, smart and good at engineering, but not fully grown-up! This little hand-held allowed me to pursue my hobby, engineering, wherever I was. It let me carry a "super-toy" in my pocket! This is similar to what Dave Bennet writes in his post:

>>> Quartus forth, to me, was the greatest Palm app ever developed. It opened the device up to me to write the apps I wanted, when I wanted, wherever I happened to be. ---- I have never had as much fun with any computing device as I have had with my series of Palm devices and Quartus forth. But that will not save the Palm. <<<

(Or Neal's present Quartus version.) Asking your fellow geeks (customers) what they are presently using your program for will not tell you how to make it into a "professional" product. This question, if incorrectly interpreted, leads to the classical business mistake, stifling progress and innovation. (Professor Christensen)

As I said many times, while Quartus forth is a powerful program, it has some vital elements missing to make it suitable for a "real" job I want done. The hardware I/O of the DragonBall or ARM needs to be "enabled" for two reasons. Peripheral interfaces and "professional" programming, which is being done on a PC-Workstation with all its resources, not with a 10 cents plastic stylus on a Miki mouse screen.

As you said Neal, >> if you need something that you think is missing, the best way to make it exist is to create it [yourself] << It's honest! = "The customer is an idiot!"

By **Kris Johnson (Kdj)** on Wednesday, August 15, 2001 - 10:44 am: Edit

I don't think Neal is treating any of us as idiots. I believe it is Harry Winter who is claiming that the rest of us are unprofessional, inexperienced, and/or just plain stupid.

I don't think there are too many people who are aching to use Forth on Palm OS handhelds for peripheral interface programming, nor are there too many people who want to bypass the Palm OS to do so. There are a few, but probably not enough to make it worth Neal's time. I seriously doubt any Forth product can make a dent in the C/C++-dominated Palm OS development market, no matter how many features it has.

If you think that developing a "professional" (in your opinion) Forth environment makes good business sense, why don't you do so yourself and show the rest of us how wrong we are?

You continue to claim that Quartus is somehow standing in the way of using the serial ports. Maybe that's true--I don't know exactly what it is you are trying to accomplish. But, as has been stated over and over again, Quartus is not standing in your way. I think everything you need is documented. If you do some investigating and programming, you can do it yourself. Why insist that Neal do this work for you for your specific purposes?

-- Kris

By **Neal Bridges (Nbridges)** on Wednesday, August 15, 2001 - 11:04 am: Edit

Thanks, Kris.

Harry, certainly I don't think any Quartus customer is an idiot; on the contrary, they show remarkably good taste and intelligence by choosing to run my products. 🙂

I disagree about Standard Forth not mattering. I wouldn't be in the Forth compiler game if not for the ANS Standard; it's a solid baseline, and highly desirable to the customer base.

Perhaps you can be more specific about what it is you want to achieve, Harry, and how you feel the current system is holding you back? You've talked about the Springboard interface, and that's all there; the Handspring API is fully enabled, and the Springboard interface itself is simply memory-mapped I/O.

Neal

By **Kris Johnson (Kdj)** on Wednesday, August 15, 2001 - 11:40 am: Edit

Just out of curiosity: if Neal did come up with a "Quartus Forth Professional" product, which did everything everyone is asking for, and charged $500 or $1000 for it, how many units do you think would sell?

Neal is open to suggestions and is always working to improve Quartus. This is great. But it's also valid for us to make "anti-suggestions" if we like Quartus the way it is and don't want any dramatic changes.

If the time ever comes when using Quartus requires me to use a cross-compiler and a terminal emulator to develop my programs, I'll just buy CodeWarrior.

-- Kris

By **Neal Bridges (Nbridges)** on Wednesday, August 15, 2001 - 11:53 am: Edit

An interesting thought, Kris. I wonder what could possibly go into such a Quartus Forth that would justify making it a whole order of magnitude more costly?

Neal

By **William Tanksley** on Wednesday, August 15, 2001 - 01:31 pm: Edit

Harry, I have to guess what you're asking for. I can see two things: your main complaint is that PalmOS doesn't have good enough driver support (very true, and the Springboard standard is supposed to remedy that; PalmOS 4 is also supposed to help), and your second complaint appears to be that the debugger isn't good enough (you mentioned this in your second post).

It so happens that there's a Forth-based debugger for PalmOS, named "debuffer", at http://debuffer.sourceforge.net/. I don't know if that helps at all, but I think you made some sort of complaint on that issue. If so, good luck.

If I'm totally wrong, please clarify! I've enjoyed your posts and would like to understand this one.

-Billy

By **Neal Bridges (Nbridges)** on Wednesday, August 15, 2001 - 01:41 pm: Edit

Palm's own debugger is also available free; it allows debugging across the serial interface as well as with the emulator.

http://www.palmos.com/cgi-bin/sdk40.cgi

Neal

By **Kris Johnson (Kdj)** on Wednesday, August 15, 2001 - 02:01 pm: Edit

The additional order of magnitude in price for "Quartus Pro" would be to cover the staff of people that would be needed to update the low-level I/O for every Palm OS handheld that ever comes to market. And to create the cross-compiler, high-level debugger, low-level debugger, Forth editor, ... Basically, I'm assuming you'd have to do everything Metrowerks does, and everything Forth, Inc.

does.

That price would also be necessary to convince people that it is a "professional" product. No one takes inexpensive (or free) development tools seriously, no matter how powerful they are, unless Microsoft or Sun is the party giving them away.

And of course, you need a big box and thick manuals. The shipping alone for each unit would have to be $50. No more of this "shareware" thing.

And don't forget the cost of lawyers.

-- Kris

Well, we wouldn't have to eat lawyers every day; just as a special treat now and again, say when there's a new release. 🙂

Neal

The Quartus Pro would also have to sport the Forth++ language, even if that means ANSI + Neal & community extras. Or maybe the language needs to be called bagel to go along with that cup of java.

Seriously, I think Harry seems to argue in favor of the "Forth out crowd" who view anything Forth as the realm of geek play toys and there is nothing serious ever produced from Forth. Kinda sad really since I have found the language to be extremely sucinct and yet wonderfully fluid. Takes some getting used to wrapping my procedure or OOP warped mind around the different syntax of Forth, but once you get past that speed bump, you find you can develop much faster in Forth because it is so interactive. I can play with the language, experiment, then turn those into real functional stuff in a small amount of time. And from the standpoint of professional, it seems that Forth developers pride themselves on delivering a system written on top of Forth and keeping it a secret except to the other "Forth in crowd". I tend to like it that way. So long as other programmers shun Forth as a geek play language, I can continue to produce code faster than they which also runs faster and has fewer bugs and is not bloated to the point where you need a shoehorn to squeeze it into an older system. More than a year ago I posed the question of how to turn my shop onto Forth. I never was sucessful. Now, since I was laid off in January and have had to fend for myself, I have found it easy to convince my new boss (me) that Forth is the way to go. Now if I can just find a Forth for windows that I am truely happy with, one which produces native code and simplifies some of the Win API issues. I would love to have a Forth for Windows which has an API like Java. But guess I won't see that 'til I produce it myself.

I think this thread is causing rancor because it's too theoretical.

Forth is a tool best suited to a lone, intense programmer who likes to commune with a CPU (a geek or a samurai, depending on your perspective). C++ is a tool best suited to a collaborative group of 9-to-5 folks (robots or professionals, depending on your perspective).

Most labels are subjective. I just want a sharper sword. Not a more 'pure', 'professional', or 'standard' sword; just a sharper one. Quartus is a good sword. Perhaps not the "Green Destiny" quite yet, but a good sword. The smith has been kind enough to offer us a chair near the forge and has invited comments and suggestions. I intend to neither deify nor insult him.

Mike

Being declared "THE WEAKEST LINK" by the powers of Quartus, I'll have go, but if I find a solution to vector EMIT and KEY to the RS232, I might come back. This then is the parting statement of a "condemned engineer", and I hope you will be kind enough to read it. All I ever really wanted was the above feature, which would have solved all my troubles. Such as being too old to write a long program in "Graffiti" and editing it on a tiny screen and not having a simple (cheap) interface for my peripheral designs.

Fortunately, every one of the existing Forth compilers for embedded micros I know of still has this simple feature. NewMicros Inc. gives away for free a very simple PC-editor for program development with all their micro-boards, and there are many more around as free-ware.

I never said I wanted a cross compiler --- it's is not "in the spirit" of Forth.

I never said I wanted a special debugger --- Forth does not need one.

I never said that Quartus using Graffiti and Palm display was a bad idea. Contrary, it's a great idea, which makes the tiny Palm a self-contained programming platform. It lets you try-out small program algorithms on a business flight from California to Montreal.

I never said that Quartus was not a modern and powerful compiler, it truly is and with a price tags that is a give-away.

Having said this, I accept my condemnation as "the weakest link" and bid you farewell.

Harry

By **Kris Johnson (Kdj)** on Thursday, August 16, 2001 - 09:22 am: Edit

I don't think any of us wants to see you go, Harry. I'm sorry if I haven't been helpful enough, but I really don't understand what it is you need, and I don't think I'm alone in that.

You don't have to write programs in Graffiti. If that's what your question was about, we can help you with that.

I don't think anyone has condemned you as a weak link. You started this thread talking about how Quartus is "sacrilege" and later that it is not "professional". I disagree with that, so I argued, but I think you've made some other good points as well.

-- Kris

By **Neal Bridges (Nbridges)** on Thursday, August 16, 2001 - 11:01 am: Edit

Harry, it's not so tough to have EMIT and KEY work through RS232; the building blocks are all there. BUT -- and this is important -- that wouldn't suddenly make the whole Quartus Forth console work via the serial port, which is what you originally professed to want. The interactive console is based around the Palm GUI, and isn't simply an extension of EMIT and KEY.

You haven't been condemned by anyone here as far as I can tell, and certainly not by me. If you find yourself wanting to write some Quartus Forth apps again, please do come back; all are welcome.

Neal

By **SamuelTardieu** on Thursday, August 16, 2001 - 02:25 pm: Edit

I must say that I totally agree with one point of Harry's message: I too **really miss** the possibility of overloading emit and key.

While I understand that Quartus Forth is doing clever things in the current implementation of those calls related to the graphical console of the Palm, I do not understand why there is no way to insert

a test at their beginning.

```
variable emitXT

: emit ( c -- )
emitXT @ ?dup if execute exit then
[...]
```

and the same thing for key would be enough for those of us who want to use a serial link to do their development.

I would be greatful to you 'till the end of times (maybe even more) if you added this!

Sam

PS/ incidentally, I wrote a tiny incomplete Forth compiler from scratch for the Palm (cross-assembled from FreeBSD) during my last vacation, and the only interface I had was a serial interface

By **Neal Bridges (Nbridges)** on Thursday, August 16, 2001 - 02:33 pm:
Edit

Sam, it's a bit more complex than that. What would you expect such a redirection to achieve -- that is, what is it you're trying to do? If it's the same as Harry, to use a serial terminal as a replacement Quartus Forth console, a simple patch into KEY and EMIT won't do the trick.

Neal

By **Kris Johnson (Kdj)** on Thursday, August 16, 2001 - 07:54 pm: Edit

For those people who do want to "hook" into existing words, wouldn't it be fairly easy to write a word that patches code? So that, for example, one could do something like this:

```
: myemit ... ;
' emit ' myemit patch ;
```

My idea is that PATCH would replace the first few bytes of EMIT with "JMP myemit". This is ugly, but might make it easier for people to customize some aspects of Quartus without the need for kernel changes.

My biggest question for Neal would be how this affects standalone application generation.

-- Kris

By **Kris Johnson (Kdj)** on Thursday, August 16, 2001 - 09:53 pm: Edit

I've implemented my PATCH word. I'm not sure what all the implications of using it are, so use at your own risk.

http://sleepless-night.com/cgi-bin/twiki/view/Main/PatchModule

-- Kris

By **Neal Bridges (Nbridges)** on Friday, August 17, 2001 - 01:48 am:
Edit

Check the Wiki -- Chapman Flack has already done most of this work; perhaps the two can be merged.

Neal

Oh, I see. I thought Quartus had a typical QUIT inner loop, using KEY or ACCEPT (and EMIT for displaying), and that those routines had been rewritten to accomodate Palm graphical screen.

You're right, Sam. Because of that, ACCEPT is in no way based on KEY. Among other considerations, EMIT is based on TYPE, as opposed to the other way around, and exception messages are written to the screen with a special routine to ensure that they wrap at the edge of the screen. So you see, simply patching EMIT and KEY wouldn't give you console redirection.

Neal

Let me stop for a second and clarify, however. Is it really a major concern for developers to be able to hook a serial terminal up to their Palm in order to use the Quartus Forth console via the keyboard of that terminal? Nothing else would be gained beyond the use of the terminal's keyboard -- surely the Palm folding keyboard is the right answer to that problem. It works in Quartus Forth, the MemoPad, and all other Palm apps, and requires no code modifications.

Neal

I do not agree: I would like to be able to use a serial link as the Quartus Forth console to recover the full interactive aspect of Forth (note: this is not a criticism against Quartus Forth, only against Palm's apparent single-tasking system).

More precisely, the way I intend to work if I had a serial console is keep my files on the host (a laptop for example), run the Forth on the target (Palm) and use copy/paste to "feed" the target with my words (manually or semi-automatically).

If a word does not work as expected, I can quickly try a new definition (without leaving Forth to switch to the editor), update it on the host, and reload (copy/paste) only what is needed, not a full file (in case someone suggests to use a MemoDA which allows editing without leaving the running program).

When a bunch of words work correctly, then I can transfer them into a memo, which will be included rather than read from terminal next time I use Quartus, to keep trafic on the serial line low. I can even imagine a word which would take as arguments a name and a version, and would build a Memopad entry with everything input on the serial line up to a predefined delimiter (that part can already be done in Quartus Forth).

Moreover, it is easier to automate test suites on the host, as well as to keep version controlled files (hot topic?).

So yes, it requires two computers (host and Palm), but it solves concerns that neither a Palm keyboard nor the PalmOS emulator can solve (automated tests for example).

Once again, I can live without the ability to use the serial link as Quartus Forth input/output, however, if it is there, I will for sure use it!

SAM, your last post makes me break my promise to be only a "silent" reader of this forum, and this message is for your eyes only --- no one else understands it.

What you have said in your last post is precisely what Wil Baden, the leading authority for the creation of ANSI Forth says in the first sentence of his definition, < "Forth is a language for direct communication between human beings and machines."> Elizabeth D. Rather quotes what Bil Baden said in discussing his definition, "This first sentence tries to capture the general spirit of Forth." And for the meaning of the word <environment> in his definition he says: "Forth is not just a language, it's an environment. You and the language become one and invade the machine. ------ Forth is the most interactive of programming languages. Programming and checkout are not separate phases, but intermingled in one interactive sharing."

It never was a question of replacing the $75 <Folding Keyboard> with two or three pages of new Forth code. (However I would gladly pay that amount for these pages.) It has to do with all the resources of my PC with its large screen. But most importantly, the tight marriage to the Palm OS and its layperson <HotSync> are eliminating the intimate contact between programmer and his machine.

Anonymous

By **Kris Johnson (Kdj)** on Saturday, August 18, 2001 - 09:51 am: Edit

Harry, I almost don't want to comment, because I don't want you to consider this as an attack. But in the same way that you think I don't understand you, I think you don't understand me.

I don't understand how a serial link to a handheld can be considered more "intimate" than using the handheld directly. If you want to have all your source on a PC and take advantage of all its other resources, then that's fine--I don't argue with that nor do I not understand the merits.

But I contend that that method is not "direct communication" with the handheld. I become one with the handheld when I am Graffiti'ing or using a keyboard connected directly to it. When I connect to a piece of equipment over a serial link, and use another computer to control the piece of equipment, then I am at least one step removed from it.

Maybe I'm just stupid, but I've never been comfortable using serial links to do embedded development. It seems that I always spend most of my time playing around with baud rates, parity, and null modem cables just trying to get the thing to respond, rather than actually getting work done. That's why I like Quartus: the damn thing actually works!

-- Kris

By **Kris Johnson (Kdj)** on Saturday, August 18, 2001 - 10:09 am: Edit

Sam, a lot of what you want to use a serial link for could be done by using POSE rather than an actual device.

-- Kris
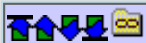
By **Jim Hendricks (Jimh)** on Saturday, August 18, 2001 - 10:29 am: Edit

I hate to say it, but I think I can see the benefit of a terminal driven client/server development model.

When the Palm first came out, all that was available was cross compiled C which required dev/compile on the desktop, then transfer to the handheld for testing. Once POSE was available, you could simulate the testing on the desktop, but it still is never as good as the experience of holding it in your hand.

Quartus came along and provided the dev/compile in your handheld. This was a great bonus, providing the ability to develop anywhere so long as you had the handheld. But, you did lose the power of your PC during the development cycle. Once again POSE can be used to do the dev/compile on the PC, but the only features that provides is a keyboard and a bigger screen (magnified handheld screen).

If there was a serial terminal capability, there can be client development applications written on the PC which at their heart rely on the terminal to communicate with the handheld to provide actual execution. This would allow for extensions to the development environment. If I am typing interactivly, experiementing with some ideas, find the ideas worthwhile, I have to then retype all that into a memo to make it future useful. If I have control over the development environment, I can save all the interactive typing, recall it, block off the lines I want to save into a memo, then send it off to the PC desktop software for sync later (or possibly execute code on the handheld over the terminal link which would save the code to memo). This is just 1 of the possiblilities. I could use the full size of my screen for display of textual results. I could even build multiple custom work-in-progress areas.

I think that the idea for terminal emulation of the quartus environment does offer benefit beyond that of just having a bigger keyboard and bigger screen.

I'm not arguing that Neal should pursue the terminal emulation, only that Harry may not be so far off in requesting it. My read of Harry's post seemed very critical of Quartus because Quartus lacked not only this ability, but also the ability to "hook" the right words so a use could set this ability up for themselves. I myself would not view Quartus badly because of this, but from previous posts of mine you can see that I too have felt the frustration of not being able to do certian things (specifically conditional compilation of a doc source, and use of the built in parser through source redirection) because Quartus does hide some parts of the process that could be beneficial to expose. I am so thankful for the power of Quartus as it is right now though that I have never considered pushing Neal to implement any of my "pet" ideas. Neal has done a great job thus far, and I am confident that as Quartus continues to mature that some of these features that have been mentioned over the years may actually find their way into the product.

Just my long winded 2 cents which I can't afford to give anyway since I am still unemployed!

By **Dave Bennett (Dbennett)** on Friday, August 24, 2001 - 06:10 pm:
Edit

Gee, guys. I'm gone for a couple of weeks and this thread explodes! 😊

Neal, I wasn't trying to write off the Palm OS, but Palm, Inc. has set themselves up nicely for a two pronged future. With the Palm OS itself spun off into another company, it can just be a licensing thing. If the Palm OS lives on, they can still make some money.

With the hardware stuff in its own place, and the rumor that Palm is considering the purchase of Be, they can put all the cool consumer oriented stuff in the Be onto a handheld and move a completely different direction.

I really like the idea of a Linux handheld because I personally want a full powered OS onboard. Almost all of my writings are in emacs using LaTeX and I'd love to be able to point my handheld at a printer and get that kind of quality coming out. And with Linux, all of the I/O stuff (and just about everything else) is already there.

No, I'm not giving up on the Palm OS for now. I've got too many projects underway!! Two _very_ cool ones that'll be finished in my lifetime. (Earlier if I win the Lottery.)

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Wiki Status

By **Kris Johnson (Kdj)** on Saturday, July 21, 2001 - 04:46 pm: Edit

Everyone who is still having problems reaching the wiki at
http://sleepless-night.com/wiki/ please chime in here.

I'm probably not going to have time to mess around with a wiki migration
for a couple of months. But if enough people scream loudly enough, I'll try
to make time.

Any details you can provide would be helpful:

- Exactly what happens? (timeout, page not found, no permission to access
the page, …)

- Does it always fail, or just once in a while?

- Who is your ISP? Have you asked them about it?

- Do you have trouble reaching any other web sites?

- If you do a "ping sleepless-night.com" and a "tracert
sleepless-night.com", what do you see?

- What browser and what operating system are you using? What are the
version numbers?

Thanks,
-- Kris

By **Kris Johnson (Kdj)** on Saturday, July 21, 2001 - 05:05 pm: Edit

BTW, here is an approximate transcription of the conversation I had with
my web hosting provider over this issue:

KDJ: Some users report problems accessing my web site. Mostly timeouts,
but some can't connect at all.

Techie: (clickity-click) It looks like it is working fine.

KDJ: Yes, it works fine for me and for a lot of other people. But a few have
problems.

Techie: How many people are having this problem?

KDJ: Two or three.

Techie: What browser version are they running?

KDJ: I don't know.

Techie: What operating system are they running?

KDJ: I don't know.

Techie: Who are their ISPs?

KDJ: I don't know. I think a couple of them are in England.

Techie: Are these static pages or CGI scripts?

KDJ: CGI

Techie: Are you sure your CGI scripts are working?

KDJ: Pretty sure. This is an off-the-shelf package that works well everywhere else I've installed it.

Techie: Well, I don't see what we can do about it. It sounds like a problem on their end, or a problem with your CGI scripts. All of our equipment is set up properly.

By **Neal Bridges (Nbridges)** on Saturday, July 21, 2001 - 07:35 pm: Edit

Sounds like standard help-desk fare -- the problem is never with them. 🙂

Neal

By **Richard Chamberlain (Rac)** on Sunday, July 22, 2001 - 02:20 pm: Edit

Well I've still got a problem, but I'm not getting much joy with my isp. I can get it with another isp.

Just something I've got to live with I guess.

Richard

By **Neal Bridges (Nbridges)** on Sunday, July 22, 2001 - 02:34 pm: Edit

Richard, try accessing the Wiki via http://www.safeweb.com. It's a sort of secure proxy; you don't need the security in this case, but it might let you get at the site if your ISP has difficulty.

Neal

By **Richard Chamberlain (Rac)** on Sunday, July 22, 2001 - 04:37 pm:
Edit

Thanks for the suggestion Neal - that works perfectly.

Richard

By **Kris Johnson (Kdj)** on Sunday, July 22, 2001 - 07:05 pm: Edit

That's pretty cool, Neal. Thanks!

-- Kris

By **Kris Johnson (Kdj)** on Friday, July 27, 2001 - 11:33 pm: Edit

Don't be concerned with the large number of detected changes to the wiki over the next couple of days. I'm running through and doing some cleanup.

-- Kris

By **Kris Johnson (Kdj)** on Tuesday, July 31, 2001 - 10:06 pm: Edit

I'll be out of town for the next week or so. If the wiki goes kablooey, I'll fix it when I get back.

-- Kris

By **Kris Johnson (Kdj)** on Friday, August 24, 2001 - 02:18 pm: Edit

Traffic on the wiki has been pretty light for the past few weeks. I assume that is due to people having better things to do during July and August than sitting in front of a computer.

But just in case anyone out there doesn't know about "the wiki": visit http://sleepless-night.com/wiki

-- Kris

By **Neal Bridges (Nbridges)** on Friday, August 24, 2001 - 02:22 pm:
Edit

Overall traffic, or just new posts?

Neal

By **Mike Will** on Friday, August 24, 2001 - 02:47 pm: Edit

Kris,
Handspring trading at $2.90 today
Palm announcing it's spinning off (read: jettisoning) its OS/Dev division

I'm dusting off my COBOL and Smalltalk books so I can continue to make a living 😕

Mike

By **Neal Bridges (Nbridges)** on Friday, August 24, 2001 - 03:01 pm: Edit

These things come and go, from a professional standpoint. From the hobbyist perspective, though, they run constant and strong. Writing software is a wonderful pastime.

Neal

By **Kris Johnson (Kdj)** on Friday, August 24, 2001 - 04:37 pm: Edit

New posts is what I'm talking about. Few new topics, few additions to existing topics, few comments on topics I've added myself. And some of the people who were very active a couple of months ago aren't doing anything any more.

I'm not sure how to judge the number of people who are looking at the wiki. Everytime I've looked at the logs, it appears that the vast majority of the hits are coming from "googlebot" and other web crawlers.

-- Kris

By **Neal Bridges (Nbridges)** on Friday, August 24, 2001 - 05:06 pm: Edit

These things come and go in waves, and the summer is usually a slow time. Plus the creative batteries need an occasional recharge!

Neal

By **Bob Ryan** on Friday, August 24, 2001 - 05:24 pm: Edit

For my part, I check the Wiki almost daily.

I'm in recharge mode 🙂

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ABS Problem

By **Bob Ryan** on Friday, July 20, 2001 - 02:45 pm: Edit

There seems to be a small problem with the ABS word. From the console:

```
hex
8002 abs 0< . 0 ok
8001 abs 0< . 0 ok
8000 abs 0< . -1 ok    ???
```

I don't really think this is a bug. The standard clearly states that ABS returns an UNSIGNED value, not a positive one. But it did catch me by surprise 🙂

I had assumed that ABS would always return a positive value.

Cheers
Bob

By **Neal Bridges (Nbridges)** on Friday, July 20, 2001 - 04:21 pm: Edit

Right, it's a bit surprising -- but consider that **0<** treats its argument as signed, rather than unsigned; in that context it makes sense.

Neal

Add a Message

This is a public posting area. If you do

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Password:

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not have an account, enter your full name into the "Username" box and leave the "Password" box empty. Your e-mail address is optional.

Slow access to Quartus.Net today

By **Neal Bridges (Nbridges)** on Thursday, July 19, 2001 - 04:04 pm:
Edit

From Pair.com:

> **Quote:**
>
> [Jul 19, 2001, 1:09 PM] Network Problems
>
> Please be advised that the train derailment and resulting chemical spill in Baltimore, Maryland has disrupted the circuits of a significant number of Internet carriers, and shifting traffic patterns, as a result, have in some cases led to reduced performance for many sites. We have received a number of inquiries about this. Please understand that there is little we can do on our end while repair work is pending. Carriers have not been allowed onto the site to begin repairs yet, as far as we know.

Add a Message

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This is a public posting area. If you do not have an account, enter your full name into the "Username" box and leave the "Password" box empty. Your e-mail address is optional.

E-mail Virus?

By **Kris Johnson (Kdj)** on Wednesday, July 18, 2001 - 07:47 pm: Edit

BEWARE OF E-MAILS WITH EXECUTABLE ATTACHMENTS

I received an e-mail today, supposedly from a wiki user, that contained an attachment called START.EXE along with instructions about how to fix my registry. Before running it, I checked with the user, and he told me that he did not send it.

He doesn't know who sent the mail, or why it was addressed to me. My only previous contact with this person is through the wiki and the Quartus Forth forum, so I figured I should warn the rest of you. Don't run attachments e-mailed to you!

-- Kris

By **Barry Ekstrand (Ekstrandbb)** on Thursday, July 19, 2001 - 08:29 am: Edit

I've had a similar experience, with a family member rather than through the forum or wiki. I received a note from them with an exe attachment but no coherent message, which was odd. I dumped the note and attachment, and let them know that I thought they had a virus.

An interesting aspect is that they run an anti-virus program, but hadn't updated it in several months; it turned out they were infected with a virus that wasn't in the definition file they had. After they updated the definition file their anti-virus program found several infected files. They are now doing weekly updates on the virus definition file to hopefully avoid a repeat.

Beware a false sense of security.....

Barry

By **Kris Johnson (Kdj)** on Thursday, July 19, 2001 - 02:31 pm: Edit

I also received something from someone at palmr.com. The message was in Spanish (which I don't speak), and it had a copy of WinRAR attached.

Maybe something funny is going on in the Palm OS community?

-- Kris

By **Neal Bridges (Nbridges)** on Thursday, July 19, 2001 - 02:50 pm: Edit

It's just summer -- the little juvenile miscreants have more time on their hands to cobble up variations on existing trojans & viruses. Keep your virus checkers up to date (never bad advice).

Neal

FYI, I got the following message at work today:

Quote:

Please do an immediate Live Update of your Norton AntiVirus. The Virus Definitions date should be July 17 or 18.

A new virus known as SIRCAM is making the rounds. Like others of late it executes when an enclosed attachment is executed. Although the subject line will vary, the subject and the attachment name will be the same. What makes this email distinctive is the body of the message will include greetings and verbiage in both English and Spanish. Our Exchange Server antivirus software has already intercepted a few of these emails. If received please delete without opening the attachment and then empty your deleted items. For more info go to <http://www.symantec.com/avcenter/venc/data/w32.sircam.worm@mm.html>.

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Event and Pen Handling

By **Kelly Janz** on Monday, July 16, 2001 - 10:03 am: Edit

I'm trying to learn Forth and the Palm SDK and I'm a newbie - recipe for disaster of course, but I'm having fun. I'm trying to make a Palm version of the L-game by DeBono as a learning project, and the Pen event handling is my current problem.

The game is played on a 4 by 4 cell board, and the players each have an L shaped piece. My user interface calls for the player to move their piece by drawing an L shape (from the long leg to the hook in the vacant cells. I read that the PenUpEvent will give me the starting point and the ending point of a pen stroke - but I can't seem to access that data. Could anyone give me a code snippet that shows how to get pen stroke information from penDown to penUp, collecting data points along the path as you go? Please?

Also, to give them some feedback while they are drawing, I want to invert the square cell as their pen goes through it. I borrowed some code from the Dice tutorial app to find which cell the pen was in:

```
\ for detection of specific die taps,
\ define the screen area for each die
\ position...
\   x   y   width   height
create d1rect 15 , 60 , 21 , 21 ,
create d2rect 41 , 60 , 21 , 21 ,
create d3rect 67 , 60 , 21 , 21 ,
create d4rect 93 , 60 , 21 , 21 ,
create d5rect 119 , 60 , 21 , 21 ,

: rect? ( rect y x -- flag )
  RctPtInRectangle 255 and 0= 0= ;

: coords-in-rect?
  >abs coords@ rect? ;
```

My code:

```
100 constant gs \ gridsize
gs 4 / constant cs \ cellsize
20 constant xofs \ x offset
```

```
20 constant yofs \ y offset
create gb xofs , yofs , gs , gs ,
\ the rectangle of the gameboard
```

Does using the constants mess up the Rect structure? My Palm crashes big time when I use coords-in-rect? call, so I guess it must... but it also crashes when I manually call it with the 4 integers of the rect (as in 20 20 100 100) on the stack. Why? What is magic about a Rect?

Last and least, I tried to protect myself from myself with HardException from the wiki. Maybe I missed an needed file, but it doesn't load on my Visor Edge. The error is
"Exception in file: xts
...
? name argument missing"

Any clue what that means?

Thanks for helping a newbie and long time lurker.

Kelly Janz
(who also happens to be KDJ but should not be confused with Kris!)

By **Neal Bridges (Nbridges)** on Monday, July 16, 2001 - 03:33 pm: Edit

Does this work for you?

```
: t RctPtInRectangle ;
create rect
142 , 10 , 17 , 21 ,
rect >abs 5 5 t . -> 8192
rect >abs 14 145 t . -> 1
rect >abs 120 145 t . -> 0
```

Neal

By **Kelly Janz** on Monday, July 16, 2001 - 04:07 pm: Edit

Thanks Neal - the addition of the >abs seems to work for me. This takes the 16 bit address of my rect variable and makes it 32 bit before the system call - right?

If I had used the coords-in-rect code it would have been done for me, but I was trying to be a bit more basic in the hopes of understanding.

Thanks

Any help with the line drawing code? (Not to be greedy though.)

Kelly

By **Neal Bridges (Nbridges)** on Monday, July 16, 2001 - 04:17 pm: Edit

Happy to help -- what do you need?

Neal

By **Kelly Janz** on Monday, July 16, 2001 - 04:45 pm: Edit

Sorry - in the first message I said:

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So that's what I was asking about.

Thanks - Kelly

By **Neal Bridges (Nbridges)** on Monday, July 16, 2001 - 04:52 pm: Edit

Sorry Kelly; somehow I missed the question the first time around.

After penDown, you'll get penMove events until the penUp. If you retrieve the coordinates of the pen at each penMove, you'll have the path. That's an intial hint, at any rate, in lieu of a code snippet. Let me know how far that takes you.

Neal

By **Kelly Janz** on Monday, July 16, 2001 - 05:05 pm: Edit

Now that I have some coordinates coming back to my point-in-rect instead of crashing, I hope I can make some more progress this evening.

I'm quite proud of myself in that I've taught myself bit logic operations, storing the 16 cells in a bit array and doing the math to put an icon in each cell based on the bits! It's been fun learning something COMPLETELY different. If I make it to the stage of actually wanting to compile the thing, I'll certainly pay up, but right now I'm seeing how far I want to keep

struggling up this hill. The wiki and the forum have taken me quite a way in my eyes at least.

Thanks for your help and thanks to Kris for the wiki too

- Kelly

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  RctPtInRectangle 255 and 0= 0= ;

: coords-in-rect?
  >abs coords@ rect? ;
```

My code:

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```

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Possible problems with email

By **Neal Bridges (Nbridges)** on Thursday, July 12, 2001 - 12:14 am:
Edit

Sadly I've had a customer complaint that a registered version sent didn't make it to him; I'm not happy about that and want to make sure it hasn't happened to anybody else.

E-mail doesn't reliably let you know if the letters arrive safely. If you're waiting to hear from me and haven't, I may possibly not be ignoring you -- write me and let me know you're waiting.

Thanks --
Neal

Add a Message

Username:

Password:

E-mail:

This is a public posting area. If you do not have an account, enter your full name into the "Username" box and leave the "Password" box empty. Your e-mail address is optional.

Did you receive your registered version?

By **Neal Bridges (Nbridges)** on Saturday, June 23, 2001 - 06:32 pm:

Edit

Hi -- apparently there was a problem sending emails earlier. I've re-sent a number of registrations again today.

If you have registered a Quartus product but have yet to receive it, please let me know. Likewise, if I seem to be ignoring you, it may be the same problem -- let me know!

Neal

Add a Message

Username:

Password:

E-mail:

This is a public posting area. If you do not have an account, enter your full name into the "Username" box and leave the "Password" box empty. Your e-mail address is optional.

Memo management

By **Hans Nordstrom** on Monday, June 18, 2001 - 05:01 pm: Edit

   If you´re one of those programmers using memos to harness your code, there´s a utility you might have a look at. It´s named PalmWiki. Here´s the URL:

PalmWiki

   The idea is to handle memos in a hypertext manner. From one memo all the dependent memos can be interconnected, with the help of hyperlinks.
   I bet you can save scores of taps with this installed.
   Btw. It´s a hack. But I guess most programmers have hacks installed, right?

By **Neal Bridges (Nbridges)** on Monday, June 18, 2001 - 06:55 pm: Edit

'Hack' is unfortunate nomenclature, as it has connotations of 'hastily written' and 'unstable'. Neither need be true of a HackMaster module; they can be as stable as any other code.

Neal

By **Kris Johnson (Kdj)** on Monday, June 18, 2001 - 07:34 pm: Edit

I added a module to the wiki that makes it easier to use PalmWiki to navigate between Forth source memos:

http://sleepless-night.com/wiki/PalmWiki

-- Kris

By **Hans Nordstrom** on Tuesday, June 19, 2001 - 06:48 pm: Edit

Neal,
my intention with mentioning something as a hack, was just to make a distinction not being a regular application.
   Since in the Palm environment there is something named a hack, I didn´t even thought it possible to be misunderstood.
   I know what an oldtime hack is. I´ve even been forced to make one or two during the years 😳

By **Neal Bridges (Nbridges)** on Tuesday, June 19, 2001 - 07:12 pm: Edit

I understand. Unfortunately I see in the newsgroups, and sometimes via direct mail, that people misunderstand -- they fear the name 'hack', no matter the context. Of course on the Palm, they're really just system extensions.

Neal

By **Mike Will** on Wednesday, June 20, 2001 - 07:49 am: Edit

Yeah, I don't like hacks. They worry me. I much prefer to install a nice, pristine operating system like OSX or 2000 that takes 1 Meg to say "hello, world". Want extensions? Just wait six months for an entirely new, incompatible release with a fresh crop of fatal bugs. I don't want some programming guru's hands in my computer. I trust Bill. His software is shiny and polished, just like the minds of the people who use it.

But I'm not bitter.

Mike

By **Richard Chamberlain (Rac)** on Wednesday, June 20, 2001 - 09:22 am: Edit

Wow you can get all of "Hello, World" in only 1Mb?

You must be a release or so behind.

Richard

By **Hans Nordstrom** on Wednesday, June 20, 2001 - 04:35 pm: Edit

Neal,
I agree. Naming the extensions "hack" was not such a good choice. Maybe at the time of it´s creation it was kind of a hack. At least after reading some about programming on the first Pilots. Almost nothing was published about the OS, as I understand.
  I would have suggested something like, "System Optional eXtensions"=SOX. But I´m 4 or 5 years late, so I don´t expect my suggestion will go any further than this Forum.

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Newbie question about defining words

By **Gary Wiese** on Monday, June 11, 2001 - 08:16 pm: Edit

I've been reading a section on the wiki about setting check boxes and I don't understand something about how a word is defined.

It defines the word like this.

```
: id>index ( ctlID -- n )
  GetObjectIndex ;

: get-check ( controlID -- f )
  id>indexd
  active-form FrmGetControlValue
;
```

May question is this, why define a word for another word? Why can't you define it like this.

```
: get-check ( controlID -- f )
  GetObjectIndex active-form FrmGetControlValue ;
```

Isn't the first example really replacing GetObjectIndex with id>indexd?

By **Neal Bridges (Nbridges)** on Monday, June 11, 2001 - 08:55 pm: Edit

Yes. In this case, perhaps the programmer felt **id>index** was more descriptive than **GetObjectIndex**.

Neal

By **Gary Wiese** on Monday, June 11, 2001 - 09:42 pm: Edit

Thanks Neal

Your right, it is more descriptive.

By **Kris Johnson (Kdj)** on Monday, June 11, 2001 - 10:43 pm: Edit

I'm the guilty party that wrote that code. I had a lot of words that used the convention THIS>THAT to map between different "number spaces", and I continued that convention here. I find it easier to remember the word names if they all follow a common convention.

A related question you might have next is why I have this:

```
: active-form ( -- formptr.)
  FrmGetActiveForm ;
```

This one is not just a case of aesthetics. Use of a system API such as FrmGetActiveForm takes several bytes. By factoring this API into its own word definition, the executable is smaller than it would be if I had just used FrmGetActiveForm multiple times.

-- Kris

By **Gary Wiese** on Tuesday, June 12, 2001 - 12:16 am: Edit

Thanks for the additional info. It is easier to read.

I never would have thought an API would be smaller when defined in another word.

By the way, what does API stand for?

Thanks for things a newbie needs to know.

Gary

By **Kris Johnson (Kdj)** on Tuesday, June 12, 2001 - 10:31 am: Edit

API = Application Programming Interface. Every operating system has an API, which is a set of functions that an application programmer uses to invoke operating system services.

In Palm OS, the API is based upon the "system trap" (or "systrap") mechanism: the parameters are pushed onto the stack, and then a "trap instruction" is used to transfer control to the operating system. When the operating system returns control to the application, the results are retrieved from the stack or from CPU registers. The whole systrap sequence takes a few CPU instructions, whereas calling another Forth word only takes a single four-byte instruction.

-- Kris

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Where is the best place to catch a division by zero error

By **Gary Wiese** on Sunday, June 3, 2001 - 09:09 pm: Edit

I have a word defined that divides two numbers and displays the result as a reduced fraction. When entering a zero in the denominator I get a fatal error. Which I expect, however I would like to catch the error and change it before that happens.

Where is the best place to catch the error?

a) After it was entered in the definition
b) In the event handler

Gary

By **Neal Bridges (Nbridges)** on Sunday, June 3, 2001 - 10:02 pm: Edit

I'd check the value in the definition itself, and avoid the division by zero completely.

Neal

By **Chapman Flack** on Saturday, June 23, 2001 - 12:53 pm: Edit

See also http://www.sleepless-night.com/wiki/DivisionByZero

-Chap

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Where do I catch a divison by zero error

By **Gary Wiese** on Sunday, June 3, 2001 - 09:02 pm: Edit

Where is the best place to catch a division by zero error?

a) Just after it was entered
b) Event handler

I have a word defined to enter a numerator and a denominator. After the numbers are entered it divides and then displays as a reduced fraction. When entering zero in the denominator I get a fatal error. Which I expect, however I would like to catch the error and change it before that happens.

Gary

Add a Message

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E-mail:

This is a public posting area. If you do not have an account, enter your full name into the "Username" box and leave the "Password" box empty. Your e-mail address is optional.

Counting backwards with a do loop

By **Gary Wiese** on Saturday, June 2, 2001 - 08:55 pm: Edit

Is it posssible to count backwards with a do loop? For example: I would like to count backwards by 2, like this

11 9 7 5 3 1 ok

I have tried different approaches, with no success. I seen it done using negitative numbers. I can't use negatives I need positive numbers.

Gary

By **Neal Bridges (Nbridges)** on Saturday, June 2, 2001 - 09:53 pm: Edit

Indeed you can. +LOOP allows that.

: 1 11 do i . -2 +loop ;

Neal

By **Gary Wiese** on Saturday, June 2, 2001 - 10:50 pm: Edit

Neal, I have tried that one. It goes crazy to the point that I need to reset. It prints a bunch of numbers on the screen. In an endless loop. I have also tried ?do from the Handbook, but that word must not be defined in Quartus.

Gary

By **Neal Bridges (Nbridges)** on Saturday, June 2, 2001 - 10:52 pm: Edit

Did you try exactly what I gave -- with this correction (I forgot to name the first definition!):

```
: backward
  1  11  do  i .  -2 +loop ;
```

Just tried it; works fine. Let me know.

Neal

By **Gary Wiese** on Saturday, June 2, 2001 - 11:17 pm: Edit

Sorry Neal, I had loop instead of the +loop. I know it needed +loop. Your example is the first one I tried and when it didn't work confusion set in. In fact all my versions used loop intead of +loop.

I must be blind

Gary

Happens to all of us, Gary. 🙂 Glad I could help.

Neal

I have a new question, in the following code, does the 3 and 11 get sent to the return stack?

If it does I assume that what is left on the stack remains there, correct?

I am trying to reduse two numbers to lowest terms in the following code, but I am having a trouble.

```
\ reduce

: reduce ( -- )
3 11 do  dup i /mod 0 =
   if swap dup i  /mod 0 =
       if i / swap  i /
    then
   then -2 +loop ;

: show cr swap  .  ." /"  .  ;

: go MainForm reduce show ;

3 15 go
\ I am looking for 1/5, but I get
0/0 ok
```

Surround your text by **\pre{** and **}** to preserve the indentation.

My first step in looking at this problem was to remove all the code in your

DO..+LOOP:

```
: reduce
  3 11 do -2 +loop ;
```

That done, it nicely preserves the '3' and '15' on the stack. This means the problem is not with the DO..+LOOP construct itself, but with the code inside the DO..+LOOP.

Do a .S at the end -- you'll see a lot of extra numbers on the stack. The problem is that **/MOD** returns two values on the stack, not one, yet you're never consuming the second one.

Neal

Add a Message

Using fonts

By **Eli** on Monday, May 14, 2001 - 06:37 pm: Edit

does someone have the answer?
I want to print on the screen characters with accents, by writing one character, and then write on the same place second character (the accent character), so that the first character will not erase.

By **Wade Carlson** on Monday, May 14, 2001 - 11:28 pm: Edit

Accented characters are already built into the Palm OS. Download a free program called AsciiChart from Palm Gear to help you find the characters you want.

By **Eli** on Tuesday, May 15, 2001 - 07:00 am: Edit

I know There is characters with accents. but I need to make new accents to use with Hebrew. and I need for each character about 8 kinds of accents.

By **Neal Bridges (Nbridges)** on Tuesday, May 15, 2001 - 04:21 pm: Edit

Two methods come to mind: 1 -- defining your own font and 2 -- using small accent bitmaps.

Neal

By **Dennis Hoskins** on Tuesday, May 15, 2001 - 04:52 pm: Edit

Check out this site: **PilotYid**. It lists software to support Hebrew text entry and display.

Dennis

By **Eli** on Wednesday, May 16, 2001 - 09:47 am: Edit

the method of using small accent bitmaps sounds good to me. But don't you think that it will make the printing on the screen slower?
Eli

By **Jindra Vavruska** on Wednesday, May 16, 2001 - 02:03 pm: Edit

Could anybody help me with installation from a Linux box?

I don't know how to install library.mpa because it seems

to be possible to install it only from Palm Desktop
which runs only on Windows (no, please don't advise
me "buy Windows", I am certainly not going to waste
money on that crap just to get one file installed).

Can library.mpa be disassembled into single memos?
Is there any soft that would do it? Shall I use a specific
category for the library modules (I saw some 'Library'
strings in hexdump of the file).

Quartus Forth seems to be cool but I would expect
good software to install -- at least...

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name into the "Username" box and leave
the "Password" box empty. Your e-mail
address is optional.

Board topics page problem -- resolved

By **Neal Bridges (Nbridges)** on Friday, May 11, 2001 - 02:21 pm: Edit

There was a hiccup in the Discussion Forum software that threw the main Topics page out of kilter; it's back in kilter again. Thanks to Alex Alava for bringing it to my attention.

Neal

Add a Message

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This is a public posting area. If you do not have an account, enter your full name into the "Username" box and leave the "Password" box empty. Your e-mail address is optional.

Show Your Appreciation!

By **Norman "Buz" Stewart (Buz)** on Tuesday, May 8, 2001 - 04:01 pm: Edit

Having used it for a month or so now, I just added a review on Palmgear for Quartus Forth. It seems like there should be a lot more reviews out there -- apparently, there weren't any added during all of last year! That seems strange when there is such an obviously strong community of satisfied Quartus users. I guess it's human nature that we usually only remember to register our complaints, but those people browsing Palmgear for some kind of high-value development tool have no idea what they're missing when they decide not to evaluate "that Quartus Forth thing." They need your insights and encouragement!

By **Neal Bridges (Nbridges)** on Tuesday, May 8, 2001 - 06:55 pm: Edit

Thanks, Buz. I just read your review on PalmGear -- very nice!

Neal

By **Norman "Buz" Stewart (Buz)** on Tuesday, May 8, 2001 - 11:13 pm: Edit

It's the least I can do. Even if I never complete a project -- which I will -- I've already received a lot more than $69.95 worth of enjoyment from your product.

Add a Message

This is a public posting area. If you do

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not have an account, enter your full name into the "Username" box and leave the "Password" box empty. Your e-mail address is optional.

Apologies

By **Dmitry Yakimov** on Monday, April 9, 2001 - 06:48 pm: Edit

I used 'Quartus' word in keywords of my product at palmgear.com.

Very sorry for this occasion, Neal.
I was tired and stupid enough to do thing like that. Make my apologies.

Dmitry Yakimov,
FORTH development.

By **Daren Thomas** on Tuesday, April 10, 2001 - 01:32 am: Edit

BTW: the only forth that can be found on the net for the palm pilot is
quartus forth, dmitry! your dragon forth can only be found via this page...

Add a Message

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Password:

E-mail:

This is a public posting area. If you do
not have an account, enter your full
name into the "Username" box and leave
the "Password" box empty. Your e-mail
address is optional.

Dragon Forth

By **Erwin Schomburg (Esc)** on Monday, April 9, 2001 - 01:44 pm: Edit

A new Forth in town. Dragon Fly just popped up at PalmGear. It looks like it needs some more beta testing after a first glance. However, there is no documentation as yet, but some things do look very familiar....

Any comments, opinions?

May the Forth be with you!

/Erwin

By **Bill McCarthy** on Monday, April 9, 2001 - 02:04 pm: Edit

Also just noticed this. Here's the URL:

http://www.palmgear.com/software/showsoftware.cfm?sid=67512420010320144027&prodID=13874

I'll take a look after I finish my taxes.

Bill

By **Kris Johnson (Kdj)** on Monday, April 9, 2001 - 02:57 pm: Edit

There's been some discussion of this in the "New ANS FORTH System for PalmOS" thread over in the Quartus Forth area. It should probably be discussed in the General area.

You're also welcome to use my wiki to discuss it. No need to clutter Neal's forums with discussion of a competing product. (Not that I think he needs to worry.)

http://www.sleepless-night.com/wiki

-- Kris

By **Dmitry Yakimov** on Monday, April 9, 2001 - 06:59 pm: Edit

Agreed, and to discuss my product you are appreciated to use my forum. I'll put full answer there.

Dmitry.

Add a Message

Username:

This is a public posting area. If you do
not have an account, enter your full
name into the "Username" box and leave

Password:

E-mail:

the "Password" box empty. Your e-mail
address is optional.

Interest in a Forth Wiki

By **Kris Johnson (Kdj)** on Monday, April 9, 2001 - 12:08 am: Edit

A "wiki" is a collaborative web site that allows anyone to add anything they want, and to edit the existing content. Basically, it is a web site written by the users. The original wiki is at http://www.c2.com/cgi/wiki?WikiWikiWeb. Lots of others have been set up.

The benefits of that sort of thing over the Quartus forum, newsgroups, and mailing lists is that people can reorganize and edit the content as necessary to keep it all making sense.

In the "Forth for Dummies" topic, it has been suggested that all the various tutorials and samples should somehow be organized into something useful for newbies. I think a wiki would be a good way to handle this. It lets contributors put whatever material they have into "the right place", and lets users correct errors, insert missing details, and generally keep it all up to date.

A wiki could also provide an organized repository for known bugs and all the "how do I do such-and-such in Quartus Forth" questions.

How much interest is there in a wiki for Quartus or for Forth in general? I'm willing to set one up myself if there is sufficient interest.

I'm also interested in Neal's attitude toward this. I wouldn't expect him to monitor it as closely as he does the Quartus forums, but it would be nice to have his blessing and assistance.

-- Kris

By **Kris Johnson (Kdj)** on Monday, April 9, 2001 - 12:20 am: Edit

Maybe I spoke too soon. I've found an existing Forth wiki: http://hammer.prohosting.com/~uho/cgi-bin/changes.pl/Forth

However, there has been only one change to this page since March 2000, so I have a feeling it is dead. It also happens to use wiki software that I don't like.

The WikiWikiWeb has a few topics about Forth:

- http://www.c2.com/cgi/wiki?ForthLanguage

- http://www.c2.com/cgi/wiki?ExampleForthCode

- http://www.c2.com/cgi/wiki?ForthObjects

- http://www.c2.com/cgi/wiki?ForthValues

- http://www.c2.com/cgi/wiki?GamesCompiler

The WikiWikiWeb tends to be about general programming topics, rather than providing a forum for detailed tutorials or technical discussions. So I don't think it would be appropriate to use it for this hypothetical collaborative tutorial.

-- Kris

By **Neal Bridges (Nbridges)** on Monday, April 9, 2001 - 12:51 am: Edit

I'm in favour of anything that helps, Kris -- go ahead. I don't know how useful the wiki model is in practice, but it's worth a try.

Neal

By **Kris Johnson (Kdj)** on Monday, April 9, 2001 - 01:02 am: Edit

Thanks, Neal.

BTW, what sort of copyright terms apply to Quartus forum postings? Am we allowed to copy things verbatim from the Quartus forums to the wiki or anyplace else? And how about the Quartus manual and Quartus sample programs?

I do think we should attribute all information to the original authors.

-- Kris

By **Neal Bridges (Nbridges)** on Monday, April 9, 2001 - 01:06 am: Edit

I'd obviously prefer a link back to the original in the case of the manual and other materials that are subject to license, but more importantly, subject to change.

In the case of forum content, if you want to replicate selected content, that's fine by me.

Neal

By **Jim Hendricks (Jimh)** on Monday, April 9, 2001 - 08:02 am: Edit

Kris,

I had never heard of a WIKI until someone had posted the forth WIKI that you mention in your post above. It ran only for a short while, then a problem was discovered which caused them to shut down the WIKI. In fact if you go to the WIKI's main page, you will still see the shut down message. Apparently this WIKI is still running, but no one knows it cause the shut down message is still in place.

I think the idea of a Quartus WIKI is great, especially since it can evolve over time into a sort of colaborative tutorial. If you find a WIKI that will have us, let us know, I know I would probably contribute when time allowed.

By **Kris Johnson (Kdj)** on Monday, April 9, 2001 - 11:12 am: Edit

OK, the wiki now exists:

http://www.sleepless-night.com/wiki

Despite what the pages say, DO NOT register yourself as a user. I don't quite have the password stuff working, and I have to stop playing and go to work now.

But feel free to explore and start adding content. This is not intended to be "Kris's wiki"; it is "Quartus Forth Users' Wiki".

-- Kris

By **Kris Johnson (Kdj)** on Monday, April 9, 2001 - 11:06 pm: Edit

The user registration stuff is now fixed. Please sign yourselves up and do whatever you want with the wiki!

-- Kris

By **Andrew Kearns** on Monday, April 9, 2001 - 11:16 pm: Edit

You realize I now have WAY too many forums to check up on! Which of course means you're doing a good job! 🙂

Andrew

By **Kris Johnson (Kdj)** on Tuesday, April 10, 2001 - 01:30 am: Edit

FYI, you can sign up to receive e-mail notifications when topics change in the wiki. Just go to the WebNotify topic and add yourself. Then you don't need to "check up" so often.

BTW, Neal is signed up, so we now have yet another way to harass him.

-- Kris

By **Jim Hendricks (Jimh)** on Tuesday, April 10, 2001 - 11:27 am: Edit

Ha Ha Ha Ha....

Neal, love your picture in your profile on the Wiki. Too bad your pictured self makes more money than your quartus self.

Jim

By **Neal Bridges (Nbridges)** on Tuesday, April 10, 2001 - 01:50 pm: Edit

Give me some time 🙂

Neal

By **Kris Johnson (Kdj)** on Tuesday, April 10, 2001 - 10:05 pm: Edit

Well, we've got ten users so far. Neal has played around a little bit with editing some pages. What's wrong with the rest of you? 🙂

Seriously, please go in and mess around a little. I need some other people to add content. Here are some suggestions for things you can do:

- add descriptions of your own (or someone else's) applications to the QuartusForthApplications or PalmOSSoftware topics

- add some tutorial information

- summarize important points from discussions in the Quartus Discussion Forum

- post information about bugs or other issues

If you have good reasons to not do anything ("That thing sucks, Kris!"), let me know and maybe we can figure out a better way to use it.

Thanks,
-- Kris

By **Kris Johnson (Kdj)** on Wednesday, April 11, 2001 - 06:52 pm: Edit

I'm seeing more activity from other people. Thanks!

I've received a few questions of the form "Is it okay for me to [do such-and-such]?" The answer is yes. The basic rule of a wiki is that anyone can do anything they want. If you do something that everyone else hates, they can just delete it.

The other big question is "Where should I put [such-and-such]?" I don't think it matters too much--just put it anywhere. Others who are monitoring changes who see a better place can take on that responsibility themselves.

There was a period of a few hours today when the wiki was really slow. Did anyone else notice that? I'm having some doubts about my web hosting provider…

-- Kris

By **Neal Bridges (Nbridges)** on Wednesday, April 11, 2001 - 10:47 pm:
Edit

I had some problems with the speed earlier, Kris -- total timeouts in a couple of cases. Persistence paid off, but it looks like there's an issue someplace.

Neal

By **Kris Johnson (Kdj)** on Wednesday, April 11, 2001 - 11:19 pm: Edit

Well, when you pay $9.95 a month, maybe one can't expect much. Most of the time it's pretty good, but one or two daya a week, it really bogs down.

Can anyone suggest a good web hosting provider? Here's what I want:

- BSD or Linux system
- 100 MB or more of disk space
- E-mail accounts with forwarding capabilities
- Support for CGI, Perl, Java Servlets, server-side includes
- ssh, ftp
- Reliable
- No requirement to show the provider's banner ads
- Use my own domain name
- Cheap (< $20 a month)

Any suggestions? (BTW, I'm currently using addr.com.)

Thanks,
-- Kris

Quartus.net is hosted on Pair Networks (http://www.pair.com). You might check out their offerings.

Neal

Kris,

Just wanted to let you know I too experienced a huge slow down, and timeouts yesterday. Lukily I was doing 3 or 4 things at once, so the delay just gave me time to focus on some of the other things I was trying to get done.

Jim

I've tried to investigate the problem myself. (Addr.com's staff has not responded.) The server processor does not seem to be overloaded, and there is no problem with SSH or FTP. Only the web serving is slow.

I did notice that there were a few hundred apache processes running. I don't think that's normal.

-- Kris

We're up to twenty users now. Thanks to everyone who is participating.

(I'm going to put silly messages like this here every few days for a while, just to keep the wiki in the everyone's "Last Week" and "Last Day" lists. I want to make sure everyone knows about it.)

-- Kris

No problem, Kris. The wiki is populating nicely, good work.

Neal

If the wiki is becoming a valuable resource, we should probably find some way to ensure that it will continue, even if my server goes haywire or if I join a cult or something.

I have a script that puts the whole shebang into a tar.gz archive for backup purposes. I could put that archive into the http://www.sleepless-night.com/download area, and then anyone who wants to do so can download it. If Sleepless-Night disappears, then someone else can set it up elsewhere.

This would also provide a way for people to read the stuff offline.

Sound like a good idea? The only negatives I can think of are:

- some potential contributors might not want their work to be archived and downloaded by the whole world

- direct access to the backed-up password file might give bad guys a chance to run brute-force crackers on the passwords. So maybe I should back up the password file to a separate archive that is not available for download.

Opinions?

-- Kris

That sounds like a good plan, Kris. I wouldn't worry about the availability of the data -- after all, it's fully available now.

Neal

IMPORTANT!!! Please read.

My web hosting provider, Addr.com is shutting down its operations. See http://www.sleepless-night.com/cgi-bin/twiki/view/Main/AddrComClosure for more information.

This means that the wiki may be down for a couple of days. Luckily, I created a new account with another web hosting provider yesterday, so I

may be able to get everything moved over fairly quickly.

I'll post more information here as events develop. In the meantime, don't add anything to the wiki. I got a backup of everything at 15 Apr 2001 8:00 PM EDT, and that's what is going to move over to the new site.

Happy Easter!

-- Kris

By **Kris Johnson (Kdj)** on Monday, April 16, 2001 - 07:56 pm: Edit

Well, it turns out that Addr.com is not shutting down. Someone else is mailing erroneous messages to Addr.com customers.

But I'm going to switch providers anyway, due to the reliability problems I've seen with Addr.com's servers. I've already started the domain-name transition, so you can probably keep on checking http://www.sleepless-night.com/wiki until you see it without any "WARNING: site shutting down" message on it.

Sorry for the inconvenience and for the misinformation about Addr.com.

-- Kris

By **Neal Bridges (Nbridges)** on Tuesday, April 17, 2001 - 03:52 pm: Edit

Glad to hear your host is not sinking beneath you, Kris. What hosting service are you moving to?

Neal

By **Kris Johnson (Kdj)** on Tuesday, April 17, 2001 - 05:47 pm: Edit

I'm going with pwebtech.com (Pegasus Web Technologies). I did a little investigation, and they had a good mix of features and performance. (A 40 ms ping is pretty good.) It's $20 a month, which is twice as expensive as Addr.com, but still cheaper than some of the alternatives.

I've got my new IP and I'm able to log in, so I'll try reviving the wiki later tonight. Stay tuned.

-- Kris

By **Kris Johnson (Kdj)** on Tuesday, April 17, 2001 - 08:49 pm: Edit

The wiki lives again!

It will take a few days for the new sleepless-night.com address to propagate through the DNS servers, so for the next few days, use this address:

http://64.21.136.85/wiki

Authentication isn't turned on yet (I'm working on it), so you won't be asked to log in and all changes will be logged as TWikiGuest.

I haven't got WebNotify set up yet, but will do so soon.

Go ahead and use it. I'll try not to trash anything as I fix the remaining issues.

-- Kris

By **Kris Johnson (Kdj)** on Wednesday, April 18, 2001 - 11:05 pm: Edit

I think everything is working now, except for

- the DNS change propagation

- the Ref-By link doesn't work

I'd appreciate if someone who had an account before the move would try changing something. I just want to verify that passwords are still working.

Let me know if you have any problems.

Thanks,
-- Kris

By **Neal Bridges (Nbridges)** on Wednesday, April 18, 2001 - 11:07 pm: Edit

Seems to be working fine for my ID/password, Kris.

Neal

By **Jim Hendricks (Jimh)** on Thursday, April 19, 2001 - 10:49 am: Edit

Me too...

Jim

By **Neal Bridges (Nbridges)** on Thursday, April 19, 2001 - 01:40 pm: Edit

I've linked to the Wiki from the Discussion Forum menu.

Neal

By **Kris Johnson (Kdj)** on Thursday, April 19, 2001 - 05:29 pm: <u>Edit</u>

Cool. You might want to include a link to the WebChanges topic, which lists the last 35 changes.

-- Kris

By **Norman "Buz" Stewart (Buz)** on Thursday, April 19, 2001 - 07:28 pm: <u>Edit</u>

Kris, I must confess that I had a little trouble finding the Quartus snippets on the Wiki. I was looking on the main page, and assuming the three subtopics shown under "Quartus Forth Topics" were all of the subtopics. Thus, I was never clicking on the "Quartus Forth Topics" link itself. I personally think it might be better (for some people) if we didn't show any of the subtopics on the main page.

By **Norman "Buz" Stewart (Buz)** on Thursday, April 19, 2001 - 08:23 pm: <u>Edit</u>

…or maybe we could keep the 3 subtopics there, but break them so they don't link, forcing you to use the main entry into Quartus Forth Topics.

By **Kris Johnson (Kdj)** on Thursday, April 19, 2001 - 09:05 pm: <u>Edit</u>

Good point. I started adding all the subtopics, but the list got really long, so I tried using just the "important" subtopics. But I can see how that's probably not a good way to go.

If anyone else has other suggestions for reorganizing the site, or providing alternative organizations, let me know.

-- Kris

By **Kris Johnson (Kdj)** on Friday, April 20, 2001 - 12:46 pm: <u>Edit</u>

I'm thinking about changing the default way that articles get signed by authors. Please take a look at http://twiki.org/cgi-bin/view/Codev/HowToDiscussAndSign for some discussion on this point by the TWiki developers.

Neal has started using an abbreviated [NealBridges] signature, which is think is good. We can also probably eliminate the dates from many

signatures. I'd like to reduce the amount of whitespace and "noise" used in the wiki to separate comments from different people.

Please let me know what the rest of you think.

-- Kris

By **Norman "Buz" Stewart (Buz)** on Friday, April 20, 2001 - 07:20 pm:
Edit

I like the name without the date, just as you and Neal are doing it. But I have a question: Does it matter whether I type

```
[ BuzStewart ]
```

or

```
[ Main.BuzStewart ]
```

when adding something to a page?

By **Kris Johnson (Kdj)** on Friday, April 20, 2001 - 08:59 pm: Edit

The TWiki software allows a set of "webs". "Main" is the name of the primary web. The "TWiki" web contains the wiki software documentation, and the "Test" web is available as a sandbox.

You don't really need to specify the Main. part, as long as you're posting to the Main web. By default, all WikiWords are resolved in the current web. But if you were adding things to the TWiki or Test webs, then you would.

-- Kris

By **Kris Johnson (Kdj)** on Tuesday, April 24, 2001 - 08:15 am: Edit

I'm getting reports that the sleepless-night.com DNS update is making its way through the world. I'll leave the 64.21.136.85 redirect in place for another week or so.

-- Kris

By **Neal Bridges (Nbridges)** on Tuesday, April 24, 2001 - 04:00 pm: Edit

The Wiki is certainly filling up with interesting bits & pieces, Kris.

Neal

By **Kris Johnson (Kdj)** on Wednesday, April 25, 2001 - 12:18 am: Edit

I appreciate everyone's participation and enthusiasm. It's nice to see the sleepless-night wiki taking off.

-- Kris

I've updated the wiki configuration files to go back to using "sleepless-night.com" as the hostname rather than 64.21.136.85.

So, the official URL for the wiki is

http://sleepless-night.com/wiki

Please let me know if this causes problems for anyone. If the above URL doesn't work, try this:

http://64.21.136.85/cgi-bin/twiki/view

-- Kris

The Wiki certainly is coming along nicely, Kris. My compliments on your efforts.

Neal

…and of course the efforts of the many contributors!

Neal

Thanks for your support. It wouldn't work if NealBridges wasn't one of the users.

And cool as it is, it isn't helping me figure out why my @#$!% program keeps crashing…

-- Kris

What's the problem?

Neal

By **Kris Johnson (Kdj)** on Saturday, May 5, 2001 - 12:26 am: Edit

Fatal Exception, and I don't know why. I've even had to hard-reset a couple of times.

I guess it's a good opportunity to try Chap's HardwareExceptionHandling stuff.

-- Kris

By **Norman "Buz" Stewart (Buz)** on Saturday, May 5, 2001 - 02:11 pm: Edit

Last week, I was able to isolate a fatal exception (that was causing hard resets) to a single line of code, but there was nothing I could see that was wrong with the line of code; it was only a few harmless-looking words and numbers. I must have stared at it for an hour. I finally just rewrote the line, with no visible changes, and it ran just fine. Apparently, I had managed to get some invisible character into my memo that was causing the problem. If anyone knows what could have caused this, I'd be interested...

By **Kris Johnson (Kdj)** on Saturday, May 5, 2001 - 03:50 pm: Edit

I think we've all had the "I didn't change anything, but now it works differently" experience. I generally attribute it to demonic possession of my computer.

-- Kris

By **Neal Bridges (Nbridges)** on Saturday, May 5, 2001 - 04:00 pm: Edit

That's what it is.

Neal

By **Kris Johnson (Kdj)** on Thursday, May 10, 2001 - 07:45 am: Edit

The wiki is getting a lot of "improved" versions of the standard Quartus library modules. Often, these are bug fixes, but sometimes they have new words or different behavior.

This bothers me. I suggest that any customized versions of Neal's memos be given different names so that it is clear to people what they are using.

-- Kris

My take:

Bug fixes should be submitted to Neal for inclusion here in the Official library.

Versions with new behavior or new words should be given different names and also submitted to Neal. Neal should be the one who determines whether these new modules get added to the library.

We need to get a handle on this now, before it gets too confusing.

I agree. I'd prefer that additions to library memos are made external to those memos, and named accordingly; there's too much room for confusion otherwise.

Neal

I just want to express (on behalf of everyone, I'm sure, but especially newbies) gratitude to Kris, Neal, Chapman, and everyone else who is building the wiki. It's an extemely valuable contribution to the entire Quartus community. You guys are awesome!

Ditto!! from another newbie. I can't soak things up fast enough!

Having said that, could someone explain in very very (read VERY!) simple terms, how to use Chapmans "HardException.prc". Specifically, can that be run from the console or do I need to load all the related memo's into startup.quartus. Which to this point has been unsucessfull for me. After a couple of hours of chasing my tail (actually 'needs' statements) I eventually ended up with "Exception 528" whatever that is. I realize that more than likely I'm just not understanding how it works, but then "I'm a newbie" and that's what we do!

Question for those of you using the wiki's WebNotify feature: what do you think about the three times per day notification? Is that too often?

John McKeon suggests that once a day would be better. Does anyone agree or disagree?

If we go to once a day, what time would be best?

-- Kris

By **Wolfgang Allinger (Wall)** on Friday, May 18, 2001 - 03:10 am: Edit

WebNotify feature: three times per day is too often!

If once a day, what time would be best?
0h00 Central European time for shure :-)

(Kris Johnson (Kdj) on Friday, May 18, 2001)

bye from germany
Wolfgang

By **Kris Johnson (Kdj)** on Friday, May 18, 2001 - 10:55 am: Edit

I've changed WebNotify to once per day. It fires off at 17:47 US/Eastern time.

-- Kris

By **Kris Johnson (Kdj)** on Saturday, May 19, 2001 - 12:46 pm: Edit

The wiki has seemed really slow for the past couple of days. Is anyone else noticing this?

Maybe it's time for another web host migration…

-- Kris

By **Neal Bridges (Nbridges)** on Saturday, May 19, 2001 - 12:51 pm: Edit

I have noticed it's quite slow lately.

Neal

By **Tim Hulme** on Saturday, May 19, 2001 - 12:59 pm: Edit

Yes, very slow but figured it was my less than state of the art system. Even from the office using DSL it's slow.

By **Jamie Cairns (Jamie)** on Saturday, May 19, 2001 - 05:11 pm: Edit

Yup - from home on cable, avg'ing 20-30 secs before page starts displaying, another 12 - 15 to display it all... per page - usually don't see any wait time before, and only 1 - 2 seconds load time...

By **Norman "Buz" Stewart (Buz)** on Saturday, May 19, 2001 - 07:00 pm: Edit

I've noticed the same slowness on and off since the site was migrated, not just the past couple of days.

By **Tim Hulme** on Saturday, May 19, 2001 - 09:12 pm: Edit

At home with dial-up (currently running at 42.6 kbps) the changes page took 1 min. 13 sec. to completetly load. Most other pages are slow but not as slow as the changes.

By **Kris Johnson (Kdj)** on Saturday, May 19, 2001 - 09:39 pm: Edit

Upon logging into the server, I noticed over a dozen CGI scripts (for another site) that have been running *continuously* since May 17. I alerted my host provider--maybe they'll do something about it.

-- Kris

By **Neal Bridges (Nbridges)** on Saturday, May 19, 2001 - 10:46 pm: Edit

That was my suspicion -- high load averages.

Neal

By **Kris Johnson (Kdj)** on Sunday, May 20, 2001 - 08:27 pm: Edit

I just checked, and the wiki appears to be back to its normal self. Still not incredibly speedy, but better than it has been for the past few days.

I'm still looking at the possibility of migrating to another server, as pwebtech seems a little slow even at its best. If I do so, I should be able to do it with less disruption than during the last migration.

-- Kris

By **Kris Johnson (Kdj)** on Wednesday, May 30, 2001 - 10:30 am: Edit

The wiki seems to have been running pretty well over the past week. So I'm going to postpone any attempted migration for a while.

-- Kris

Kris,

I've had several times in the last 48hrs when I've not been able to get on it at all. Just timeouts.

Richard

Hmm. No problems at all for me. Is anyone else having problems with timeouts or slowness?

If it persists, please let me know the date/times and any other useful information.

Thanks,
-- Kris

Well, wouldn't you know it: right after I posted the above message, the sleepless-night.com site went down.

I called the host provider, and they said the server was down and they were working on it. The guy sounded a little busy, so I didn't ask too many questions.

-- Kris

It's up now, ticking along quite nicely.

Neal

Kris,

Wiki running very SLOOOOOOOOOWLY again. For the record: at 1:15 pdt 6/1/01 it takes a full 1.15 min. to access the main page. And thats thru DSL

connection.

Tim

Yeah, same for me. I'm going to be pretty busy over the next couple of weeks, but after that I'll try to move the wiki over to another site.

-- Kris

Kris,

I was compiling a list of when the site was unobtainable for me but it's about 50% of the time.

I've recently moved to a very reasonable new host (www.34sp.com) who so far seem very supportive.

Are you still doing a back up? would it be easy to get the site going on another domain? If so we could test it using my host and you could move www.sleepless-night.com across if everything was ok.

Just a suggestion,

Richard

I've already set up an account with another host, where I plan to move the wiki. It's just a matter of having two or three spare hours to get the configuration correct and tested.

FWIW, I logged into the server yesterday and found that there was a user with over 1500 CGI processes running. I notified pwebtech, and they immediately killed off all the processes and canceled the offending account. It was nice that they responded so quickly after I notified them, but it would be nice if they monitored things more closely themselves.

-- Kris

Here's a thought -- write a CGI that monitors the running processes, and automatically sends them an email if it exceeds a given capacity. Then sell

them the CGI. 🙂

Neal

By **Kris Johnson (Kdj)** on Saturday, June 9, 2001 - 12:11 am: Edit

Has anyone noticed any problems with wiki responsiveness over the past week?

-- Kris

By **Richard Chamberlain (Rac)** on Saturday, June 9, 2001 - 11:19 am: Edit

Kris,

An odd thing I've got four different ISP set up on my PC I can only get to the wiki through 2 of them. I think that was my problem previously.

Very odd.

Richard

By **Kris Johnson (Kdj)** on Saturday, June 9, 2001 - 03:13 pm: Edit

With the two problem ISPs, are they unable to resolve the name, or does it appear to be some sort of routing problem?

Could you try doing a traceroute to get some idea of what's going on?

If you'll let me know which two ISPs are the problem, maybe I can ask my host provider to look into it.

-- Kris

By **Dave Bennett (Dbennett)** on Saturday, June 9, 2001 - 05:48 pm: Edit

Kris,

I get to sleepless-night.com about every other attempt. My ISP blocks the use of ping and traceroute (they are so lame that everyone was using it to show them where their problems were) so I can't be of any help there.

It just seems to be either a very busy site, or on a very busy segment of the net.

By **Neal Bridges (Nbridges)** on Saturday, June 9, 2001 - 09:41 pm: Edit

I've had no problems at all accessing the wiki the last week -- fast and reliable.

Neal

Everyone who's having problems: try http://www.kristopherjohnson.net. That will likely be the new home of the wiki when I get around to moving it. Let me know if that one isn't going to work either. 🙂

-- Kris

Kris,

Heres the trace:

1 * * * Request timed out.
2 165 ms 151 ms 165 ms lei-dam2-b-fa00.inet.ntl.com [213.104.190.205]
3 165 ms 164 ms 138 ms not-core-b-pos510.inet.ntl.com [62.254.0.233]
4 151 ms 151 ms 151 ms lng-bb-b-atm100-255.inet.ntl.com [213.105.172.90]
5 261 ms 274 ms 247 ms mae-east-gw2-atm110-2.inet.ntl.com [213.105.172.209]
6 315 ms 248 ms 274 ms mae-east-gw1-fa000.inet.ntl.com [194.168.118.221]
7 302 ms 247 ms 247 ms f0.iad1.verio.net [192.41.177.196]
8 234 ms 247 ms 247 ms p1-1-0.r02.mclnva01.us.bb.verio.net [129.250.2.122]
9 275 ms 247 ms 261 ms p4-6-2-0.r00.stngva01.us.bb.verio.net [129.250.2.146]
10 261 ms 274 ms 234 ms p4-6-0-0.r00.phlapa01.us.bb.verio.net [129.250.3.106]
11 247 ms 275 ms 247 ms p4-0-0.r01.phlapa01.us.bb.verio.net [129.250.3.154]
12 247 ms 247 ms 234 ms p4-6-0-0.r00.nycmny06.us.bb.verio.net [129.250.3.126]
13 275 ms 261 ms 275 ms p1-0-0-0.r00.nycmny02.us.ra.verio.net [129.250.16.210]
14 288 ms 316 ms 288 ms d3-11-0-0.a00.nycmny03.us.ra.verio.net [129.250.126.90]
15 275 ms 260 ms 234 ms s0.pnap-nyc.ny.us.customer.verio.net [204.141.126.238]
16 247 ms 247 ms 247 ms border11.ge2-0-bbnet1.nyc.pnap.net

[209.191.128.81]
17 233 ms 233 ms 234 ms nac-1.border11.nyc.pnap.net [209.191.130.94]
18 248 ms 247 ms 248 ms a0-0-0-1010.core1.oct.nac.net
[209.123.11.149]
19 247 ms 233 ms 247 ms vlan1.msfc1.oct.nac.net [207.99.21.35]
20 289 ms 247 ms 233 ms 207.99.8.198
21 247 ms 261 ms 247 ms 64.21.136.85

Trace complete.

Your new isp works fine btw.

Richard

By **Dave Bennett (Dbennett)** on Sunday, June 10, 2001 - 11:41 pm:
Edit

Kris,

The new site loads almost instantly!

By **kdj** on Monday, June 18, 2001 - 11:18 am: Edit

A few people are having problems accessing the =sleepless-night.com= site. For me and for others, it works fine. Without more information, I don't know how to resolve this.

I'd appreciate it if users who are having problems could try the following, and send the results to me at kris@sleepless-night.com:

Try "ping sleepless-night.com". If it doesn't succeed, let me know. If it does succeed, please let me know what kinds of times you are getting.

Try "traceroute sleepless-night.com" (Unix) or "tracert sleepless-night.com" (Windows) and send me the output.

Thanks,

-- Kris

By **Kris Johnson (Kdj)** on Monday, June 18, 2001 - 11:23 am: Edit

Also, if you are having problems, please let me know who your ISP is, so I can pass this along to my hosting provider.

And finally, if you are having problems, *please* tell me about it. As far as I know, everything works perfectly for everyone except for two or three people--if this is not the case, I'd like to know.

Thanks,
-- Kris

Kris,

My ISP (UK based) is ntlworld. I've also tried yahoo which also fails. I've got one isp that works but I rarely connect with that one, mainly ntlworld as it's my free connection.

Richard

Kris,

My (also UK based) ISP is Demon, and I am getting ping times of around 350ms, so no problem there.

Mark

Richard, have you asked your ISP about this? It sounds like the problem is on their end.

-- Kris

Well I'll try. As I say I've got three isps set up on my PC but only one of them works. Which I think is pretty odd.

Richard

Richard,

I'll check with my hosting provider. But it seems that all the people who have problems with the wiki say that their ISPs have problems with other sites as well. That leads me to think that it's a problem with those ISPs or some intermediary, rather than with the host.

My hosting provider does not go out of its way to help with problems. I'll need some evidence that they have something wrong before they'll do anything about it.

You say that only one ISP works. How do the others fail? (Timeout, host unreachable, hostname unknown, …)

-- Kris

By **Richard Chamberlain (Rac)** on Tuesday, June 19, 2001 - 02:18 pm:
Edit

both timeouts.

I've mailed ntl so I'll see what they say. I haven't had any issues with other sites (or not that I've notice anyway).

Thanks,

Richard

By **Kris Johnson (Kdj)** on Tuesday, June 19, 2001 - 02:30 pm: Edit

Sorry, I misunderstood. When you said that "yahoo" fails, I thought you meant that you can't access Yahoo! from your ISP. I didn't know yahoo was an ISP.

-- Kris

By **Kris Johnson (Kdj)** on Tuesday, June 19, 2001 - 02:33 pm: Edit

Sorry, I misunderstood. When you said that "yahoo" fails, I thought you meant that you can't access Yahoo! from your ISP. I didn't know yahoo was an ISP.

-- Kris

By **Richard Chamberlain (Rac)** on Tuesday, June 19, 2001 - 03:57 pm:
Edit

yep, sorry that wasn't very clear was it.

I'll keep you informed if I make any progress.

Richard

By **Kris Johnson (Kdj)** on Wednesday, June 20, 2001 - 12:18 am: Edit

I'm going to be incommunicado for the next week or so. So if anything goes wrong with the wiki, it will have to wait until I get back.

-- Kris

Add a Message

Username:

Password:

E-mail:

This is a public posting area. If you do not have an account, enter your full name into the "Username" box and leave the "Password" box empty. Your e-mail address is optional.

Registrations

By **Neal Bridges (Nbridges)** on Thursday, March 29, 2001 - 09:29 am:
Edit

I learned recently that a registered version of Quartus Forth sent out at the beginning of March wasn't received by the customer -- this leaves me concerned about the receipt of other registrations . If you have registered a Quartus product and haven't received the registered version (where applicable), please drop me a note at sales@quartus.net.

Thanks!

Neal

By **Kris Johnson (Kdj)** on Thursday, March 29, 2001 - 07:02 pm: Edit

What's the current registered version? Still 1.2.6R?

I've been waiting for an official release of the launch-code-handling version of Quartus Forth. If that exists, I'd like a copy.

-- Kris

By **Mark Browne (Markbrowne)** on Friday, March 30, 2001 - 03:24 am: Edit

Me too, although as I'm not a registered user, I would not be surprised if you are keeping it under wraps at the moment.

Mark

By **Neal Bridges (Nbridges)** on Saturday, March 31, 2001 - 01:23 am: Edit

It will exist shortly. I want to roll in a few additional deltas.

Neal

By **Dan Croswell** on Wednesday, May 9, 2001 - 08:28 am: Edit

I hosed up my computer and lost my original copy of Quartus Forth and then proceeded to drag my Palm down too trying to upload lost data. I down loaded the latest version of the software and when I ran it I got

Exception in file:startup.quartus
Registered? Registered version only

Is it running correctly or do I need the older build?
Thanks

Dan, you need me to re-send you the registered version. Drop me a note and I'll do so this evening.

Neal

Add a Message

Username:

Password:

E-mail:

This is a public posting area. If you do not have an account, enter your full name into the "Username" box and leave the "Password" box empty. Your e-mail address is optional.

NOTICE: Do not buy from www.palmare.it

By **Neal Bridges (Nbridges)** on Sunday, March 25, 2001 - 09:00 pm:
Edit

The site -- http://www.palmare.it -- is illegally selling Palm software at a markup. They're selling Quartus Forth -- entirely without permission -- for $80 USD, at present, when it only costs $69.95.

Their scam is to sell at a markup, then purchase from PalmGear but with their customer's HotSync ID, and pocket the difference.

I am working on stopping them; in the meantime, please don't use them. You'll get better pricing directly from Quartus via PalmGear, Handango, and RegSoft.

Neal

By **Kris Johnson (Kdj)** on Monday, March 26, 2001 - 12:21 am: Edit

Not that I'm defending them, but is their practice really "illegal"? It seems that they might be able to claim that they are offering some sort of value-added service (handling English registration for Italian users, for example).

-- Kris

By **Neal Bridges (Nbridges)** on Monday, March 26, 2001 - 12:25 am:
Edit

I believe it to be illegal, though the point is moot. My issues include these:

a) They have no permission to sell the product; b) I have no ability to adjust the description or product details they make available at their site; c) Customers may falsely believe I am working with these people to sell via their site.

Neal

By **Ron Doerfler** on Monday, March 26, 2001 - 01:14 am: Edit

I see that my TeamFile is there, but my 1.0 version that was upgraded to 1.1 last October. That's a big problem with other sites picking up apps, even without selling them--they often have versions and facts mixed up,

and I don't particularly have the time to correct them, or to update them when I make changes. Then they often send email telling me to make sure that the information on their site is correct and to write to them to correct mistakes. After a few months of half-hearted attempts, I finally got one site to at least replace a screen capture from a completely different app on its listing of one of my apps. This selling thing bothers me much more, though, particularly with an old trial version on the site and a price markup. Given my low level of security on the app, I also worry about a site selling copies without purchasing each one--at least I have an agreement with PalmGear and Handango that gives me some feeling of trust with them.

Somehow I think if I were to start selling Microsoft Windows with a price markup, and simply order the copies to distribute without a reseller agreement, that I would be shut down.

Ron

By **Neal Bridges (Nbridges)** on Monday, March 26, 2001 - 01:31 am:
Edit

I've sent them a polite request to remove my software from their site, along with a version translated into Italian, just in case.

Neal

By **Barry Ekstrand (Ekstrandbb)** on Friday, March 30, 2001 - 12:55 pm: Edit

Neal,

Where did you see that they were selling at? I noticed they have my WealthBuilder app listed; I don't see that they are selling it but then again, my Italian leaves much to be desired.

Barry

By **Neal Bridges (Nbridges)** on Saturday, March 31, 2001 - 01:24 am:
Edit

You have to purchase it with the link; then it winds up in your 'shopping cart' in lira.

Neal

Add a Message

Username:

Password:

E-mail:

This is a public posting area. If you do not have an account, enter your full name into the "Username" box and leave the "Password" box empty. Your e-mail address is optional.

Juggling!

By **Neal Bridges (Nbridges)** on Friday, March 16, 2001 - 12:16 am: Edit

Hi! I've been handling requests and other emails left and right the past while. I hope I haven't dropped any balls, but in case I have, if you feel neglected please let me know what I missed.

Thanks!

Neal

By **Dave Ruske** on Friday, March 16, 2001 - 10:01 am: Edit

Umm… did you receive my request for QF 1.2.6R?

By **Neal Bridges (Nbridges)** on Friday, March 16, 2001 - 05:40 pm: Edit

Dave -- received yesterday. I'll follow up tonight. Thanks!

Neal

Add a Message

Username:

Password:

E-mail:

This is a public posting area. If you do not have an account, enter your full name into the "Username" box and leave the "Password" box empty. Your e-mail address is optional.

Create New Conversation button to far away

By **Wolfgang Allinger** on Tuesday, March 6, 2001 - 06:50 am: Edit

the Create New Conversation button is at the end of the discussion list, especially in the quartus forum with some 3000 entries it tooks some time to come to the end and to this button. There should be such a button also at top and/or in the utilities index…

Maybe that there is a shorter way, but I didn't know it.

bye from germany
Wolfgang

By **Barry Ekstrand (Ekstrandbb)** on Tuesday, March 6, 2001 - 08:52 am: Edit

Neal,

FWIW and since the topic opened up, I'll second the motion, and also cast a vote for reversing the order of posting display, so the most recent posting under a topic is at the top instead of the bottom.

These above being said, I consider them very minor inconveniences the way they currently are, and I wouldn't want you to spend much effort to make the changes if it were to be a distraction of any real consequence from the great support you give or from work on the next Quartus release.

Barry

By **Neal Bridges (Nbridges)** on Tuesday, March 6, 2001 - 12:51 pm: Edit

Thanks, Barry. I once moved the "Create New Conversation" button to the top; it moved back.

I and the forum software have formed an uneasy truce. However, I'll re-open negotiations with it and see if the button can be moved again.

Neal

By **Kris Johnson (Kdj)** on Tuesday, March 6, 2001 - 04:10 pm: Edit

I disagree with Barry's motion to reverse the order of display. I like

top-to-bottom reading. I generally use the Last Day or Last Week lists to navigate to the newer postings.

As my own "Requested Way to Waste Neal's Time", I'd request that the Topics list be put in alphabetical order.

-- Kris

By **Wolfgang Allinger** on Tuesday, March 6, 2001 - 06:52 pm: Edit

No, I have no problem with the order (oldest top) in a thread, I only have the problem, that at large groups(right word?) I must scroll through some hundreds news headers to find the 'create new button' at the bottom.

A special/additional button on top and/or a folder on the left side index (under utilities?) will be sufficient for me.

bye from germany

Wolfgang

By **Barry Ekstrand (Ekstrandbb)** on Tuesday, March 6, 2001 - 11:45 pm: Edit

Fair enough, I'm outvoted 2 to 1, we don't need any further recount 🙂. I find the oldest-on-top to be a very minor inconvenience to my personal preference, and since others prefer it the way it is now, I concede. No need to look for pregnant chads or anything like that…

Barry

Add a Message

This is a public posting area. If you do not have an account, enter your full

Username:

Password:

E-mail:

name into the "Username" box and leave the "Password" box empty. Your e-mail address is optional.

Registrations coming soon!

By **Neal Bridges (Nbridges)** on Tuesday, February 27, 2001 - 05:52 pm: Edit

Hello all! I got a batch of registrations all at once after a delay at PalmGear -- so some of them are a couple of days overdue. I'll send them out this evening.

Thanks for your patience!

Neal

Add a Message

Username:

Password:

E-mail:

This is a public posting area. If you do not have an account, enter your full name into the "Username" box and leave the "Password" box empty. Your e-mail address is optional.

Email difficulties

By **Neal Bridges (Nbridges)** on Friday, February 23, 2001 - 12:43 am:
Edit

Hi; I'm having my bi-annual email troubles. A crash entailed a reindexing, and now I have an uneasy feeling that some mail is missing.

If you've been expecting to hear from me and haven't, please jog my elbow with another note.

Thanks!

Neal

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Palm V Graffiti Input Problem

By **Vaughn Wine (Vwine)** on Thursday, February 15, 2001 - 07:39 pm:
Edit

My Palm V is getting close to two years old, and
for the past six months (maybe more) my Graffiti input was not being
interpreted very reliably. I figured I was just getting sloppy, but recently, I
installed a Graffiti echo program (EvEditHack) and quickly discovered
exactly what was causing my problem.

If I press in the center about one third from the top of the left Graffiti input
area, a line is drawn (with the Graffiti echo program) starting about a
centimeter to the right and continuing to where I've pressed. This causes a
dot to be interpreted as a backspace and an I to be interpreted as an F, for
example. Fortunately, I found I get better results if I avoid starting strokes
in the "bad" area.

Has anybody else had this problem? Does anybody know if this can be
fixed? (I know I can get it exchanged from Palm for $100, but I'm
wondering if I can open up the Palm and fix it manually.)

I'm thinking about upgrading to a Palm with more memory. If you want to
get a deal on a Palm V (maybe you usually use a keyboard) let me know.
(Hope it's okay for me to say that, here!)

Vaughn

By **Neal Bridges (Nbridges)** on Tuesday, February 20, 2001 - 01:11
am: Edit

Hi, Vaughn. One thing to try -- massage the input area. Sounds strange,
but this can revive the LCD touch screen, and sometimes resolves certain
problems.

Neal

By **Wade Carlson** on Tuesday, February 20, 2001 - 06:50 am: Edit

I think that this is a common and inevitable problem of all palm screens.
The gel in between the touch sensitive screen seems to wear out or
something given time. It is kind of a shame, because other than that, these
machines can live a fairly long life. I've seen a site where you can buy used
screens, but nowhere where you can get a new one.

To play devil's advocate, this isn't something that's happened to any of my Palm devices, even the very oldest ones are still working fine.

Neal

Vaughn,

Interestingly, in the last couple of months I've begun noticing the same behavior with my Palm Vx: occasionally getting a backspace when I don't want one. I also occasionally get an international character when I'm trying for an F. So far I'm living with it and starting to use my old Newton keyboard more and more for text entry sessions that are of any length, but I suppose the real answer will be to have the screen replaced at some point. I do find it odd that my Vx exhibits this behavior after a little more than a year of use, but my old PPPro has never exhibited it.

Barry

Well Neil, I messaged the input area, but it didn't seem to help much. Maybe I need to go deeper or use oil…. I was really hoping that would do the trick!

Is the best bet to have Palm replace it, or is there are cheaper alternative to getting the screen replaced?

Incidentally, I inquired at Used Palm Pilots and Tr@deUps.com for quotes on my Palm, and I haven't received any responses. I've written three e-mail over the last week to Tr@adeUps.com without any replies. I wonder what's up? This morning I couldn't get to the Use Palm Pilots site….

Vaughn

Vaughn,

I have fought with this same problem, the screen massage needs to be

done with the back of your fingernail. Use the back of your fingernail to push from the outer edge in, and from the main screen down to the graffiti area.

By **Wade Carlson** on Wednesday, February 21, 2001 - 01:08 pm: Edit

Does the screen massage really work? Or is it just a temporary fix? Could this possible cause more damage by doing this?

I am intrigued that most of the old old palms don't exhibit this. I'm assuming that this is because somewhere along the lines Palm switched to a much cheaper screen. Anybody for a mass protest?! hehehe

By **Neal Bridges (Nbridges)** on Wednesday, February 21, 2001 - 02:08 pm: Edit

The newer screens are actually much higher-tech -- better visibility, and thinner. The thinness may be a contributing factor to some of the problems that can eventually occur.

Neal

By **Ron Doerfler** on Friday, April 27, 2001 - 02:53 pm: Edit

You know, I've been having a lot of problems with my Graffiti input for the last few months. Many times I would get an "l" when I was entering a space, for example (horizontal-->vertical??). Anyway, I just happened to notice today that while my digitizer alignment seemed fine, I was having trouble tapping the top arrow of the scrollbars, so I did a digitizer re-alignment. To my surprise, my Graffiti recognition got MUCH better immediately. So you might want to at least try that.

Ron

By **Kris Johnson (Kdj)** on Friday, April 27, 2001 - 04:55 pm: Edit

I've noticed that the new Handsprings' screens have a different feel from the original units. My trusty year-and-a-half-old model has a very hard and slippery screen. But new Visors' screens are a little softer and stickier".

I really don't like the new feel. I don't know whether these new ones might be cheaper, or if there was another reason for the switch.

-- Kris

By **John Newell** on Tuesday, May 1, 2001 - 08:15 am: Edit

I might as well chip in here and say that I have similar Graffitti recognition

problems with my Palms. The Palm V, which is a year and a half old now, seems to mis-interpret the Graffiti strokes (as has been described above) fairly often. The Palm Vx, which is younger, doesn't get so many problems but does seem to gradually be getting worse.
I will try a massage.

John

By **Vaughn Wine (Vwine)** on Tuesday, May 1, 2001 - 11:44 am: Edit

Massage did not really help much for me. I may have been too aggressive, but I think it may have made things worse.

In the end, my solution was to use a hack called ScreenWrite that allows me to write directly on the screen (instead of in the Graffiti area). For an inexpensive hack ($5), it has saved me tons of frustration.

Vaughn

By **Jim Hendricks (Jimh)** on Tuesday, May 1, 2001 - 11:59 am: Edit

To add to the conversation, I think it can also be the unit itself. I replaced my Vx with a IIIc 2 months ago, the IIIc's recognition has gone out the window, and on the main screen it responds to the stylus as if I am using a wide rounded point so when I choose from a menu, it usually dances between 2 or 3 menu options. I have tried the screen massage, and re-alignment to no avail. I am now considering a factory trade.

By **Mark Browne (Markbrowne)** on Wednesday, May 2, 2001 - 04:42 am: Edit

Jim,

That is weird - a friend of mine just had a replacement IIIc, after he broke the screen of his old one. He has exactly the symptoms that you describe. His solution is to return it, too.

Mark

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Forth tutorials

By **Tim Hulme** on Tuesday, January 30, 2001 - 05:49 pm: Edit

Hi Everyone,

I'm new to forth and have read all of the tutorials I can find on the Quartus site. Does anyone know of any other sites I can get good tutorials from. Also Steve Donahues Tutorial-v1.02.zip was particular easy to follow and very helpful. Was it ever continued (as indicated at the end) and if so where can I get it.

By **Tim Hulme** on Saturday, February 3, 2001 - 01:59 am: Edit

Hi again,
Let me restate this request since it appears nobody cares to post an answer. What I was hoping to get was access to some simple examples of programs that have been written in Quartus Forth in addition to those present on the Quartus site. Somewhat more complicated then "hello World" but not as involved as say "Year" or "Duco". You know!, actual useful small apps that do something besides compute obscure trig functions etc. I'm self taught in pascal (Mac), VB for windows and and LISP (for AutoCad). I program only for personal enjoyment and in-house projects for my day job. I do most of my early learning by reading other peoples source code examples while scanning the manual and then diving into the heavy duty stuff (read - Quartus Manual) after I get the hang of it. I got a Visor this past xmas and immediately fell in love with it and the idea of programming it. Takes me back to my early Mac 68k days when life was a bit simpler. When I ran across Quartus Forth I Registered the same day I downloaded the program. This was after spending a small fortune on C programming books for The Palm OS. Since I have never really learned C or C++ and didn't want to spend another $400 on full Codewarrior package to create standalone apps (only chose if you use a Mac at home) and it appeared I was going to need to learn something new, Forth seemed like the way to go. Tried PDAtools for about three days but it left me flat. Also looked at some of the BASIC programming packages out there for the Palm OS, but lets face it, thats not real programming now is it. Being self taught has its down side, but I think I'm beginning to get the hang of Forth. Especially since I can use it wherever me and my Visor happen to be. Everyone must start somewhere and this forum seems to be the place if Forth for the Palm is what your interested in doing.

TIA for anyone you replies with useful info 🙂.

Tim

P.S.
Neal, if your really intent on getting Forth off the ground, as I read in several of your posts in comp.lang newsgroup. Perhaps you might consider a seprate section in the forum for us real newbie beginners. That way we don't tie up the other sections where the experts hang out.

By **Mike Will** on Saturday, February 3, 2001 - 03:01 am: Edit

One of the nice things about Quartus is that it's an ANS94 (read: standard) Forth. This means that you can load and run most of the examples in good text books on Forth, although they're getting hard to find in circulation. My personal favourite is "Thinking Forth" by Leo Brodie. They occasionally have this and other titles at London Drugs and The Book Warehouse on Robson Street in Vancouver. If anyone is out that way, perhaps they could pick up a box full (2$ per book!) for folks in this group.

Also, if you have the time, there's about 100 Meg of Forth stuff at Taygeta Scientific:

http://www.taygeta.com/forth.html

It's not very well organized, but it's the most complete archive I know of.

Mike

By **Neal Bridges (Nbridges)** on Saturday, February 3, 2001 - 06:22 am: Edit

Hi, Tim. Sorry to have missed your post the first time around.

One good demonstration app is Carl Jacobsen's PhoneDecode -- available at PalmGear, complete with source. Give that one a try.

There is also a fair amount of source in the File Area. Let us know how it goes -- and never worry about posting beginners' questions, as that's one of the major purposes of this forum.

Neal

By **Tim Hulme** on Saturday, February 3, 2001 - 12:37 pm: Edit

Guys,
Thanks for the input. Haven't been to Taygeta in past because I figured it was aimed more toward experts. Did find a couple of useful articles.

PhoneDecoder will be added to the collection of growing reading material. Neal, also downloaded swatch (missed it last time thru file area). That's the kind of small apps I was referring to.
I have kind of ignored the fact that Quartus Forth is ANS Standard forth so haven't paid as much attention to other sources of info as I guess I should have. Thanks again for the help.

Tim

By **Kris Johnson (Kdj)** on Saturday, February 3, 2001 - 08:28 pm: Edit

There's a topic in this forum called "Stupid Quartus Forth Tricks" that contains some programs that are slightly more complicated than Hello, World!

You can check out the source to my JacksOrBetter game, although it may be bigger and more complicated than what you're looking for. It's available at http://videopoker.sourceforge.net.

-- Kris

By **Mark Beckman** on Saturday, February 3, 2001 - 10:25 pm: Edit

Tim (or anyone else for that matter),

A relativly simple but usefull app might be my R_AutoOff progam. A program to change the auto off interval of your palm to (most) any value not just the defaults. Or a bit more complicated but at least familiar would be R_Mines a palm version of Mine sweeper. They both can be found at http://www.jps.net/~mbeckman/palm/index.htm
with full source. Neither were intended as tutorials, they were more for me to learn than anything else. But I'm more than willing to answer any questions you might have about the source.

Mark Beckman

By **Hans Nordstrom** on Sunday, February 4, 2001 - 05:16 pm: Edit

Tim (and others)
I´ve collected some links to different developers on the forum. Some do include the source. Feel free to make excursions from this page: http://www.abc.se/%7Em989/Forth/Q4links.htm
I´ve published this information on several threads. But it seems to be a need for it. I beg for excuse from all longtimers on the forum.

By **Rodney** on Sunday, July 15, 2001 - 12:46 pm: Edit

I'm working thru the Hello World example. I find that the B version does not work for me. It appears that the information I enter for the About... box does not get retained when I exit. Anyone know what I might be doing to cause this?

Hi,
I am new in forth programming. I am studing the examples and the library files of Quartus Forth with no problem.
Right now I have a newbie question.
Where can I find a good explanations about the words inmmediate, postpone, does>?. I was looking
the quartus manual and the ans forth documentation and I found a little bit confusing the definitions. Is there some good explanation?
thanks.

I took a stab at explaining IMMEDIATE and POSTPONE here:
http://sleepless-night.com/cgi-bin/twiki/view/Main/ImmediateWord

Let me know if it is or is not clear. And maybe others can improve it.

And don't get discouraged if you don't get it right away. This is one of the things about Forth that commonly confuses people.

-- Kris

When a word is created the address of the next free location in data-space is compiled into its definition. This is done automatically, but if you want to actually allocate some memory you have to do that yourself.

The default action of a created word is to put the address compiled into it on the stack. For example, one way to define the word variable is:

```
: VARIABLE
    create 1 cells allot ;

VARIABLE var
0 var !
```

When the word var is executed it will put the address of its reserved memory on the stack.

DOES> tells a created word what actions, in addition to the default, it should do when it is executed. For example, you could define CONSTANT this way:

```
:CONSTANT
   create ,
   does> @ ;

0 CONSTANT zero
```

When the word ZERO is executed it first does its default action, putting the address of its allocated memory on the stack, then it executes the words following DOES>. In this case fetching the value stored at the address on the stack.

By **Neal Bridges (Nbridges)** on Saturday, July 28, 2001 - 12:25 pm:
Edit

Generally right, Bob -- but one small technical correction: what you say about a dataspace address being automatically compiled into a new definition is only true of words made with CREATE, VARIABLE, and 2VARIABLE. Quartus Forth CONSTANTs and normal ':' definitions don't have a dataspace address compiled in (none is required).

Neal

By **Bob Ryan** on Saturday, July 28, 2001 - 04:56 pm: Edit

Good point!

My definiton of CONSTANT above was only intended to show how CREATE and DOES> work.

The definition of CONSTANT used by Quartus is much more efficient than the one I gave.

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What are the actual versions?

By **Wolfgang Allinger** on Saturday, January 27, 2001 - 12:34 pm: Edit

Hi Neal,

I registered last week and got the version 1.2.5R

Is that the actual one or where can I get it?

Also where is the actual version of the library and how can I verify that?

Bye from germany
Wolfgang

By **Neal Bridges (Nbridges)** on Saturday, January 27, 2001 - 06:23 pm: Edit

1.2.5 is the latest released build. There's a 1.2.6r available on request.

The library contained in the distribution is the actual version; there are one or two deltas in the File Area that are due to be rolled out as a new release.

Neal

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Discussion Forum software glitch this afternoon

By **Neal Bridges (Nbridges)** on Friday, January 26, 2001 - 03:35 pm:
Edit

The discussion forum software lost its bearings this afternoon for a short while; I managed to get it back on course. Let me know if it behaves strangely.

Neal

By **William Tanksley** on Tuesday, January 30, 2001 - 05:10 pm: Edit

I saw a headline about Shadow in the PalmOS section, but I was unable to read the article; now it's completely gone. What was it about? Was it deliberately removed, or was this problem the cause of the hiccup?

By **Neal Bridges (Nbridges)** on Tuesday, January 30, 2001 - 07:59 pm:
Edit

Never saw that one myself. Only the Shadow knows! 🙂

Neal

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E-mail:

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Doc format files?

By **Tim Hulme** on Friday, January 26, 2001 - 09:48 am: Edit

Hi everyone,

How does a newbie get Q4th to read a doc format file. Tried ZDoc but it crashes alot so have moved on to the trial version of QED. In either case all I get is an error when I try to <include> the file in Q4th. A very quick review of the manual has not turned up the answer. -TIA.
Tim

By **Kris Johnson (Kdj)** on Friday, January 26, 2001 - 10:04 am: Edit

You need to include the docinc module, and then uses docneeds or docinclude to load the Doc file. For example, if your Doc is named "foo", do this:

```
needs docinc
docneeds foo
```

Also, verify that the name of the Doc file is really what you think it is.

-- Kris

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Password:

E-mail:

address is optional.

Password:

E-mail:

More Newbie Q's; different Forths?

By **Kelly Cox** on Wednesday, January 24, 2001 - 11:28 am: Edit

Hello, all;

I just downloaded the trial version of Quartus Forth, and started playing around with it. I was hoping to have something in the way of a tutorial to follow--just jumping in to programs like YEAR and DUCO are WAY over my head.

What I found at http://www.albany.net/%7Ehello/simple.htm#L01 looked very useful, but when I tried to use some of the words that are used on that tutorial, they weren't recognized by Quartus Forth. The words DUMP and ? to retrieve or display a cell of memory are apparently not words in Quartus Forth.

What gives? I thought Forth was an 'ANSI standard' language?

Is there some tutorial that is equivalent to the URL I posted, except using the Quartus Forth words?

Thanks!

Kelly

By **Steve Graham (Steve)** on Wednesday, January 24, 2001 - 11:52 am: Edit

Kelly,

Here are definitions for the words you are missing.

: ? (a --) @ . ;

: dump (a n --)
cr
over + swap
do i dup c@ cr swap . ." :" dup . emit loop
;

An example of their use would be --

variable x 7 x !
x ? (This would yield 7)

create buffer s" test"
buffer 4 dump (This would result in the following assuming a beginning address of 534)
534:97 a
535:98 b
536:99 c
537:100 d

Hope this helps.

Steve

Hi Kelly. Yes, Quartus Forth is an ANSI/ISO Standard Forth; this doesn't, however mean that all Standard words are built directly into the kernel. Compliance with the Standard requires that the implementation conform to a series of requirements, among them that at least the CORE wordset is available, either in-kernel or as source; all other wordsets are optional and can be provided in loadable form.

Quartus Forth provides a large subset of words in-kernel, and everything else is loadable. The manual documents what is provided.

Neal

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Password:

the "Password" box empty. Your e-mail
address is optional.

E-mail:

E-mail

By **Jim Hendricks (Jimh)** on Wednesday, January 24, 2001 - 10:49 am:
Edit

Neal,
About a week ago I sent you e-mail at your interlog account as well as the support account. I never received a response. Is there something up with your e-mail? Or did you reply based on my e-mail address you had on record? If the latter, please note my e-mail address has changed to scripture.alone@verizon.net (this is even a different address from the one used to e-mail you, although that account is also valid) My old account (jimh@dbsoft.com) is no longer valid. Thanks, and I hope to hear your response to my e-mail.

Jim

By **Neal Bridges (Nbridges)** on Wednesday, January 24, 2001 - 10:51 am: Edit

Hi, Jim. You've got me worried; I'll check on the mail. Can you re-send?

Neal

By **Jim Hendricks (Jimh)** on Wednesday, January 24, 2001 - 11:01 am:
Edit

I sent a reply to the support address, as I indicated in the reply, I will also resend the original e-mail from the other account.

By **Jim Hendricks (Jimh)** on Wednesday, January 24, 2001 - 02:54 pm:
Edit

Neal, did you get the e-mails?

Jim

By **Jim Hendricks (Jimh)** on Wednesday, January 24, 2001 - 02:58 pm:
Edit

Oops Neal, might have helped if I checked my other e-mail account before asking if you received the e-mails.

Thanks for the reply

By **Neal Bridges (Nbridges)** on Wednesday, January 24, 2001 - 03:02 pm: Edit

No problem, Jim. Let me know if I can be of further assistance.

I'm not sure what or where the email problem was, but I'm glad it's working now!

Neal

By **Yaakov Shlafman (Jacob)** on Wednesday, January 24, 2001 - 03:26 pm: Edit

Hello Neal, what about me? I sent you an email a while ago also, and haven't got a response from you (I was asking for the most recent build of 1.2.6R). I hope it was the same problem as with (the replies to) Jim's messages.

-- Yaakov.

By **Neal Bridges (Nbridges)** on Thursday, January 25, 2001 - 10:33 am: Edit

Yaakov, I sent that build out twice! The problem must be here. I'll try again this evening.

Neal

By **Yaakov Shlafman (Jacob)** on Sunday, January 28, 2001 - 11:29 am: Edit

Neal, sorry for nagging again, but I haven't receive anything from you. Neither at the email address I used for my Quartus registration, nor at the address listed here, in my Discussion forum profile.

What email address did you use?

By **Neal Bridges (Nbridges)** on Sunday, January 28, 2001 - 08:37 pm: Edit

I used the last address you sent me. I've just re-sent it; let me know!

Neal

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Happy New Year

By **Neal Bridges (Nbridges)** on Monday, January 1, 2001 - 12:12 am:
Edit

Happy New Year, everyone. May 2001 be better than 2000 in every way.

Neal

By **Gary Wiese** on Monday, January 1, 2001 - 11:26 pm: Edit

Yes Neal its a happy new year for me. I finally got a small program to run and it ackually does what it is suppose to do. It even has forms, so it looks like I am on my way.

Happy New Year
Gary

By **Neal Bridges (Nbridges)** on Monday, January 1, 2001 - 11:35 pm:
Edit

Very glad to hear that, Gary!

Neal

By **Ron Doerfler** on Tuesday, January 2, 2001 - 02:42 am: Edit

Congratulations, Gary--I know what an uphill and sometimes frustrating learning curve it was for me to re-learn Forth and to completely learn the PalmOS at the same time. Once you get a small program with forms to run without errors, it's all downhill.

Happy 2001,

Ron

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Fixed point math

By **Gary Wiese** on Tuesday, December 26, 2000 - 12:52 am: Edit

Hello,

I have been trying to get a program to divide two numbers and give back the result with at least 6 places after the decimal. So far I am only able to get 4 places after the decimal. Here is what I have so far.

```
: '.' [char] . Hold ;
: +1 ( -- scaled-"one" ) 16384 ;
: *. ( n n -- n ) +1 */ ;
: /. ( n n -- n ) +1 swap */ ;
: display ( -- ) dup abs 0 <# # # # # '.' #s #> type space ;
: .f ( fraction -- ) 10000 *. display ;
```

1 64 /. .f 0.0156 ok
\ This is correct, but I would like to see 0.015625

\I increased 10000 to 1000000 and changed the display also.
```
: .f ( fraction -- ) 1000000 *. display ;
: display ( -- ) dup abs 0 <# # # # # # # '.' #s #> type space ;
```

\This is the result, incorrect.
1 64 /. .f 0.000265 ok

I know it has to be something with the scaled +1, but how would I change it.

Gary

By **Neal Bridges (Nbridges)** on Tuesday, December 26, 2000 - 12:57 am: Edit

Gary, the simplest method is to use floating-point:

1e 64e f/ 1000000e f* f>d

and then format the double-cell integer from there.

Neal

By **Gary Wiese** on Tuesday, December 26, 2000 - 12:37 pm: Edit

I tried this and I get a stack underflow. At first I just tried to divide the two numbers without formatting the output. Here is what I did.

1e 64e f/ . 26 ?stack underflow
1e 64e f+ .
1e 64e f* .

Same thing happened for all of them.
I also tried to format it like you showed me, but had the same results.

Gary

Your forgetting that your answer is on the float stack, not the regular stack. You need to use f>d as neal mentioned above to get it onto the regular stack. Or you can use fs. instead of .

A somewhat related question: if I want to use a call accepting a PalmOS standard float number, what should I do to (a) convert Quartus' one into the PalmOS' one and (b) move it to the regular stack for systrap call?

(or shall I RTFM?)

-- Yaakov

Getting there, but still having some problems. Here is what I have now.

: dis (--) dup abs 0 < # # # # # # # '.' #s #>
type space ;
\ Am I thinking this correctly, **dup** dupicates the number I get from **.f** and **abs** takes the absolute value of it? I don't understand the zero before the format, and **type** just prints it with a **space** after it correct?

: .f (fraction --) 1000000e f* f>d dis ;
\ .f takes a float number from my input and multiplys it by 1000000e then **f>d** moves the float number from the float stack to the normal stack then sends it to **dis** to get formatted correct?

1e 64e f/ .f 0.000000
.s <2> 15625 0 ok

I also tried this.
1e 64e f/ fs. 0.15625001E-1 ok
I know this means .015625, but how do I format it like that.

Gary

I believe 0 before < # is a way to convers a single cell integer number into a double cell one, 'cause < # # #> stuff operates with double length integers (2 cell length).

your "dis" will work only with single-cell numbers.

f>d moves float as a double-cell number. Therefore, the word "dis" will not work on it correctly, it will use only the "upper half" portion of it (which happens to be 0 hence 0.000000)

-- Yaakov

Yaakov is right. As for your other question, Yaakov -- check out the MathLib library code in the Contrib section, it'll show you how to convert and manipulate Palm OS floats.

Neal

Try the binary floating point upper layer in the cell code.

Cell code was developed for system admin's to run flow controls on the dec net phase IV network relations.

We made it to be singular compounded or dual channeled. Looks vaguely like this for burnng code.

1r 61e f/ . 24 ?stack overflow
1r 61e f* .
1e 13e f-

Hope this helps!

mike collins
Microsoft Lead tech

I'm afraid that leaves me completely confused -- can you explain?

Neal

On the original problem of formatting floats, has this been tried.

```
needs float-ext

1e0 64e0 f/ f.
```

This produces the result 0.015625.

Best regards

Trevor

As expected, and desired, yes?

Neal

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This is a public posting area. If you do not have an account, enter your full name into the "Username" box and leave

Password:

the "Password" box empty. Your e-mail
address is optional.

E-mail:

Season's Greetings

By **Neal Bridges (Nbridges)** on Monday, December 25, 2000 - 11:09 am: Edit

In the immortal words of Krusty the Klown:

> **Quote:**
>
> "Have a Merry Christmas, Happy Hanukah, Kwazy Kwanzaa, a tip-top Tet, and a solemn, dignified Ramadan."

Neal

Add a Message

Username:

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This is a public posting area. If you do not have an account, enter your full name into the "Username" box and leave the "Password" box empty. Your e-mail address is optional.

New Forum Archives Available!

By **Neal Bridges (Nbridges)** on Sunday, December 17, 2000 - 09:42 pm: Edit

I've added a new archive of messages spanning the period March 2000 through to December 2000. It's a big one -- 19 megs.

http://quartus.net/files/Archive

Neal

Add a Message

Username:

Password:

E-mail:

This is a public posting area. If you do not have an account, enter your full name into the "Username" box and leave the "Password" box empty. Your e-mail address is optional.

Quartus.ca!

By **DennisMisener** on Friday, March 16, 2001 - 11:17 pm: Edit

A quicky…

What is the 64604 byte Workspace resource with
creation ident "p4pr" and type "Work". Can I safely delete it?

By **Neal Bridges (Nbridges)** on Friday, March 16, 2001 - 11:21 pm: Edit

That's the Quartus Forth workspace. It'll be recreated every time you start
Quartus Forth; unless you're removing Quartus Forth, there's not much
point in deleting the workspace. It takes a bit longer to recreate if it's not
already present.

Neal

Add a Message

Username:

Password:

E-mail:

This is a public posting area. If you do
not have an account, enter your full
name into the "Username" box and leave
the "Password" box empty. Your e-mail
address is optional.

Oop

Quartus Handheld Software: Discussion Forum: **General**: Oop

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By **Garbett** on Thursday, February 8, 2001 - 11:33 am: Edit

I always ask myself, "What do I gain by this?" What do you gain from OO? The much touted advantage of OO is the least used aspect, i.e. code reuse, except in the area of provided libraries.

To me, I'm sick of for the last 15 years porting a linked list to every new environment and then debugging the same algorithm in a new situation. This is where the real payoff is. In C++, you have the STL which is IMHO the most useful aspect of C++. I've rarely seen code that was designed with reuse in mind. The STL accomplishes this in a wonderful fashion. The code bloat factor of the STL is incredible however. Java has several other commonly used things in the basic library, Iterators/Vectors, etc with much overhead of checking pointers etc and just as much bloat as C++.

FORTH would really benefit from a library like the STL. For those not familiar, you have Containers, Iterators and Algorithms. Each of these are interchangeable (to a degree). So that wonderful quick sort can be used on a linked list or a vector. Each function has a big-O notation guaranteed performance. You rarely have to debug what's in the library-- you may use it wrong and have fun, but rarely will you uncover a bug in one of these containers that someone else hasn't already covered.

A FORTH set of these containers would be a perfect toolbox. For simplification all containers could just store address's of variables. Only about 1/3 of the functions of the STL are used with any frequency. What's needed is a design of such and then FORTH user contributions.

By **Neal Bridges (Nbridges)** on Thursday, February 8, 2001 - 11:57 am: Edit

The MOPS model (for the Apple Macintosh) is arguably the most popular OOP Forth implementation available today. You might have a look at that project, see which parts of it appeal to you, and what might be applicable in the Quartus Forth environment.

Neal

By **Mike Will** on Thursday, February 8, 2001 - 02:12 pm: Edit

I'll throw my usual 2¢ opinion in here.

I use C++, Smalltalk, Java and VB/DCOM. They're great (except Java). I

love objects. However, none of these tools work on the Palm. Yes, CodeWarrior is C++ but everyone I know uses it like C, and constantly struggles for efficiency and performance. The only incumberances I meet in doing Quartus work are interfacing to the PalmOS (callbacks, threads) and the PalmOS' own limitations. In short, I need *lower* level access, not higher. I guess what I'm saying is, "Neal, please don't put any object support into the kernel."

Mike

By **Neal Bridges (Nbridges)** on Thursday, February 8, 2001 - 02:20 pm: Edit

I agree, Mike. Forth already brings a level of code-reuse that is seldom seen in any other development environment, and the principles behind object-oriented design map neatly into the Forth mindspace; adding language-level object orientation to the Quartus Forth kernel is not in the plans. For those interested in experimenting, appropriate language abstractions can be added as extensions.

Neal

By **William Tanksley** on Friday, February 9, 2001 - 03:17 pm: Edit

I like the OOP model which is provided with FICL Forth (documented at http://www.taygeta.com/ficl.html), since it allows the integration of even non-Forth stuff as objects. This seems to fit well with the nature of Quartus.

Plus, it's reasonably well-documented and not too ugly.

-Billy

By **Neal Bridges (Nbridges)** on Friday, February 9, 2001 - 03:21 pm: Edit

I believe the FICL model requires dictionary-lookup at runtime, which would exclude it from the Quartus Forth model. An early-binding version of that might work, though.

Neal

By **WilliamTanksley** on Wednesday, February 14, 2001 - 08:27 pm: Edit

No, it doesn't -- ficl uses a vtable, like most modern OOPs. Also, it's designed to work with early and late binding.

-Billy

By **Neal Bridges (Nbridges)** on Wednesday, February 14, 2001 - 08:30 pm: Edit

My mistake. Is it a table of xts? This would still pose a problem for a stand-alone app.

Neal

By **WilliamTanksley** on Thursday, February 15, 2001 - 02:50 pm: Edit

Yes, it's definitely a table of XTs (I just checked the source) -- although it's implemented in C, so it could actually be anything.

The problem would be translating the C to work with Quartus. Probably not worth the effort, since there are so many other good OO extensions -- FICL can't be the only one which allows working with external data as though it were an object.

-Billy

By **Neal Bridges (Nbridges)** on Thursday, February 15, 2001 - 03:03 pm: Edit

In many ways, unadorned Forth does and always has embodied core concepts of object-oriented programming. **CREATE**/**DOES**> is a powerful tool for associating actions with data, and the very notion of choosing good names for functions is at the heart of OO. "If you can't think of a good name for it, it needs to be factored further."

Neal

By **Jim N. Deakin (Jndeakin)** on Friday, February 16, 2001 - 07:40 am: Edit

I'm crossing two subjects here, but does this mean that your select/xt/endselect option mentioned in the case/endcase thread won't work in a compiled program? surely a table of xt's and a vtable are identical?

Jim Deakin

By **Neal Bridges (Nbridges)** on Friday, February 16, 2001 - 09:56 am: Edit

select/**xt**/**end-select** work fine in a compiled program. While similar in concept to a vtable, it is compiled in such a manner that the xts are relocatable.

A vtable -- a simple region of dataspace with a list of xts in it -- would not be automatically relocated.

Neal

Add a Message

Username:

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E-mail:

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Welcome to Quartus Forth (PalmOS version), for questions, comments and discussion of the PalmOS version of the [Quartus Forth](#) on-board compiler.

You may enter any of the discussions below by clicking on the appropriate link. Or, to start a new discussion of your own, click on the "Create New Conversation" button.

Mathlib problem

By **Dave Bennett (Dbennett)** on Friday, August 24, 2001 - 06:22 pm:
Edit

I took Neal's mathlibsample program and made a simple change.

\ mlt MathLibTest

needs fdot
needs MathLib

: go
MathLibInit
45 s>d d>f f>sf sf>df
dftan
dfs.
MathLibDone ;

It works, but it gives the wrong answer. The dfs. shows a value of 1.6197752e00. The answer should be 1. (Using EzCalc, which also uses MathLib, I get the correct answer.)

Am I doing something wrong here?

Dave

By **Neal Bridges (Nbridges)** on Friday, August 24, 2001 - 06:24 pm:
Edit

That answer is correct -- for radians.

Neal

By **Dave Bennett (Dbennett)** on Friday, August 24, 2001 - 07:20 pm:
Edit

How do I get from "radians" to the answer I was expecting? Is there a "radians" converter?

The actual equation I was hoping to get programmed here is:

atan(ANS)
tanANS = 1 / (cosX * tan(360 / 2Y))

If X = 30 and Y = 4 I am hoping to get 49.11 at the atan(ANS) point.

(This works beautifully in EzCalc, but I need a dedicated program for the trigometrically challenged. Which seems to include me. 🙂)

Dave

By **Neal Bridges (Nbridges)** on Friday, August 24, 2001 - 07:36 pm:
Edit

Here's a relevant link -- let me know if it's sufficient!

http://www.quartus.net/discus/messages/23/459.html?ThursdayMay420000238pm#POST2982

Neal

| | By **Dave Bennett (Dbennett)** on Friday, August 24, 2001 - 07:41 pm: |
| Edit | |

I've hoisted my cold Corona towards the Great White North! 🙂

| | By **Neal Bridges (Nbridges)** on Friday, August 24, 2001 - 08:37 pm: |
| Edit | |

Glad it helped. For those who wonder -- the link doesn't work now because between when I posted it and now, I've archived that time-span of messages into a new PDF to be posted shortly!

Neal

Add a Message

Username:

Password:

E-mail:

This is a public posting area. If you do not have an account, enter your full name into the "Username" box and leave the "Password" box empty. Your e-mail address is optional.

No appinfoPtr ?

By **Amy** on Thursday, August 23, 2001 - 09:35 am: Edit

I detect a doubtful point after trial run quartus forth 1.27r .
Some launch mode for example sysAppLaunchCmdFind not initializes global data .
So (A5) not points appinfo block .
In those mode can use all systrap ?

Amy

By **Neal Bridges (Nbridges)** on Thursday, August 23, 2001 - 05:33 pm: Edit

With the 1.2.7 beta of Quartus Forth, you always have access to your globals no matter what launch code is used.

Neal

By **Amy** on Friday, August 24, 2001 - 08:20 am: Edit

Thank Neal,

But I attempt to understand code 1 .
I found below result .
The (A5) not points appinfo block except MOVE.L(A0),(A5) on CmdNormalLaunch or sysAppLaunchCmdGoTo .
If (A5) don't influence some systrap , Is (A5) unnecessar ?

Amy

By **Amy** on Friday, August 24, 2001 - 08:20 am: Edit

Thank Neal,

But I attempt to understand code 1 .
I found below result .
The (A5) not points appinfo block except MOVE.L(A0),(A5) on CmdNormalLaunch or sysAppLaunchCmdGoTo .
If (A5) don't influence some systrap , Is (A5) unnecessar ?

Amy

By **Neal Bridges (Nbridges)** on Friday, August 24, 2001 - 08:30 am:

Oh, I understand. POSE is complaining about A5 being redirected to actual data during certain launch codes.

It's not an error in this case; Quartus Forth is deliberately redirecting A5 to point at real data. A5 is the system register used as a base pointer to data while an app is executing.

Neal

Add a Message

Username:

Password:

E-mail:

This is a public posting area. If you do not have an account, enter your full name into the "Username" box and leave the "Password" box empty. Your e-mail address is optional.

Where is my Pen?

By **Steve Graham (Steve)** on Wednesday, August 22, 2001 - 07:29 pm:
Edit

I need to be able to determine where my Pen touches the screen. After determining that the event was not ctlSelectEvent, I check for penDownEvent. However, it appears, after using 'event >abs itemid' that only the x coordinate is returned.

Another challenge is that it seems that the returned x-coordinate is sometimes 1 behind. For example, if I touch the right part of the screen and then the middle, the touch in the middle returns, say, 159, and then another touch returns the middle x-coordinate.

Any help is appreciated.

Steve

By **Neal Bridges (Nbridges)** on Wednesday, August 22, 2001 - 07:31 pm: Edit

The Events library contains **coords@**, which returns X and Y. **itemid** isn't used for retrieving pen coordinates.

Neal

Add a Message

Username: This is a public posting area. If you do
                                       not have an account, enter your full

Password:

name into the "Username" box and leave the "Password" box empty. Your e-mail address is optional.

E-mail:

Beaming an application

By **Jim Meadows** on Wednesday, August 22, 2001 - 06:07 pm: Edit

Does anyone have any examples/suggestions on a program beaming itself? Usually you have to have your application already on the receiving end to receive data. Since this would be beaming the application itself, do you have to do anything special to have the other Palm OS receive and accept the application?

Jim

By **Kris Johnson (Kdj)** on Wednesday, August 22, 2001 - 06:36 pm: Edit

I remember seeing an example somewhere, but can't remember where. I think you can beam an application using the Application Launcher's creator ID, and the AppLauncher will then accept it just like another instance of the AppLauncher was beaming it.

-- Kris

Add a Message

Username:

Password:

E-mail:

This is a public posting area. If you do not have an account, enter your full name into the "Username" box and leave the "Password" box empty. Your e-mail address is optional.

POSE Message

By **Barry Ekstrand (Ekstrandbb)** on Monday, August 20, 2001 - 02:25 pm: Edit

When I include the following code in my event processing code:

```
 1900 = if
 flag1 @ 1 = if
 flag2 @ 0 = if
 test @ 1 = if
  5001 FrmAlert drop
  else test @ 2 = if
  5002 FrmAlert drop
  else test @ 3 = if
  5004 FrmAlert drop
  else test @ 4 = if
  5003 FrmAlert drop
  then then then then
   else
   5005 FrmAlert drop
  then
    else
   4005 FrmAlert drop
 then
 then
```

Where 1900 is the id of a button tap, I get the following error message after just 67 events when running gremlins in POSE:

```
Program just read from memory location 0x00002BB2, which is in Memory Manager data
structures
```

The error message goes on to give further description. If I comment out the above code, POSE runs gremlins without any problems.

I can't see anything wrong with the code itself - am I not seeing the forest for the trees, or is this an example of where I need to ignore the POSE error message and assume all is well?

Thanks,

Barry

By **Neal Bridges (Nbridges)** on Monday, August 20, 2001 - 02:31 pm: Edit

Might be a stack imbalance problem. The code you shown is, I trust, incomplete --

1900 = if

isn't a complete comparison, and will lead to stack underflow.

Neal

Here's your conditional structure extracted from your posted code:

```
if
  if
    if
      if
      else
        if
        else
          if
          else
            if
            then
          then
        then
      then
    else
    then
  else
  then
then
```

Lengthy, to say the least. I recommend that you consider factoring whenever you find you have even as much as one conditional within another, let alone seven. The chance of becoming confused in a structure like the one above is pretty high; if even one branch of that nest of IF/ELSEs leaves something on the stack it shouldn't, or takes something away, you'll have problems, and the bug will be tough to find.

By factoring the conditionals into their own words, you can be sure by examination and testing that each subcomponent leaves the stack balanced.

Neal

Neal,

You are right, of course, but it just looks goofy because I cut and pasted it out of the event processing code and didn't show the whole thing. This is a better representation:

```
: do-event
 event >abs itemid
 cond
 dup
 1600 = if
 drop
  FrmGetActiveFormID 1100 = 0= if
  1100 ShowForm then
  else dup
1700 = if
 drop
  FrmGetActiveFormID 1200 = 0= if
  1100 ShowForm then
```

```
  else dup
<more of same>
else dup
<code shown earlier>
else
drop
thens
```

Sorry for the confusion in how I showed it. The program seems to run just fine on the Palm Vx, but when testing in POSE I got the error message I showed earlier, and have isolated it to the previously posted code. I don't see anything that should cause the program to try and read a part of memory that is illegal, but I thought another set of eyes ought to take a gander.

Thanks,

Barry

By **Barry Ekstrand (Ekstrandbb)** on Tuesday, August 21, 2001 - 09:06 am: Edit

Well, it looks like I've found the culprit: I matched up an unneeded then in a cond-thens structure, i.e.:

```
: do-event
event >abs itemid
cond
dup
1100 = if
drop
<do some stuff>
else dup
1200 = if
drop
<do some other stuff>
else dup
<repeat for a number of different button taps>
else dup
1900 = if
drop
<test to see which alert to display>
then
else
drop
thens
```

The then following the test code was not needed since the thens finishes off the if-else statements for me. Removing that unneeded then eliminates the error in POSE.

It does bring me to a question aobut cond-thens: can multiple cond-thens statements be nested? I seem to have found you cannot use one thens statement to finish off if-else statements that are nested in another if-else structure, but I'm not certain I have that correct.

Barry

By **Neal Bridges (Nbridges)** on Tuesday, August 21, 2001 - 11:46 am: Edit

You can indeed nest cond/thens, but again, I recommend factoring for a conditional structure this deep.

Neal

Neal, can you give an example of what kind of factoring is appropriate for checking against a long list of IDs?

I tend to use COND..THENS or CASE statements for these things, but I'd like a better way (and I'd like for the whole thing to fit on one screen). If anyone has looked at the disassembly for this type of thing, they know just how bloated the code gets. Each IF statement generates a few instructions.

I've done some table-lookup things a few times. That's the best I can do. SELECT is nice if the IDs start at 0 and stay contiguous.

-- Kris

I factor event handling along types -- buttons, menu items, etc. One definition for each. For only a few items each, I'd use a cond/thens structure; for lots, I'd use SELECT -- the IDs won't start at zero, of course, but you can subtract the required offset before feeding the item number to your SELECT structure.

Neal

You could do the same thing in your event handler, if you wanted to avoid COND/THENS and CASE:

```
: HandleEvent ( ekey -- )
   dup
   >r CntrlSelectEvent = 1 and
   r@ menuEvent = 2 and +
   r@ penDownEvent = 3 and +
   r> drop
   select
      xt noop
      xt DoCntrlSelect
      xt DoMenu
      xt DoPenDown
   end-select execute ;
```

And of course the third line should have read:

```
>r ctlSelectEvent = 1 and
```

Although it may be obvious to some of the more experienced in the crowd, would you mind walking through that code a little bit Bob? It seems to do exactly what I was having trouble with in my previous postings on Event loops.

Why do you move the event over to the return stack and then fetch it back again each time? What are the "and" & "+" doing? I'll read about the select function next, but I take it the xt word looks up the execution address of the following word? So you get the dispatch table created.

But what I am misunderstanding really is what the first part (with the return stack) is doing and why you can't integrate the first part and second parts? Is the first part populating the table with xt's and the second part is just dispatching them? But why couldn't the populating be done just once at compile time and not for every event?

Confused

Kelly

Putting a value on the return stack and then using r@ to access it is a little like having a local variable. It just eliminates the need to have a lot of other stack manipulations to keep bringing that element to the top.

All the "ANDs and +'s" stuff in Bob's example is equivalent to this:

```
dup >r
ctlSelectEvent = if
   1
else r@ menuSelectEvent = if
   2
else r@ penDownEvent = if
   3
else
   0
then then then r> drop
```

In other words, the first part is just putting a 0, 1, 2, or 3 onto the stack, based upon what type of event it is. The "ANDs and +'s" technique Bob uses avoids the use of IF, making the code smaller and a little faster as long as the number of cases is small.

The second part just dispatches them. The SELECT word (which is not part of standard Forth--it is a Quartus-specific thing) consumes the element at the top of the stack and returns the i'th element of the table of XT's, which is then passed to EXECUTE.

This table-building is done at compile time. All that is being done at run-time is the conversion of an event code to a table index (0-3).

For sake of comparison with the different techniques discussed above, here's how I would have written Bob's word:

```
: HandleEvent ( ekey -- )
  cond dup >r ctlSelectEvent = if
    DoCtlSelect
  else r@ menuSelectEvent = if
    DoMenuSelect
  else r@ penDownEvent = if
    DoPenDown
  thens
  r> drop ;
```

-- Kris

By **Kris Johnson (Kdj)** on Wednesday, August 22, 2001 - 04:33 pm: Edit

Actually, I would have done without the >R/R@ stuff, and just done it like this:

```
: HandleEvent ( ekey -- )
  cond dup ctlSelectEvent = if
    DoCtlSelect
  else dup menuSelectEvent = if
    DoMenuSelect
  else dup penDownEvent = if
    DoPenDown
  thens
  drop ;
```

-- Kris

By **Kelly Janz** on Wednesday, August 22, 2001 - 07:26 pm: Edit

Yes, that looks a lot like the code I borrowed from another Quartus app and that I was fighting with a bit. I've also seen the use of CASE functions.

What are the benefits of each of these? What is most efficient - readable - maintainable? Can I listen in to some discussion from my betters, please?

Thanks

Kelly

By **Neal Bridges (Nbridges)** on Wednesday, August 22, 2001 - 07:33 pm: Edit

I like Kris's last version; very clean, simple, and well-factored. A select/end-select structure might be faster; I haven't benched them, but I doubt it's much of a difference either way.

Neal

By **Kris Johnson (Kdj)** on Wednesday, August 22, 2001 - 08:42 pm: Edit

Bob's version is 102 bytes; mine is 90 bytes--not much of a difference.

Using SELECT would certainly be better if there was no need to translate the event types into an index.

-- Kris

By **Neal Bridges (Nbridges)** on Wednesday, August 22, 2001 - 11:41 pm: Edit

Yes. If I were going full-out for speed, I'd go with Bob's approach, combined with a lookup table that translated events into index integers for the select/end-select.

Neal

By **Kris Johnson (Kdj)** on Thursday, August 23, 2001 - 12:28 am: Edit

I've been playing around with words for efficient event dispatch. I've come up with this syntax:

```
: HandleEvent ( ekey -- )
  dispatch
```

```
    on: ctlSelectEvent  do: DoCtlSelect
    on: menuEvent       do: DoMenu
    on: penDownEvent    do: DoPenDown
    end-dispatch
    drop ;
```

I've got this compiling to less than 40 bytes of code. Here's what I've got for implementation:

```
\ dispatch   2001/8/23 KDJ

needs m68k-conditions
needs m68k-moveq
needs asm68k

code (cmp) ( x1 x2 -- x1 x2 )
  sp ) tos .w cmp
end-code inline

\ Start dispatch table
: dispatch ( x -- x x )
  dup ; inline

\ Replace top-of-stack with
\ value of following word
: on: ( x1 "word" -- x2 )
  postpone [
  parse-word evaluate
  postpone ]
  postpone literal-change
; immediate

\ If X1=X2, jump to NAME
: do: ( x1 x2 "name" -- x1 x2 )
  postpone (cmp)
  postpone eq-if
  postpone drop
  parse-word evaluate
  postpone exit
  postpone then
; immediate

: end-dispatch ( x1 x2 -- x1 )
  drop ; inline
```

Any comments or suggestions?

-- Kris

Tidy syntax.

Neal

Kris,

This looks pretty slick, as far as I can tell, and it is keen that your "Tidy syntax" also cut the code size in half for your event dispatcher.

But, can you write an explanation of what is going on here? I pretty much lose the train as soon as I hit a "postpone" or "parse-word". What happens at compile time? I can't follow the stack effect of "on:" Is it processing the event type, or making code that will process the event type.

I think this is (yet another) good topic for the wiki. I've read your wiki notes on Immediate Words, but I still am pretty clueless here.

By **Neal Bridges (Nbridges)** on Thursday, August 23, 2001 - 11:00 pm:
Edit

You can work it out via expansion. For instance,

on: ctlSelectEvent

becomes, effectively:

[parse-word ctlSelectEvent evaluate] literal-change

or, more simply:

[ctlSelectEvent] literal-change

Neal

By **Kris Johnson (Kdj)** on Friday, August 24, 2001 - 08:13 am: Edit

I've improved on this idea a bit. I'll put it in the wiki. Look for the upcoming "OnDoModule" topic.

I'll also try to explain it. This is the first time I've done an interesting "control structure".

-- Kris

By **Neal Bridges (Nbridges)** on Friday, August 24, 2001 - 02:26 pm:
Edit

Useful for educational purposes would be an implementation in high-level Standard Forth.

Neal

By **Kelly Janz** on Friday, August 24, 2001 - 03:01 pm: Edit

I agree. This looks like great code that should become the "standard" way to do things. But I don't understand it either. The idea of being able to compare it to "verbose" Forth (What a non sequiter!) is a great idea.

Thanks

Kelly

By **Kris Johnson (Kdj)** on Friday, August 24, 2001 - 04:31 pm: Edit

I'm going to attempt an ANS Forth implementation of it. I'm not sure how "high-level" it will be--anything involving parsing words and messing with the control stack tends to be yucky. And a standard Forth implementation won't provide the improved performance benefits--it's just nicer syntax for a complicated thing.

But you don't have to understand it in order to use it. "on: SOMEVALUE do: SOMETHING" is a

pretty easy concept.

-- Kris

OK, I've added an ANS Forth version of on:..do:. Check out
http://sleepless-night.com/cgi-bin/twiki/view/Main/OnDoModule for all the details.

Along the way, I noticed that Quartus Forth's = (equals) word generates eight bytes of inline
code. If you use = or words that use = (CASE, for example), and want to save four bytes per
use, consider "de-inlining" it with a definition like this:

```
: = = ;
```

-- Kris

Add a Message

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name into the "Username" box and leave
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address is optional.

Latest version number?

By **Ed Faith** on Friday, August 17, 2001 - 04:15 pm: Edit

I have been running around the site in circles looking for the latest version number of Quartus Forth (registered). Is there a place where it is displayed?

Thanks,
Ed Faith

By **Neal Bridges (Nbridges)** on Friday, August 17, 2001 - 04:19 pm: Edit

1.2.5r is presently shipping. There's a 1.2.6r available, and a 1.2.7 beta.

Neal

By **Ed Faith** on Friday, August 17, 2001 - 04:29 pm: Edit

Thanks. So there are two new versions after my version. Is 1.2.6R insufficiently exciting for you to "ship" it? (Is there some place where I can read up on this without bugging you?)

Ed Faith

By **Neal Bridges (Nbridges)** on Friday, August 17, 2001 - 04:36 pm: Edit

1.2.7 is only a beta, not a release build. It adds launch code support.

1.2.6r only offers a fix for one bug -- a certain event type wasn't being properly transmitted in OS3.3 and beyond.

I don't have a page up with that info on it, but certainly bugging me is not a problem. 🙂

Neal

By **Ed Faith** on Friday, August 17, 2001 - 04:44 pm: Edit

Thanks Neal. As I haven't had any problems and I don't even know what a launch code is, I guess I'll stick with 1.2.5R for now.

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Version Control

By **Matthew Burke (Mmb)** on Thursday, August 16, 2001 - 12:37 pm:
Edit

A number of folks have mentioned interest in some sort of version control system for Quartus. I'd like to have one to use, so let's get the ball rolling….

Two thoughts:

Rather than having a memo being the object that is under control, what about doing it at the word level?

It would be nice to set up a conduit that would sync the version info with CVS on a desktop box or even across the web.

By **Brian Chirgwin (Bchirgwin)** on Thursday, August 16, 2001 - 05:26 pm: Edit

I thought of creating syncs with different version control systems (cvs, rational, perforce, etc…), personally, a think this is a low priority.

I hadn't thought of doing it by word. It is an interesting idea.

I was going to start with a simple utility allowing the programmer to select a root Forth application memo. The utility would then scan the code for included files and merged them into a single palm doc. This doc could contain the project, version, comments, etc… This could be copied to cf/sd cards or beamed. I figured it would be fairly simple but effective start.

Checking out code, unpacking a project, would change memo names to \ PRJ.File.Ver where PRJ is project name, file is the file name (double, bitmap, etc..) ver is the internal version of the file from VC. The memos would, of course, be modified to include the memo name changes. This would allow multiple checkouts of the same file for different projects.

A file diff option to display differences between in two project file. First list what files are different, clicking a file will display the actual file diff.

By **Chapman Flack** on Thursday, August 16, 2001 - 07:17 pm: Edit

Doing it at the word level is interesting but would put a heavy emphasis on configuration management (now just which combination of which versions

of all of these words resulted in a working instance of Program X?). CVS can indeed address that issue, but it might be more complicated than necessary to work at that level of granularity. Typically I keep closely related words in a module and a change to the module entails related changes to several words in it so they all still work as advertised. So keeping change control at the module level sort of shaves the first layer off the CM problem.

-Chap

I'd advocate module-level management as well. People who need word-level can just put one word in each module.

For checking out the files, the PRJ prefix is not a bad idea, but I don't think I'd want the .Ver suffix. It seems that would force includers of a module to be changed whenever a new version of that module was checked in.

Syncing with a desktop or server CVS installation would be nice. I'd definitely go with CVS rather than the other version control systems, just because of its freeness and ubiquitousness (yes I coined two new words there).

-- Kris

I was thinking the ver naming so that if you are working on version 1.9 of your app and someone using your current release of 1.7 sends an email about a problem you can check out the 1.7 code, fix it, and check it back in without affecting your current work. The prj and ver naming should be optional settings when checking out a project.

Would it also be smart enough to replace this:

```
needs mymodule
```

with this

```
needs myproject.mymodule.1.7
```

everywhere that 'mymodule' is used? If so, that would be cool. Otherwise, I'd hate to have to go fix all those references manually

To be more like desktop systems, I think it would make sense to embed all of the version information in the prefix:

```
needs myproject-1.7.mymodule
needs myproject-1.7.myothermodule
needs myproject-1.7.yetanothermodule
```

This makes 'myproject-1.7' sorta like a directory, which is how this sort of thing is done on desktop systems. A common prefix for all related modules also helps group them in sorted lists.

-- Kris

Yes, it definitely would change the code to update needs and other file reference as required. On check-in the opposite would of course happen.

Having 'myproject-1.7' (the ver before the module name) makes sense. I was sorting it the other way around. I guess to keep modules together of different versions so that it made it easy to go from one to the other, but, that would be a rare occurrence. I like you idea better.

I really need to get up to speed on Forth so I can develop this. I need to find the time.

A conduit to cvs would be nice for programming collaboratively. I'm not sure what percentage of us Quartus programmers are lone wolves....

Vc at the word level just seemed to be in the Forth spirit but I haven't really had any good ideas of how it would work in practice.

The big problem with recursively snarfing up all the included files is that every project will then have its own copies of whatever "library" files are included and that doesn't seem to be what you would want.

I have two thoughts on this:

1) filter things by category, e.g. all my quartus library files are in a category "library", all the core files for my games toolkit are in a "games" category and the particular game I am working on is in a "working" category. If I run the vc on "shogi-main" it snarfs up all the included files only if they are in the "working" category.

(Ideally it would be nice to have one category per project but that would limit you to less than 16 projects at a time and who doesn't have 400 different concurrent projects? <g>)

2) We could agree upon a convention to fake a directory structure using memo titles. People who didn't like doing this don't have to use our vc system.

By **Kris Johnson (Kdj)** on Friday, August 17, 2001 - 08:41 am: Edit

Regarding CVS: I'm not so much interested in programming collaboratively as I am with unifying the stuff on my handheld (source memos) with the stuff on my desktop (documentation, web site, license files, etc.). It would also be nice to use Emacs or something like that on the desktop, commit everything to CVS, and then just do a HotSync to get the new files onto the handheld.

Another issue: do you want to manage just memos, or also Doc files, resource files, and whatever else might go into a Quartus app?

For resource files, might you want to manage things on a per-resource basis? I think not, because resources tend to have relationships/dependencies with one another.

For Doc files, would you want to store it in the compressed format, or might you want to expand it and only store the "diffs" between versions?

-- Kris

By **Brian Chirgwin (Bchirgwin)** on Friday, August 17, 2001 - 12:54 pm: Edit

Overall Process

Create a Project.
Name it: MyProj1
App Version: 1.0
Select the root module
Select Language (or none) <System scans root module and adds all modules it finds to the project>
Files are presented in a dialog with the following options

A drop down with:
Do not include (Just in case)
Project module(File used by this project only)
Library module (File shared between projects do not use myproj-1.0.mymodule prefix naming)

Category: What memo pad category the file belongs to.
FileType: Code (DOC Format), Code (memo pad), Resources, Other

Files can be manually added to the project not found by scanning source.

A module can be changed from library to project as needed. (creates a branch)

The source code scanning for modules can be provided for multiple languages. PocketC, etc... (not high on my priority list)

At any time a developer can add a new app version (Milestone). This records the current version of all the modules and allows comments and other details.

The second line of each module needs to have some coded string so vc knows what file it was. I was thinking \myproj-1.7-1.0-chksum Where 1.7 is the App version and 1.0 is the file version. Chksum would used to tell if the file changed (might not be necessary).

VC should manage all files related to a project. I don't see why not.

I have thought about saving differences. I don't know Forth that well, but it seems files are quite small. How would differences be saved? Full copy of the most current and differences going backward or full copy of the original and differences going forward. Either way would the palm handle the processing? The CVS conduit would have to recreate the full versions for import to CVS.

By **Kris Johnson (Kdj)** on Friday, August 17, 2001 - 01:07 pm: Edit

The CVS conduit could use the pserver protocol or another client-server protocol to exchange only diffs with the CVS server. This would speed up the HotSync process.

One question: would the version numbers have to be numbers, or could they just be any textual "tag". For individual files, a numeric version like CVS makes sense, but it seems like the "project version" is really more like a CVS tag or branch.

-- Kris

By **Brian Chirgwin (Bchirgwin)** on Saturday, August 18, 2001 - 01:11 am: Edit

A textual tag for project version makes sense to me. It will be more

meaningful too.

myproj-killerfeature.mymodule

I didn't know there was a protocol to exchange just diffs. It makes sense. Since it is available it does make sense to use it.

I don't know CVS. I have used other VC products. I should take a look at it.

By **Matthew Burke (Mmb)** on Sunday, August 19, 2001 - 07:20 pm: Edit

As far as an interface goes, I would prefer some sort of Hack so that the vc system can be invoked from within the memopad. The user should be able to commit the current memo, get diffs, revert, etc. without having to leave the memopad.

By **Brian Chirgwin (Bchirgwin)** on Sunday, August 19, 2001 - 08:03 pm: Edit

I agree a hack would be useful, but it should be an optional installation. Could the VC system be one app and a hack be a small addition that connects to it?

In addition, it should have some automatic functionality. If you modify a memo and exit memo pad it should automatically be added to VC if already in VC. If not, it should ask you.

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An article in Embedded.com slamming Forth

By **Neal Bridges (Nbridges)** on Thursday, August 16, 2001 - 11:26 am:
Edit

Here's a recent article --
http://www.embedded.com/story/OEG20010731S0028 -- from a fellow who
apparently has a grudge against Forth developers.

The reader feedback at the bottom is interesting, and there's a place for
you to provide your own feedback if you wish.

Neal

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name into the "Username" box and leave
the "Password" box empty. Your e-mail
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Zstrings-ext

By **Elan Goldman** on Monday, August 13, 2001 - 03:23 pm: Edit

Hi,

I downloaded Rick Flower's Categories example. The example needs a zstrings-ext module. Where can I find it?

TIA,

Elan

By **Neal Bridges (Nbridges)** on Monday, August 13, 2001 - 03:30 pm: Edit

Do a keyword search here for "zstrings-ext" (including the quotes) and you'll turn it up.

Neal

By **Elan Goldman** on Wednesday, August 15, 2001 - 02:10 pm: Edit

Thanks Neal, that did it.

Elan

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Error Manager

By **Kris Johnson (Kdj)** on Saturday, August 11, 2001 - 09:40 am: Edit

Has anyone developed any Quartus Forth words that are analogous to the C macros ErrDisplay, ErrDisplayFileLineMsg, ErrNonFatalDisplayIf, etc.?

-- Kris

By **Neal Bridges (Nbridges)** on Saturday, August 11, 2001 - 01:21 pm: Edit

If you look at how those macros expand, you'll see you can replicate them directly if you desire.

Neal

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What palm for Quartus Forth?

By **Julian Robin Fondren (Jfondren)** on Friday, August 10, 2001 - 07:20 pm: Edit

Hi. I hope I'm not repeating a previous conversation, a quick search didn't show one like this. Perhaps I'm unique in my state.

I've been a Forth programmer for a little over a year now, and I do a great deal of avocational programming in that language, though I plan to do some vocationally perhaps when I finish HS.

Right now I'm in my Senior year, and I don't have a job -- or any convenient way to get one. I'm quite busy just handling my school work. The problem is, the increasingly annoying problem, is that five days out of a week I have only *FIVE* hours of wakeful opportunity with my computer to program, and mostly less than that.

I figured recently that, with a Palm Pilot and a Palm Pilot Forth, I can program whenever the time is available. To steal moments with Forth out of my dreary desolation, is my romantic characterisation =)

I've two big obstacles to this simple goal:

1) My income is $10 a week. Most of the time.
2) I know NOTHING AT ALL about Palm Pilots.

Regarding #1, I figure that in twenty weeks I'll have $200, enough perhaps for Quartus Forth and a low-grade Palm Pilot. Regarding #2... well... I'm not even sure if the terminology "Palm Pilot" is correct. I just want to have a Forth to carry around with me. Paper programming lacks something of Forth's interactivity =)

Well, given all the above, here's my question:

Does anyone recommend a type of Palm Pilot
that'd be good for Quartus Forth? Is there a
significant difference between them? Will some
Palm Pilots /not/ support Quartus Forth? (I'd
rather have a paper weight. Really.) Or are
the breeds of Palm Pilot so similar that Quartus
is fine on all them?

Thanks in advance for any answers and your
patience. Incidentally, twenty months from now
is Christmas =) Nice present for myself, you
think?

Hi, Julian. I can't think of a better gift for a Forth programmer! 🙂

There aren't any of the current Palm OS devices that won't run Quartus
Forth, to my knowledge. Find one in your price range, come back and let us
know which one you're looking at, and we can confirm that it runs.

I recommend you aim at an 8 megabyte version; the older 2 megabyte
models will find you running out of space too frequently.

Neal

Julian,

When I started my char-ware (charitable shareware) project, I chose
Quartus Forth because I would be able to work on programs in odd
available moments, wherever that happened to be. I can attest that this
does indeed work well, although as a novice Forth and Palm OS
programmer I had to carry around a bit of documentation as well. All in all
it has worked out great for me.

With regard to which machine, I agree with Neal that an 8 meg machine is
preferable, but I did my first couple of programs on a Palm III with 2 megs.
If you aren't scared of used machines (and I'm not sure whether you should
be or not), I've noticed a number of Palm machines on the auction sites like
ebay and yahoo. It might be worth looking at.

Good luck with it!

Barry Ekstrand

By **chris bucsko** on Monday, August 13, 2001 - 02:24 pm: Edit

For new Palms, the Palm m100 costs $129, and has only 2MB of RAM. It's still a pretty good PDA which will run QF just fine, but it has a small screen. At $199, the Handspring Visor Deluxe has 8MB RAM, and a larger screen. If you're going to buy used, it might be wise to 'try before you buy'. Most people don't abuse their Palms, but on older units, the screens can get flaky over time. I also think Palm has a 'developer's discount' for selected models. Don't forget that the trial version of QF is free and works fine, except that you can't make executables. That might help you out with your payment schedule.

By **Kris Johnson (Kdj)** on Tuesday, August 14, 2001 - 10:31 pm: Edit

If you want to get your feet wet with Quartus, you could download POSE and start playing with it on your existing computer. This may be counter to your real objective (playing with Forth when you're not seated at a computer), but hey, it's free.

You'll need to join the Palm developer program to be able to download ROM images for use with POSE. You should do that as soon as possible, because it takes a few weeks to get accepted.

-- Kris

By **Steve Bohrer** on Wednesday, August 15, 2001 - 08:40 pm: Edit

I still have not "run out of space" on my 2 meg IIIe, with Quartus and an older, smaller, version of pEdit. But, I do not have room for the Palm OS Reference as a Doc file -- is that what you all use your 8 Megs for, or have you written LOTS more code than I do?

By **Kris Johnson (Kdj)** on Wednesday, August 15, 2001 - 09:19 pm: Edit

Palm OS Reference, Palm OS Companion, DPANS, and Quartus manual are all essential, in my opinion.

I use iSilo rather than Doc.

-- Kris

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Handera APIs

By **Steffen Demuth** on Thursday, August 9, 2001 - 05:58 am: <u>Edit</u>

Hello all,

I hope I don't overload this forum with the following question: I'm trying to find out how to call Handera functions with Qforth. One of the simplest is probably SilkScreenMinimize.

What I found in the SDK files is:

```
*** In silk.h: ********************************
extern void SilkMinimizeWindow(void)
EXT_TRAP(trgEraseSilkWindow);
#define trgEraseSilkWindow (trgMinSilkFunction+4)
#define trgMinSilkFunction 0x0700

*** In trg.h ********************************
#ifdef BUILDING_EXTENSION
#define EXT_TRAP(x)
#else
#define EXT_TRAP(x) TRG_TRAP(x)
#endif

#define TRG_TRAP(sel) \
_TRG_CALL_WITH_16BIT_SELECTOR(_SYSTEM_TABLE,
sysTrapOEMDispatch, sel)

#ifdef __GNUC__
#define _TRG_CALL_WITH_16BIT_SELECTOR(table, vector, selector)\
__attribute__ ((__callseq__ (\
"move.w #" _Str(selector) ",%%d2; "\
"trap #" _Str(table) "; dc.w " _Str(vector) )))
#elif defined (__MWERKS__)
#define _TRG_CALL_WITH_16BIT_SELECTOR(table, vector, selector) \
= { 0x343C, selector, 0x4E40 + table, vector }
#endif

*** in CoreTraps.h ********************************
#define sysTrapOEMDispatch 0xA349

*** in PalmTypes.h ********************************
```

#define _SYSTEM_TABLE 15

Any idea how to code this in Quartus Forth?

Steffen.

Back of an envelope, here -- this is a quick translation (please test). The >D2 can be done without the assembler, using direct hex codes.

```
needs asm68k

code >d2
  prefix
  move .w TOS d2
  ] drop [
end-code inline

: SilkMinimizeWindow ( -- )
  (hex) 0704 >d2
  (hex) a349 systrap
;
```

Neal

… you'd want to generalize the calling mechanism, as was done with the Handspring extensions.

Neal

Hey, that works! This is the perfect basis for a Handera Library in Quartus Forth.

Thanks a lot - I didn't axpect an answer anytime soon, and this was faster than light.

Regards,

Steffen.

Great! It'll need factoring, as I said, but as a proof of concept I'm glad it's working.

Neal

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Great! It'll need factoring, as I said, but as a proof of concept I'm glad it's working.

New Serial Manager support now available

By **Neal Bridges (Nbridges)** on Monday, August 6, 2001 - 10:18 am:
Edit

Courtesy of Samuel Tardieu, there's library code for New Serial Manager support available in the File Area:
http://www.quartus.net/files/PalmOS/Forth/Contrib/srm.txt

Thanks Samuel!

Neal

By **Harry Winter** on Saturday, August 11, 2001 - 04:30 pm: Edit

Is there any explanation how this serial manager works? At what Baudrate is it running? How does one make it work for EMIT and KEY? Can it be used in Compile mode into the TIB?
HELP !!! HELP !!! HELP !!! HELP !!! HELP !!!

WinnY the Pooo

By **Kris Johnson (Kdj)** on Saturday, August 11, 2001 - 04:40 pm: Edit

I'd suggest starting here:

http://www.palmos.com/dev/tech/docs/palmos/SerialCommunication.html

and here:

http://www.palmos.com/dev/tech/docs/palmos/SerialManager.html

As far as integrating it with EMIT, KEY, TIB, etc., you'll probably have to implement that yourself. This library module simply provides wrappers for the Palm OS system calls.

-- Kris

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Handera

By **Steffen Demuth** on Monday, August 6, 2001 - 08:19 am: Edit

Hello all,

I'd like to know whether Qforth has or will have support for the Handera330.

Or, has anyone been successful in calling the HE-specific APIs?

Thanks for any reply.

Steffen

By **Neal Bridges (Nbridges)** on Monday, August 6, 2001 - 10:13 am: Edit

Hi Steffen. I haven't yet done any work on extending Quartus Forth toward the Handera. Certainly the Handera-specific APIs could be called from Quartus; that support can be added as library code as it was for the Handspring.

If you'd like to undertake that, I'd be happy to assist; otherwise it will have to wait its turn. The Handera, while an interesting gadget, makes up a rather small percentage of devices thus far, and I don't yet have one in the Quartus lab.

Neal

By **Steffen Demuth** on Tuesday, August 7, 2001 - 04:09 am: Edit

Thanks, Neal. I have just started digging into palm programming, but as soon as I'm a bit deeper in it, I'll try using Handera APIs. I'll have a look at the Handspring support and see if something similar can be done for the HandEra.

But my wish list is a bit longer. I would especially like to see the high screen resolution and smaller fonts inside the Forth environment. Qforth works perfectly on the HE btw.

I don't know how big HE's market share is, but I think with its superb screen and expandability it makes the perfect machine for a program like Qforth.

You don't need a Handera in your lab; POSE with the HE ROM (available on their web site) works just as well.

Qforth is great, and as soon as I'm having my first app running I'll register.

Steffen.

By **Neal Bridges (Nbridges)** on Tuesday, August 7, 2001 - 02:56 pm:
Edit

Glad to hear it's working well. I have the Handera ROM, and have tested Quartus Forth under it, but it's always good to get confirmation that's running well on the real hardware.

Neal

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LatestRelease?

By **Elan Goldman** on Sunday, August 5, 2001 - 03:53 pm: Edit

Hi,

what is the latest Quartus Forth release and what is the correct procedure to obtain it? (I am running the 1.2.5R registered version, which I obtained earlier this year).

TIA,

Elan

By **Neal Bridges (Nbridges)** on Sunday, August 5, 2001 - 04:14 pm: Edit

There's a 1.2.7 beta, supporting launch codes; let me know if you'd like a copy.

Neal

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Changing Window Orientation

By **Elan Goldman** on Sunday, August 5, 2001 - 02:45 am: Edit

Hi,

Is there a quick and easy way to implement landscape windows (i.e. switch the orientation of the display) under Quartus Forth?

TIA,

Elan

By **Neal Bridges (Nbridges)** on Sunday, August 5, 2001 - 04:33 pm: Edit

There's no quick and easy way to do it. If I recall correctly, one of the newer devices allows screen rotation, but at the moment I don't recall which. However, if you're looking for platform independence, you'd need to draw your own landscape screen.

Neal

By **Kris Johnson** on Sunday, August 5, 2001 - 08:31 pm: Edit

There is free screen orientation software available for PalmOS. I can't remember the name, but it doesn't cost anything and I think the source code is provided, so you can look at how it is done.

-- Kris

By **Neal Bridges (Nbridges)** on Sunday, August 5, 2001 - 10:07 pm: Edit

I've seen that somewhere too. I don't know how well it works. I suspect, however, that your program wouldn't be in control of the screen orientation -- it'd be controlled from a preferences panel.

Neal

By **Elan Goldman** on Monday, August 6, 2001 - 01:42 am: Edit

Thanks to everyone for the advice. I'll try to find the example software.

Elan

By **Bob Ryan** on Monday, August 6, 2001 - 01:45 am: Edit

FlipHack is available here:

http://www.palmgear.com/software/showsoftware.cfm?sid=38542520010806004118&prodID=5755

Source code is provided on the developers web site. I haven't tried it so I don't know how well it works.

It's a hack, with orientation controlled through Hackmaster.

By **Neal Bridges (Nbridges)** on Monday, August 6, 2001 - 10:22 am: Edit

Thanks for that link, Bob!

Neal

By **Dave Bennett (Dbennett)** on Thursday, August 9, 2001 - 10:07 am:
Edit

I've used FlipHack for about a year and it seems to work fine. I only use it on occasion and it is quite handy when you need it.

By **Bob Ryan** on Thursday, August 9, 2001 - 04:13 pm: Edit

Another resource is CSpotRun, a DOC format reader. Source code is available. Get it here:

http://www.32768.com/bill/palmos/cspotrun/

By **Kris Johnson (Kdj)** on Thursday, August 9, 2001 - 08:00 pm: Edit

Has anyone peeked at the source to these to see how it is done?

If I had to write an app that did this, I might draw everything to an offscreen bitmap, and then copy pixel-by-pixel to the screen with x and y reversed (or negated or whatever). But that's probably pretty slow.

I'd imagine that FlipHack patches all the system drawing traps to do its magic.

BTW, FlipHack comes with another hack that flips the Grafitti area as well, allowing one to write in the different orientation.

-- Kris

By **Kris Johnson (Kdj)** on Saturday, August 11, 2001 - 09:31 am: Edit

I took a look at the source. FlipHack does indeed make all drawing happen in an offscreen buffer, and then it copies and rotates it to the LCD.

Most of the work is done by patching ScrDrawNotify. ScrDisplayMode is patched to keep track of anything the app may do that would affect double-buffering. WinScreenLock and WinScreenUnlock are patched to keep track of the lock count.

PenRawToScreen and PenScreenToRaw are patched so that pen taps on the screen are rotated. (Graffiti-area pen events are not affected).

For anyone who wants to implement screen rotation in their own app, I suggest looking at this code for ideas. But remember that it is GPL, so copying it into a non-GPL program is verboten.

-- Kris

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Using FldGet TextPtr

By **Chris Bucsko** on Monday, July 30, 2001 - 05:48 pm: Edit

I'm trying to add some text to a record which the user enters into a field. The code is:

```
: AddMemo ( -- )
\ add memo to record
\ get memo text length & Charptr.
    MemoFld GetObjectPtr 2dup
    FldGetTextLength 2dup
     0> if
         memolen ! Reclen + s>d
         2swap FldGetTextPtr 2>r
\ get  index & resize rec
         index @  dbp 2@
         DmResizeRecord
\ lock handle, get chars text ptr
\ & offset onto stack & write to rec
\ this should put len. Charptr. offset. Hand.
\ on stack
         2dup Recptr 2!  MemHandleLock
         memolen @ s>d 2swap 2r>
         2swap Reclen s>d 2swap
         DmWrite throw UnLockRecord
     else beep 2drop 2drop  then  ;
```

where Reclen is a constant, and the original length of the record. UnLock record simply fetches the Voidptr from recptr and unlocks it. FldGetTextlength and DMResizeRecord both seem to work. When I put text in the field, and look at the record in Rsrcedit, the length has been changed by the right amount, but the characters are garbage. Has anyone ever tried this? Any help would be appreciated, even simple debugging tips.

By **Ron Doerfler** on Tuesday, July 31, 2001 - 11:59 am: Edit

Hi Chris,

Without being able to try it out per se, I notice that FldGetTextLen should be followed by DUP DUP rather than 2DUP, as you really want two copies of the single word on the stack.

Ron

I've said it before, and I'll say it again... DOH!!! Silly mistake. I'll try this and see if it fixes the problem. Thanks.

Ron,

That did it!! Thanks for the help. I have one other question which I can't seem to answer myself: how can you get the Length of a record. I've looked through all the PalmOS DM calls, and it doesn't seem to be there. Does anyone know how to get a record's length??

Here's how to do it. If it helps, there is a library memo of useful database/record routines such as this that's called database-routines.txt and is located on the Wiki page that contains my database tutorial:

http://www.sleepless-night.com/cgi-bin/twiki/view/Main/DatabaseTutorial

: size-record
(index dbref. -- size)
DmQueryRecord MemHandleSize d>s ;

Ron

Thanks again. I've downloaded the tutorial. It looks very useful.

Add a Message

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E-mail:

This is a public posting area. If you do not have an account, enter your full name into the "Username" box and leave the "Password" box empty. Your e-mail address is optional.

M505 issue

By **Barry Ekstrand (Ekstrandbb)** on Sunday, July 29, 2001 - 06:03 pm: Edit

I am currently remote (out of state) and picked up an email from a user of 2 of my programs who says he is getting a fatal reset when he tries them on a m505, but no problem on a Vx. This is the first report I've ever received of fatal exceptions on any machine, and he reports it on 2 different programs.

Before I get back home next week and am able to start digging into it, I thought I'd ask here if anyone has any suspicion of what might be different on the m505 vs. a Vx. Does this sound like it might be an OS issue? I tested the programs with OS v2.0, v3.3, and (I think - holiday brain might be a bit foggy) v3.5. Doesn't the m505 use the new OS v4.0?

If anyone has any thoughts I'll appreciate them, otherwise I'll be digging in after I return home.

Thanks,

Barry

By **Neal Bridges (Nbridges)** on Sunday, July 29, 2001 - 06:05 pm: Edit

The m505 does use OS4.0. From what you know so far, there isn't enough information to diagnose; it might be an OS issue, but then again it might be an unfavourable interaction with something else the user is running on the 505.

Neal

By **Barry Ekstrand (Ekstrandbb)** on Sunday, July 29, 2001 - 06:18 pm: Edit

I agree, there isn't enough info to determine anything. Basically I'm fishing to see if anyone else has had the same kind of report and could point in a particular direction if so. I need to fire up POSE with OS 4.0 when I get home, then we'll see what we find.

Barry

By **John Newell** on Monday, July 30, 2001 - 07:19 am: Edit

I have had reports the The Archery Suite (posted last week) will not run on the m505. I am told that all the dropdown lists come up empty. The suite was developed and compiled on my Palm Vx with OS3.5. It does work on my Palm V OS3.3 and on a IIIe OS3.1.

I haven't got a OS4.0 ROM (I'm not an Alliance member) so can't try it out on POSE.

Regards
John
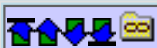
By **Neal Bridges (Nbridges)** on Monday, July 30, 2001 - 09:25 am: Edit

I'll have to try it out here, John. An additional data point -- all of my apps to date work fine on the m505.

Neal

That's funny, I just got a report from a user saying he could not use PhoneTime (see http://www.rfc1149.net/palm/) on a Visor, he gets an immediate fatal exception too. I never had any report of this kind before.

What model of Visor, Samuel?

I get these reports sometimes; they are frequently attributable to various things -- corrupt PRCs, or conflicts with one thing or another. Each instance requires investigation.

Neal

I was just told it is a Handspring Visor Deluxe (I do not own one). The program was beamed from a Palm Vx on which it works fine.

I was told that you do not need a phone to reproduce the bug: just ask to compute the time difference.

Mmm… I wonder whether I would not be using something which is only in PalmOS 3.5 (like the new serial manager, I have to check when it appeared, Visor devices are lagging behind in terms of OS version if I remember correctly). Never mind 🙂

Without actually checking, I seem to recall the Visor Deluxe has 3.11H on it (3.1, for all intents and purposes).

Neal

Neal,
It's very kind of you to try out The Archery Suite on an m505. I look forward to seeing the results.

Regards
John

All,

I returned home from holiday to find a note from the user who reported the m505 problem, telling me that all is working fine now. They also subsequently registered 2 programs, so I suppose that is additional evidence that things are okay. I have asked them to let me know what the problem actually was, but apparently it was not related to my programs.

Could this be the best way to attack a problem - be away so you can't jump on it and wait

until it fixes itself before you get back??? ;)

Barry

A surprising number of problems are self-fixing; thank the appropriate gods and keep your fingers crossed against the future. 😊

Neal

I may have spoke too soon. I've received another note from the user that he got a crash on his m505 and now the program won't run again. Additionally, I received a report this morning from another m505 user that the program won't run on his machine.

I downloaded the OS 4.0 ROM for POSE and had it running overnight. After about 52,000 events there was a message saying the stack was close to overflowing and it listed a number of what looked like screen drawing parameters as being in use.

I'm really not sure what this message tells me - I assume the stack that is referred to is not the same as the Quartus data or return stack, as I doubt I would get 52,000 events before overflowing those if my Forth code was out of balance (and no problems appear under OS 3.xx).

Any thoughts on what I should be looking for?

Thanks,

Barry

Is that the debug 4.0 ROM, or the normal one?

Neal

That is the normal one. Should it have been the other?

Barry

You'll find the debug ROM will generate errors in situations that the normal ROM -- and real device -- won 't, which can sometimes give you an indication of the point of failure.

Neal

Okay, I re-ran POSE with the 4.0 and 3.3 debug ROMs. Here is what happens:

First, when the program is started, the first thing that happens is each field is populated with a default value. For each field populate call I get an error saying:

```
Program called SysFatalAlert with the message, "Field.c, Line:2671, Ins Pt not
visible
but x/y still relative"
```

I get this message with the 3.3 debug ROM as well, but in both cases it goes away once the fields are populated. In the caes of 3.3, things run fine until another screen is called which again includes the field populate calls; at that point I get the above message until all fields are populated, then it runs again. In other words, the above message seems to be benign and is only relavent when fields are being populated.

In the case of the 4.0 debug ROM, however, after populating the initial screen I immediately get another error:

```
Program just wrote to memory location 9x000027A4,
which is an unlocked chunk of memory.

An unlocked chunk of memory is one that has been
allocated with MemHandleNew but that has not been
locked with MemHandleLock.  Such an access
usually means that an application allocated a
buffer with MemHandleNew, locked it with
MemHandleLock, unlocked it with MemHandleUnlock,
and then used the pointer returned by
MemHandleLock.
```

Attempting to continue, I immediately get another of the same message except the memory address is 0x000026A2; continuing once more yields this final error:

```
Program just changed the emulator program counter
to 0x000080FF.  This address is invalid because
it is not even.
```

At this point I have to reset, no more events will run.

Any thoughts?

Barry

By **Neal Bridges (Nbridges)** on Tuesday, August 7, 2001 - 02:47 pm:
Edit

At this point, you need to isolate exactly what it is in your code that causes the error condition to trigger. Bear in mind that some errors will only occur on the debug ROM -- that is, there's no actual error condition when running on a real device or non-debug ROM. This means there are sometimes wild geese to chase.

Neal

By **Barry Ekstrand (Ekstrandbb)** on Tuesday, August 7, 2001 - 02:58 pm: Edit

Okay, but is there any significance to the fact that the non-populate errors only occur on the 4.0 debug ROM and not the 3.3 debug ROM?

It seems POSE doesn't necessarily clear the water.

Barry

By **Neal Bridges (Nbridges)** on Tuesday, August 7, 2001 - 03:07 pm: Edit

Typically, the later version debug ROMs complain about more things, and (too often) things that don't actually occur on the real device.

You're right -- POSE doesn't clear the water. It's just another tool in the box.

Neal

By **Barry Ekstrand (Ekstrandbb)** on Wednesday, August 8, 2001 - 08:53 am: Edit

Problem solved for at least one of the users - he found that a program called MSMount is incompatible with my WealthBuilder program. If MSMount is enabled, when he taps "Calculate" in WealthBuilder he gets a crash. If MSMount is disabled WealthBuilder works fine. He determined that he doesn't need MSMount and has removed it from his m505, and all is well for him. I've sent a note to the other m505 user to see if MSMount is the source of his incompatibility as well - since the symptoms are exactly the same I have a suspicion this is the case.

I thought I remembered a previous posting about MSMount incompatibility and did a search to find it; in June it was reported that QF wouldn't run with MSMount on the machine. It appears that QF-compiled apps also don't like MSMount. I'm not sure what the problem is, but if I understand what MSMount is correctly, it is trying to fool the machine into thinking programs on an expansion card are actually in RAM. If this is right, I would assume that incompatibility issues will have to be solved by the author of MSMount. Do I understand the situation right, and have you had any correspondence with the MSMount author?

Barry

By **Neal Bridges (Nbridges)** on Wednesday, August 8, 2001 - 10:45 am: Edit

I haven't corresponded with the MsMount author. MsMount is beta code, and wobbles on its wheels quite a bit.

MsMount crashes under various circumstances, but I was able to run a number of Quartus Forth apps with it active. It appears there are just certain normal activities that cause MsMount to fall over.

Neal

By **John Newell** on Thursday, August 9, 2001 - 07:24 am: Edit

Neal,
Have you had a chance to try out The Archery Suite on your m505. I don't know anyone

else with one and can't try it myself. I would appreciate it if you would have a go when you get time. Perhaps MsMount is the problem there. Thank you.

Regards
John

By Neal Bridges (Nbridges) on Thursday, August 9, 2001 - 10:52 am:
Edit

John, sorry for the delay; I'll do that ASAP.

Neal

By John Newell on Monday, August 13, 2001 - 04:11 am: Edit

I don't know if Barry is going to add anything here but I received this e-mail from him which is relevent:

```
John,

Results are in from my m505 user and are attached.  The same results as for
my WealthBuilder: your Archery Suite works fine if MSMount is deleted but
crashes if it is on the machine.  Apparently the disable feature in MSMount
doesn't prevent the crash for our Quartus-compiled apps.

Regards,

Barry Ekstrand
```

I'll let my m505 user know. Thanks for all your help Barry.

Regards
John

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Assembler Typos

By **Kris Johnson (Kdj)** on Sunday, July 29, 2001 - 01:22 am: Edit

I've found a couple of typos in the asm68k.part2 v1.21 sources for the "Set According to Condition" mnemonics:

- SGE (Set if greater than) is spelled "SSE"

- SHI (Set if high) is spelled "SNI"

Also, asm68k uses "SET" and "SNO" instead of "ST" (Set True) and "SF" (Set False). ST and SF are the official mnemonics given in the M68000 documentation.

The disassember shows "sf" for the SNO/SF instruction, but shows "sra" for SET/ST.

-- Kris

By **Neal Bridges (Nbridges)** on Sunday, July 29, 2001 - 02:03 pm: Edit

Kris, thanks. The original materials for asm68k were an electronic copy somebody had, I believe, OCR'd in; there were typos all through it. Clearly I missed a couple!

Neal

By **Kris Johnson (Kdj)** on Sunday, July 29, 2001 - 04:37 pm: Edit

I was wondering if you Grafitti'ed them in. That would have been a lot of work.

-- Kris

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Example of "dump"

By **Bryan Zimmer** on Saturday, July 28, 2001 - 10:09 am: Edit

I have developed a "dump" routine that I am contributing here, in case it will be of any use to anyone. The word "dump" takes two words off the stack, an address and a length. If you have a word defined, say

:greet ."Hello, I speak forth" ;

you can display memory starting at ' greet as follows: 'greet 20 dump.

You can specify any valid address in memory, for example:

1) here 200 - 40 dump

2) 34012 16 dump

The whole file should be included in order for the word dump to work properly. It displays a memory address, 4 hex bytes, followed by the ascii representation of those four bytes.

The number of bytes printed will always be rounded up to the next multiple of 4, so if you say:
' greet 9 dump
you will get 12 characters starting from 'greet.

```
\ dump
needs core-ext
needs util

variable rows 0 rows !
variable cols 0 cols !

: not 0= ;
: 0<> 0= not ;


\ "rc"
\ given a length &
\ num chars per row, returns
```

```
\ number of full rows &
\ number colums in last row
: rc ( l n -- l nrows ncols )
2dup /mod ;

: set ( a l --a+l a )
over + swap ;
: hnum c@ hex 3 u.r decimal ;
: tr ( a -- a ) dup 4 u.r ." : " ;
: data c@ emit space ;
: tab 4 spaces ;

: .row ( a n -- a+n )
\ prints out that many
\ chars starting at "a"
set over >r cr
tr 2dup
do i hnum loop
tab
do i data loop r> ;

: dump ( a l -- ) \ hex dump
4 rc rows ! cols !
nip over rows @ 0 do
over .row loop
nip
cols @ 0<> if
4 .row then
cr 2drop ;
```

You should delete the line that says
"needs util". That refers to a file of utility routines I used while debugging.
-- Bryan Zimme5r

Here is the corrected version of "dump:
```
\ dump

needs core-ext


variable rows 0 rows !
variable cols 0 cols !
```

```
: not 0= ;
: 0<> 0= not ;

\ "rc"
\ given a length &
\ num chars per row, returns
\ number of full rows &
\ number colums in last row
: rc ( l n -- l nrows ncols )
2dup /mod ;

: set ( a l --a+l a )
over + swap ;
: hnum c@ hex 3 u.r decimal ;
: tr ( a -- a ) dup 4 u.r ." : " ;
: data c@ emit space ;
: tab 4 spaces ;

: .row ( a n -- a+n )
\ prints out that many
\ chars starting at "a"
set over >r cr
tr 2dup
do i hnum loop
tab
do i data loop r> ;

: dump ( a l -- ) \ hex dump
4 rc rows ! cols !
nip over rows @ 0 do
over .row loop
nip
cols @ 0<> if
4 .row then
cr 2drop ;
```

🔺🔺🔻✉️   By **Kris Johnson (Kdj)** on Saturday, July 28, 2001 - 11:54 am: Edit

DUMP doesn't quite work as advertised. If you do this:

```
: greet ." Hello, world!" ;
' greet 20 dump ;
```

you don't see the characters of "Hello, world".

This is because word definitions go into codespace rather than into dataspace, and your DUMP word looks at dataspace. For example, this does

work:

```
: "greet" s" Hello, world!" ;
"greet" dump
```

To dump things from codespace, you have to use CSC@ instead of C@. So you might want to have a CSDUMP word in addition to DUMP.

FWIW, here's a CSDUMP word that I use. It prints things out one cell at a time, rather than one character at a time, and doesn't give an ASCII representation:

```
\ csdump  2001/7/28 KBJ

: h. ( u -- )
  base @ hex swap u. base ! ;

\ Dump from code space
: csdump ( a n -- ) \ N is number of cells
  for
    cr dup u. dup cs@ h.
    cell+
  next drop ;
```

-- Kris

Huh, that's funny. I contributed DUMP and DU to the file section two or three years ago, but it doesn't seem to be there now. Maybe Neal removed some of the old stuff? I don't know.

Mike

Not on purpose, Mike. Do you remember the filename?

Neal

The file header was:
\ DUMP and DU 02.27.99

Neal, you actually fixed a bug in that code on March 4, 1999. It was something that I built out of Ed Beroset's earlier work and you got to run fast. Anyway, doesn't really matter. I'm sure Bryan's code is just as good or better.

I won't post my current library because my stuff is so heavily factored and modified now gets confusing knowing which of the standard libraries to include (the bane of Forth). The old code is still in the archived forum messages, of course. (I don't know how to embed a link to previous forum messages, sorry).

Mike

By **Chapman Flack** on Sunday, July 29, 2001 - 10:08 pm: Edit

A suggestion: "absdump" is really all you need to dump from dataspace, codespace, or anywhere else:

: dump swap >abs rot absdump ;

: csdump swap xt>abs rot absdump ;

So the most general word to sit down and write is absdump.

-Chap

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[STUMPED] Event Queue Full?

By **Elan Goldman** on Thursday, July 26, 2001 - 02:28 am: Edit

Hi,

I have a form that consists of twelve fields. I can insert strings into ten of them, but as soon as I try to insert a string into the eleventh field I get a "Fatal Error Alert" informing me that in the file Event.c the line 283 caused an "Event queue full" error.
The code I use to insert the strings into the fields is standard, i.e.

GetObjectPtr FldInsert

Does this make any sense? Has anyone encountered this error before? Are there any known workarounds?

TIA,

Elan

By **chris bucsko** on Thursday, July 26, 2001 - 10:33 am: Edit

Yes, always add a FlushQueue word when doing multiple FLD palmOS calls. I had a similar experience until I did that.

```
: text>field
( numbytes a-addr. fieldID -- Err )
    GetObjectPtr
    FldInsert FlushQueue ;
```

It's buried in the docs somewhere. I'd like to know why this is , as well. (Neil?)

By **Bob Ryan** on Thursday, July 26, 2001 - 11:28 am: Edit

From the FldInsert entry in the SDK:

"This function sets the field's dirty attribute and posts a fldChangedEvent to the event queue. If you call this function repeatedly, you may overflow the event queue with fldChangedEvents"

Yes! Thanks! That did it!

Elan

Add a Message

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Reading Form Structure

By **Alfred Salton** on Wednesday, July 25, 2001 - 11:22 am: <u>Edit</u>

Can anyone offer suggestions on a method to read the form resources present in a database, as well as the individual field definitions within each form? This must be done without prior knowledge of the forms present.

By **Bob Ryan** on Wednesday, July 25, 2001 - 12:03 pm: <u>Edit</u>

You can use DmGetResourceType to find all of the form resouces in a database. Try looking here for a clue:

http://www.sleepless-night.com/cgi-bin/twiki/view/Main/AutomatedMake

For the fields use FrmGetNumberOfObjects to get the number of objects in each form. Then you can cycle through the objects and use FrmGetObjectType to see wether it is a field or not.

Then use FrmGetObjectPtr to get a pointer to the field structure.

Hope this helped,
Bob

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E-mail:

E-mail:

New App: The Archery Suite

By **John Newell** on Wednesday, July 25, 2001 - 08:52 am: Edit

Just to say that I have posted The Archery Suite (my first application), written in Quartus Forth using pedit and RsrcEdit, on PalmGear.

http://www.palmgear.com/software/showsoftware.cfm?sid=1653652000120113414&prodID=20053
Thank you to all those on this forum who helped me to get it there.

Regards
John

By **Barry Ekstrand (Ekstrandbb)** on Sunday, July 29, 2001 - 05:43 pm: Edit

John,

Congratulations on the new app!

Barry Ekstrand

Add a Message

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This is a public posting area. If you do not have an account, enter your full name into the "Username" box and leave the "Password" box empty. Your e-mail address is optional.

New App: PulleySpeed

By **Dave Bennett (Dbennett)** on Monday, July 23, 2001 - 07:14 pm: Edit

I have a new application available at my site (www.micoks.net/~dbennett) called PulleySpeed.

It is pretty useful in the furniture factory where I work where we have a lot of motor driven equipment. You can enter three of these fields:

Motor Pulley Size
Tool Pulley Size
Motor Pulley RPM
Tool Pulley RPM

and the app calculates the remaining value for you. Helps us to quickly see if a tool is operating within the recommended rotational speed range. It is also helpful when planning a new tool design or setup.

Would someone be so kind as to grab it and make me a screenshot? I'd like the values to be 3.5, 5, and 1800 from the top and then press calc. Thanks!

Dave

By **Barry Ekstrand (Ekstrandbb)** on Sunday, July 29, 2001 - 05:42 pm: Edit

Dave,

Congratulations on another app release. I am currently remote (out of state) so I can't help you on the screenshot request, but I thought it might be useful to share how I normally go about making a screenshot with a freeware approach. Using POSE, you can save a screen in bitmap (.bmp) format; the issue then is to convert the .bmp to .gif or .jpg formats. I've found IrfanView, a freeware (for individual, home users; I think there is a $10 registration fee for business users) program to work well for making the conversion. Just open the .bmp file, then choose Save As from the menu and pick the new format you want. Seems to work fine.

I've also created an animated gif using a free web site, but I can't recall the address of that right now - hopefully a web search would turn it up.

Barry Ekstrand

By **Kris Johnson (Kdj)** on Sunday, July 29, 2001 - 07:35 pm: Edit

The version of Microsoft Paint included with Windows 98 can save bitmaps as JPEG.

-- Kris

By **Dave Bennett (Dbennett)** on Tuesday, July 31, 2001 - 05:47 pm: Edit

Thanks, guys. I don't have a Windows machine and don't have POSE running on my Linux box. I don't use the desktop very often any more. I need a BMP to upload the app to PalmGear as that is the "industry standard" according to them. 😦 (I think that jpg is more an internet standard than an antiquated BMP myself.)

By **Dave Bennett (Dbennett)** on Wednesday, August 1, 2001 - 06:07 pm: Edit

Kelley sent me a file with the image so I'm set. I got it uploaded at PalmGear this afternoon.

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Trig Functions and Mathlib

By **Gary Wiese** on Sunday, July 22, 2001 - 01:52 pm: Edit

Is there a way I can use mathlib for trig functions? Could someone show me a few lines of code that will do this? I am trying to write something to find compound angles for crown molding. I already know all the trig formulas needed.

Gary

By **Neal Bridges (Nbridges)** on Sunday, July 22, 2001 - 02:32 pm: Edit

Yes, the MathLib extension will give you all the trig functions.

Neal

By **Bob Ryan** on Sunday, July 22, 2001 - 03:53 pm: Edit

You'll need the Float Library, available here:

http://sleepless-night.com/cgi-bin/twiki/view/Main/FloatLib

By **Gary Wiese** on Sunday, July 22, 2001 - 05:00 pm: Edit

I have downloaded the files, but there are two NewFloatMgr's one with the date 2001.4.27 and 2001.4.4 that are very different. Not like an updated version, but an all together different version. Which one do I use or do I need both, however I will need to change the name to use both?

Gary

By **Neal Bridges (Nbridges)** on Sunday, July 22, 2001 - 06:07 pm: Edit

I believe Chapman Flack's most current version is here:
http://www.sleepless-night.com/cgi-bin/twiki/view/Main/FloatLib

Neal

By **Neal Bridges (Nbridges)** on Sunday, July 22, 2001 - 06:08 pm: Edit

That's not very helpful, is it. 🙂 Same link as above.

I believe what you're seeing is NewFloatMgr and NewFloatMgr.2 -- they are

two separate files, both required.

Neal

Thanks Neal, I kinda figured that so I renamed one NewFloatMgr.2.

Gary

I just downloaded floatlib.zip from the wiki and ran zipinfo on it:

```
Archive:  floatlib.zip   14474 bytes   11 files
-rw-------  2.2 unx   17337 tx defN 15-May-01 17:56 ReadMe
-rw-------  2.2 unx    1859 tx defN  4-Apr-01 10:49 sfdf
-rw-------  2.2 unx    1203 tx defN 13-Mar-01 22:42 fsfdf
-rw-------  2.2 unx    3192 tx defN 15-May-01 17:31 NewFlMgr
-rw-------  2.2 unx    3927 tx defN 15-May-01 17:31 NewFlMgr.2
-rw-------  2.2 unx     938 tx defN 15-May-01 17:31 fpround
-rw-------  2.2 unx     409 tx defN 13-Mar-01 22:42 fdot
-rw-------  2.2 unx    4005 tx defN 25-Apr-01 13:09 MathLib
-rw-------  2.2 unx     637 tx defN 13-Mar-01 22:42 float.h
-rw-------  2.2 unx     373 tx defN 13-Mar-01 22:42 fl-alias
-rw-r--r--  2.2 unx     885 tx defN 13-Mar-01 23:46 qhdf
```

The fourth and fifth entries have different names. Once sync'd to the handheld, their QF names are determined by their first lines:

```
\ NewFloatMgr 2001.4.27 JCF
\ NewFloatMgr.2 2001.4.4 JCF
```

What's the problem? What did you need to rename?

-Chap

Since none of the extracted files have extensions, I mistakenly renamed them all to "*.txt". That wiped out the ".2" and ".h" that were there previously.

It's possible that Gary did the same thing.

By **Chapman Flack** on Monday, July 23, 2001 - 04:16 pm: Edit

You mean, none but the ones that do? ;)

Isn't there a way in your OS to rename adding extensions only to the files that don't already have them, if you wanted to do that? Just wondering. From my vague memories of ancient DOS something like RENAME *. .TXT might have done the trick--but it's been a real long time.

-Chap

By **Bob Ryan** on Monday, July 23, 2001 - 04:59 pm: Edit

There probably is a way, I just didn't notice that two of the files had extensions.

The problem is really with Windows, it doesn't know what to do with files that don't have an extension. Or some odd extension like ".2". Renaming a group of files under Windows is no joy either 😕

Adding a ".mpa" (memo archive) file to the zip would help Windows users.

-Bob

By **Chapman Flack** on Monday, July 23, 2001 - 06:31 pm: Edit

I wouldn't mind doing that, but as a non-Win user I'm not sure how I would go about it. Has somebody worked out the .mpa format and made a portable program to build it? Maybe even a ZBoxZ mode that would run on the handheld …

If some Win-ophile wanted to make a separate .mpa and attach it to the wiki page, I wouldn't yell too loudly.

-Chap

By **Bob Ryan** on Monday, July 23, 2001 - 09:13 pm: Edit

I attached my float.mpa to the web page. If anyone has any problems with the archive please let me know.

-Bob

By **Kris Johnson (Kdj)** on Tuesday, July 24, 2001 - 01:25 am: Edit

The .mpa format is described here:
http://www.geocities.com/Heartland/Acres/3216/palmrecs.htm. It is not

officially documented by Palm.

-- Kris

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Max size of floating point stack?

By **Les Grundman** on Sunday, July 22, 2001 - 12:24 am: Edit

What is the maximum size of the floating point stack? Is there anyway to increase it if I run into trouble?

Thanks,
Les

By **Neal Bridges (Nbridges)** on Sunday, July 22, 2001 - 12:27 am: Edit

It's 8 floats big. There's no magic way to increase it, but then again it's never come up as an issue. Let me know if you hit a wall, I'm sure there's a way out.

Neal

By **Chapman Flack** on Monday, July 23, 2001 - 12:36 pm: Edit

If you use FloatLib, the floats currently share the data stack. That has its own headaches but at least an arbitrary depth limit isn't one of them. If you want to write a truly portable ANS program you should endeavor to keep your float stack depth <= 6.

-Chap

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Slooooow Graphics

By **Matthew Burke (Mmb)** on Sunday, July 22, 2001 - 12:14 am: Edit

I've been working on a few different apps that use double-buffering to do the screen updates and am finding that they run unacceptably slow.

I can post other examples if necessary, but below is a fairly simple app which crawls when you run it. If you get rid of the double-buffering, it runs at a reasonable rate. I rewrote the same thing in C and it zips along quite nicely.

Any tips/suggestions on how I can get better performance are greatly appreciated.

Here's the Forth code (Note: I stripped out several pieces of the code that weren't relevant to this discussion):

```
\ solar

needs graphics
needs color
needs colornames
needs double-buffer

4 constant #planets

4 array x
4 array y
4 array dx
4 array dy

: init ( -- )   #planets 0 do
   -1 i dx ! 1 i dy !    loop
   15 0 x !   30 1 x !   40 2 x !   70 3 x ! ;
init

: update-positions
   #planets 0 do
 i x  dup  @ i dx @ + swap !
 i y  dup  @ i dy @ + swap !
 i x @ 0= if
  i dy @ -1 * i dy !
 then
 i y @ 0= if
  i dx @ -1 * i dx !
 then
   loop ;

: drawCircle ( y x -- )
   4 4 2swap 2 rounded-rectangle ;

: drawPlanet ( y x c. -- )
   foreground
   80 + swap 80 + swap drawCircle ;

: drawSun ( -- )
    0 0 yellow drawPlanet ;
```

```
: draw-system ( -- )
  drawToBuffer
    black background
    160 160 0 0 erase-rectangle
    drawSun
    #planets 0 do
 i y @  i x @
 limegreen  drawPlanet
     loop
    drawToScreen  showScreenArea ;

: xdraw-system     #planets 0 do
    i x @ .  i y @ . 3 spaces loop cr ;

: main ( -- )   begin
    1. (ekey) drop update-positions
    draw-system again ;

: go ( -- )   createWindows
    ['] main catch  throw ;
```

I can't see your C code, so I don't know what you're doing differently there, but **1. (ekey)** is much slower than **0. (ekey)** would be.

Can you narrow down where the delay is? Is it in actually drawing the offscreen graphics?

Neal

Can you show us your drawToBuffer and showScreenArea routines? Is it actually creating a whole new offscreen window on every draw? (I don't see wany other place where you create the offscreen window, except maybe createWindows.)

There's no reason that Forth should be noticably slower than C if you are primarily using the Palm OS system traps to do all the work.

-- Kris

I'll take a stab at using Kris's replacements for TYPE, etc. so I can get some exact timing data printed out---as an aside, I **swear** at one point that . and ." were working fine with my double-buffered code, but they don't work now and one problem at a time <g>.

But I'm quite confident it's got something to do with the drawing code because if you comment out drawToBuffer, drawToScreen and showScreenArea, there is a noticeable difference in speed. I tried changing 1. (ekey) to 0. (ekey) but couldn't tell any difference.

The double buffer words are stripped right out of Jim Hendricks's analog clock. createWindows creates the offscreen buffer and drawToScreen and drawToBuffer just call WinSetDrawWindow.

And for comparison, here's my C code---don't laugh too hard....

```
#include <PalmOS.h>
```

```
#include <PalmCompatibility.h>

#include "solarRsc.h"

#define CID 'Solr'
#define APPPREFID 1
#define YELLOW 0x6C
#define NUMPLANETS 4

typedef struct {
  UInt16 x[NUMPLANETS];
  UInt16 y[NUMPLANETS];
  UInt16 dx[NUMPLANETS];
  UInt16 dy[NUMPLANETS];
} AppPrefs;

AppPrefs myAppPrefs;

RectanglePtr myRect = NULL;

Boolean paused_p = false;

WinHandle screenHandle;
WinHandle bufferHandle;
WinHandle heavensHandle;

UInt16 radii[NUMPLANETS] = { 15, 30, 40, 70 };
UInt16 sizes[NUMPLANETS] = { 2, 6, 4, 1 };
IndexedColorType colors[NUMPLANETS] = { 0x7c, 0xa2, 0x38, 0x00 };
UInt16 dx[NUMPLANETS];
UInt16 dy[NUMPLANETS];
UInt16 x[NUMPLANETS];
UInt16 y[NUMPLANETS];


static void DrawCircle(UInt16 x, UInt16 y, UInt16 radius)
{
  RectangleType theRect;
  theRect.topLeft.x = x;
  theRect.topLeft.y = y;
  theRect.extent.x = radius;
  theRect.extent.y = radius;

  WinDrawRectangle(&theRect, radius/2);
}


static void DrawPlanet(UInt16 x, UInt16 y, UInt16 radius, IndexedColorType color)
{
  WinSetForeColor(color);
  DrawCircle(80+x, 80+y, radius);
}

static void DrawSun()
{
  DrawPlanet(0, 0, 8, YELLOW);
}


static void GetAppPrefs()
{
```

```c
  SWord prefsVersion = noPreferenceFound;
  UInt16 prefsSize;
  int i;

  prefsSize = sizeof( AppPrefs );
  prefsVersion = PrefGetAppPreferences( CID, APPPREFID, &myAppPrefs, &prefsSize, true
);

  if ( (prefsVersion==APPPREFID) && (prefsSize == sizeof( AppPrefs )) ) {
    for (i=0; i < NUMPLANETS; i++) {
      x[i] = myAppPrefs.x[i];
      y[i] = myAppPrefs.y[i];
      dx[i] = myAppPrefs.dx[i];
      dy[i] = myAppPrefs.dy[i];
    }
  }
}

static void SaveAppPrefs()
{
  int i;

  for (i=0; i < NUMPLANETS; i++) {
    myAppPrefs.x[i] = x[i];
    myAppPrefs.y[i] = y[i];
    myAppPrefs.dx[i] = dx[i];
    myAppPrefs.dy[i] = dy[i];
  }

  PrefSetAppPreferences( CID, APPPREFID, APPPREFID, &myAppPrefs, sizeof( AppPrefs ),
true );
}


static UInt16 StartApplication (void)
{
  UInt16 error;
  UInt16 r, c;
  int i;

  screenHandle = WinGetDrawWindow();
  bufferHandle = WinCreateOffscreenWindow(160, 160, screenFormat, &error);
  heavensHandle = WinCreateOffscreenWindow(160, 160, screenFormat, &error);
  ErrFatalDisplayIf(error, "Error loading images");

  for (i=0; i < NUMPLANETS; i++) {
    dx[i] = -1;
    dy[i] = 1;
    y[i] = 0;
    x[i] = radii[i];
  }

  GetAppPrefs();

  WinSetDrawWindow(heavensHandle);
  WinSetForeColor(0x00);
  WinSetBackColor(0xFF);

  WinGetWindowBounds(myRect);

  WinEraseRectangle(myRect, 0);
```

```
    DrawSun();

    for (i=0; i < 50; i++) {
      r = SysRandom(0) % 160;
      c = SysRandom(0) % 160;
      WinDrawPixel(r, c);
    }

    WinSetDrawWindow(screenHandle);

    return 0;  // no error
}


static void StopApplication (void)
{
    WinDeleteWindow(bufferHandle, false);
    FrmCloseAllForms ();

    SaveAppPrefs();
}


static void UpdatePositions() {
    int i;

    for (i=0; i < NUMPLANETS; i++) {
      x[i] += dx[i];
      y[i] += dy[i];

      if (x[i] == 0) dy[i] = -1 * dy[i];
      if (y[i] == 0) dx[i] = -1 * dx[i];
    }
}


static void RedrawSystem() {

    int i;

    WinSetDrawWindow(bufferHandle);

    WinCopyRectangle(heavensHandle, bufferHandle, myRect, 0, 0, winPaint);

    for (i=0; i < NUMPLANETS; i++) {
      DrawPlanet(x[i], y[i], sizes[i], colors[i]);
    }

    WinSetDrawWindow(screenHandle);
    WinCopyRectangle(bufferHandle, screenHandle, myRect, 0, 0, winPaint);
}


static Boolean BoardViewDoCommand(UInt16 command)
{
    switch (command)
      {
      case AboutItem:
        FrmAlert(AboutAlert);
        break;
```

```c
        }
    return true;
}

static Boolean BoardViewHandleEvent (EventPtr event)
{
    FormPtr frm;
    Boolean handled = false;

    if (event->eType == nilEvent)
        {
            if (!paused_p) {
  UpdatePositions();
  RedrawSystem();
            }
        }

    else if (event->eType == keyDownEvent)
        {
            return true;
        }

    else if (event->eType == menuEvent)
        {
            BoardViewDoCommand(event->data.menu.itemID);
            return true;
        }

    else if (event->eType == frmCloseEvent)
        {
        }

    else if (event->eType == frmOpenEvent)
        {
            frm = FrmGetActiveForm ();

            FrmDrawForm (frm);

            handled = true;
        }

    else if (event->eType == frmUpdateEvent)
        {
            frm = FrmGetFormPtr (BoardView);

            FrmDrawForm (frm);

            handled = true;
        }

    // Don't allow the command bar to come up as it interferes with game play.
    else if (event->eType == menuCmdBarOpenEvent)
        handled = true;

    return (handled);
}


static Boolean ApplicationHandleEvent (EventPtr event)
{
    UInt16 formId;
```

```c
  FormPtr frm;

  if (event->eType == frmLoadEvent)
    {
      formId = event->data.frmLoad.formID;
      frm = FrmInitForm (formId);
      FrmSetActiveForm (frm);

      switch (formId)
 {
 case BoardView:
   FrmSetEventHandler (frm, BoardViewHandleEvent);
   break;


 }
      return (true);
    }
  return (false);
}


static void EventLoop (void)
{
  UInt16 error;
  EventType event;

  do
    {
      EvtGetEvent (&event, 1);

      if (event.eType == winExitEvent) {
 if (event.data.winExit.exitWindow == (WinHandle) FrmGetFormPtr(BoardView)) {
   paused_p = true;
 }
      } else if (event.eType == winEnterEvent) {
 if (event.data.winEnter.enterWindow == (WinHandle) FrmGetFormPtr(BoardView) &&
     event.data.winEnter.enterWindow == (WinHandle) FrmGetFirstForm()) {
   paused_p = false;
 }
      }


      if (! SysHandleEvent (&event))
 if (! MenuHandleEvent (0, &event, &error))
   if (! ApplicationHandleEvent (&event))
     FrmDispatchEvent (&event);
    }

  while (event.eType != appStopEvent);
}



UInt32 PilotMain(UInt16 cmd, MemPtr cmdPBP, UInt16 launchFlags)
{
  UInt16 error;


  if (cmd == sysAppLaunchCmdNormalLaunch)
    {
```

```
        error = StartApplication ();

        FrmGotoForm (BoardView);

        if (! error)
 EventLoop ();

        StopApplication ();
      }

   return 0;
}
```

By **Kris Johnson (Kdj)** on Sunday, July 22, 2001 - 09:26 pm: Edit

You might try removing the (ekey) call entirely, just to see what happens when you call your graphics code in a tight loop without any event checking. (ekey) can be kinda weird. (No offense intended, Neal!)

Without (ekey), you won't be able to stop your program and transfer control to another. So you may want to put a loop that runs a few hundred times and then quits.

-- Kris

By **Neal Bridges (Nbridges)** on Sunday, July 22, 2001 - 09:30 pm: Edit

No offense taken -- (ekey) does little more than call the Palm OS EvtGetEvent systrap, so if there's anything weird, it's in the systrap itself.

I can't hink of anything weird about EvtGetEvent, though -- what have you encountered?

Neal

By **Kris Johnson (Kdj)** on Sunday, July 22, 2001 - 10:54 pm: Edit

Doesn't (ekey) also pass the event through the standard sequence of event handling functions (system, menu, window, form, etc.) before returning the event to the Forth application?

I can't remember off-the-top-of-my-head what I found weird about it. It seems that there was some case where I wanted to override the event handling because (ekey) was doing something I didn't like.

-- Kris

By **Neal Bridges (Nbridges)** on Monday, July 23, 2001 - 12:20 am: Edit

Indeed it does. I see what you mean now, but certainly it shouldn't introduce any practical delay into a graphics application of this sort. I am curious to see the results of Gary's timing exercise.

Neal

By **Matthew Burke (Mmb)** on Monday, July 23, 2001 - 02:13 pm: Edit

Ok, here's some timing data.

I made use of the following:

: t+ TimGetTicks ;
: t- TimGetTicks 2swap d- ;

And find that there is no difference between using a begin/again loop with 1. (ekey), or 0. (ekey), or

rewriting it as Kris suggested to get rid of the (ekey) altogether. In all three cases, the entire loop takes 39-41 ticks. This is using the double-buffering.

I've got the draw-system word modified as follows:

```
: draw-system ( -- )
  t+ drawToBuffer t-
  t+
   black background
   160 160 0 0 erase-rectangle
   drawSun
   #planets 0 do
 i y @  i x @
 limegreen  drawPlanet
    loop t-
  t+ drawToScreen t- t+ showScreenArea t-
  thome t" showScreenArea " td.
  tcr t" drawToScreen " td.
  tcr t" draw " td.
  tcr t" drawToBuffer " td. ;
```

The timing is showScreenArea 2-3 ticks, drawToScreen 0 ticks, draw 30-31 ticks, drawToBuffer 0 ticks.

Now if I comment out drawToScreen, drawToBuffer and showScreenArea I find that the draw portion takes 10 ticks.

And just for comparison, my C program does the whole update-system in 5 ticks.

By **Neal Bridges (Nbridges)** on Monday, July 23, 2001 - 02:18 pm: Edit

So how does it break down: is it drawToScreen, drawToBuffer, or showScreenArea that's dragging you down?

Neal

By **Neal Bridges (Nbridges)** on Monday, July 23, 2001 - 02:20 pm: Edit

… my confusion stems from your numbers. You say that 'draw' takes 30-31 ticks, and that the rest take 3 ticks in total; then you say that when removing the parts that take 3 ticks, the remainder takes only 10. Somewhere in there I've lost 25 ticks.

Neal
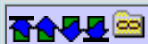
By **Neal Bridges (Nbridges)** on Monday, July 23, 2001 - 02:23 pm: Edit

Or are you saying that 'draw' takes 10 ticks, but somehow takes 30 ticks when drawing to an offscreen window? That seems very strange indeed.

Neal

By **Matthew Burke (Mmb)** on Monday, July 23, 2001 - 06:42 pm: Edit

Sorry for the confusion. When I say 'draw' takes 30 ticks, I'm referring to the bold portions of the **draw-system** word as follows:

```
: draw-system ( -- )
```

```
  drawToBuffer
  black background
  160 160 0 0 erase-rectangle
  drawSun
  #planets 0 do
      i y @  i x @
      limegreen  drawPlanet
  loop
  drawToScreen  showScreenArea ;
```

So that takes 30 ticks when drawing to an offscreen window, but only 10 if drawing directly to the screen. And I am completely baffled as to why that is.

I am equally baffled. Can you further isolate how long each sub-component takes?

Neal

I can understand why it might take longer to draw to an offscreen window: the display system might be optimized to handle draws to screen memory, and do something different to offscreen memory.

However, I don't understand why C would be faster than Forth. The C compiler might be optimizing the array accesses better, but I would expect the drawing commands to dominate the time. And that wouldn't explain why offscreen is slower than onscreen.

The only other thing I can think of is some sort of alignment issue. Does the DragonBall handle memory accesses to four-byte boundaries better than two-byte boundaries? And if so, might this be a case where the C code is putting its data on better boundaries?

One more off-the-wall suggestion: maybe a C program has a different memory layout that allows WinCopyRectangle to run faster?

-- Kris

I doubt it's an alignment issue -- there would have to be a huge number of memory accesses to cause a noticeable difference, even if certain alignments were slower.

Neal

I wrote my own version of your program, based upon the C version. I removed all the color handling, as I don't have a color PDA. It keeps a count of updates and also displays the time per update.

This version seems to do each offscreen-draw-and-copy in one tick or less on my Visor Platinum.

Please give it a try on your machine. You also might want to reinstate the color stuff to see if that makes a difference.

-- Kris

\ solarkj

```
needs toolkit
needs text

4 constant #planets

#planets array x
#planets array y
#planets array dx
#planets array dy

2variable screenH
2variable bufferH

variable counter
0 counter !

create (radii)
  15 , 30 , 40 , 50 ,

: radii ( i -- a )
  cells (radii) + ;

create (sizes)
  4 , 12 , 6 , 2 ,

: sizes ( i -- a )
  cells (sizes) + ;

create screenRect
  0 , 0 , 160 , 160 ,

create rect
  4 cells allot

variable error

: DrawCircle ( r y x -- )
  rect !
  rect cell+ !
  dup rect [ 2 cells ] literal + !
  dup rect [ 3 cells ] literal + !
  2/ rect >abs WinDrawRectangle ;

: DrawPlanet ( r y x -- )
  80 + swap 80 + swap DrawCircle ;

: DrawSun ( -- )
  8 0 0 DrawPlanet ;

: CreateOffscreen ( -- h. )
  error >abs 0 160 160
  WinCreateOffscreenWindow ;

: StartApplication ( -- )
  WinGetDrawWindow screenH 2!
  CreateOffscreen bufferH 2!

  #planets 0 do
    -1  i dx  !
     1  i dy  !
```

```
      0  i y  !
      i radii @  i x !
    loop ;

: StopApplication
    0 bufferH 2@ WinDeleteWindow ;

: AtEdge? ( n -- f )
    dup 0= swap 160 = or ;

: negate! ( a -- )
    dup @ negate swap ! ;

: UpdatePositions ( -- )
    #planets 0 do
      i dx @ i x +!
      i dy @ i y +!
      i x @ AtEdge? if
        i dy negate!
      then
      i y @ AtEdge? if
        i dx negate!
      then
    loop ;

: t+  TimGetTicks ;
: t-  TimGetTicks 2swap d- ;

: RedrawSystem ( -- )
    t+
    bufferH 2@ WinSetDrawWindow

    WinEraseWindow

    #planets 0 do
      i sizes @ i y @ i x @ DrawPlanet
    loop

    0 0 at-xy counter @ t.
    1 counter +!

    WinSetDrawWindow 2drop

    0 0 0 screenRect >abs
    screenH 2@ bufferH 2@
    WinCopyRectangle

    t- tcr td. ;

: EventLoop ( -- )
    begin
      0. (ekey) drop
      UpdatePositions RedrawSystem
    again ;

: go ( -- )
    StartApplication
    EventLoop
    StopApplication ;
```

BTW, if I add DrawSun to RedrawSystem, then the timing occasionally flickers to 2 instead of 1.

-- Kris

OK, you'll have to take my word that I'm not so inept at debugging database-backed web sites. Maybe it's the fact that it's been over a year and I still suck at graffiti <g>

Anyway, Kris I tried your app on my IIIc and it takes 5 ticks or so to do the drawing. If I add color to your app it takes about 30 ticks just like mine. If I remove the color from mine it takes 5 ticks like yours.

So there's some problem with color in conjunction with double buffering. So I'm going to start looking into that.

Excellent -- getting closer all the time. Does the colour slow it down when it's not double-buffered?

Neal

Is your C program is still a lot faster than my Forth version?

From my Macintosh programming days, I remember there were a few things you had to do to make a "CopyBits" call go as fast as possible:

- source and destination bitmaps had to be the same size and same color depth, and aligned on four-byte boundaries

- foreground and background colors had to be the same, and both windows have to have the same palette

- use the "copy" mode (not xor or other weird things)

I'm not sure how this translates to Palm OS. Try setting the foreground and background colors to be the same, and copy any other window attributes you can think of.

Finally, I'm not up on all this fancy color stuff, but is it possible that you should be using some of the new bitmap-related functions (WinPaintBitmap, etc.) to get best performance out of color systems?

-- Kris

You might want to take a look here: http://www.palmos.com/dev/tech/color/

It says that on the IIIc, you can use WinScreenLock and WinScreenUnlock to make things fast. It uses VRAM rather than the dynamic heap.

-- Kris

Ok, I've got it! Sort of.

First: Neal, no, when the program is not double-buffered, color does not slow it down.

Kris, my C program (in color) is the same speed as your (b&w) Forth program.

Now, I noticed that my C program calls WinSetForeColor and WinSetBackColor whereas the Forth words foreground and background make use of WinSetColors which is an obsolete call.

So I defined the following:

```
: myForeground ( n -- ) >byte (hex) a398
    systrap drop ;

: myBackground (n -- ) >byte (hex) a399
    systrap drop ;
```

and substituted them into my Forth program---I had to change the color references from an rgb to a table index--and voila, my Forth program runs just as fast as my C program.

As an interesting aside, if I use foreground and background with white, black, light-gray, dark-gray, it doesn't slow the double-buffered program down at all, but the instant you throw in a non-grayscale color, it slows to a crawl.

By **Matthew Burke (Mmb)** on Wednesday, July 25, 2001 - 06:58 pm:
Edit

Whoops! Didn't quite finish before I hit post.

I say "sort of" got it, because I'm interested in figuring out why the WinSetColors behaves so oddly.

Anyway, Neal and Kris, I want to thank you for your help. It is greatly appreciated! I'll give you a day or two breather before I post the problems I'm having with menubars <g>

By **Jim Hendricks (Jimh)** on Wednesday, July 25, 2001 - 07:52 pm: Edit

Seem to recall somewhere reading that setting colors by index is faster than setting colors by RGB. Seem to recall it had something to do with building a dynamic pallet to accept your RGB color. For colors not in the current pallet the recomendation was to define your own pallet then call by index in the new pallet.

Just my recollection, I could be totally off base on this.

Jim

PS Thanks for the vote of confidence in using my doublebuffering routines.

By **Neal Bridges (Nbridges)** on Wednesday, July 25, 2001 - 08:20 pm:
Edit

I think you've got it, Jim. The colour routines I initally provided do the RGB conversion; this is a slow process, and it seems even slower in offscreen windows, for some reason.

Neal

By **Kris Johnson (Kdj)** on Thursday, July 26, 2001 - 07:20 pm: Edit

It would be nice if one of you would summarize these findings in the wiki. (I'd do it myself, but I'm not sure I understand what's going on.)

-- Kris

By **Matthew Burke (Mmb)** on Sunday, July 29, 2001 - 05:16 pm: Edit

I'll make a stab at it over the next couple of days.

Add a Message

Username:

Password:

E-mail:

This is a public posting area. If you do not have an account, enter your full name into the "Username" box and leave the "Password" box empty. Your e-mail address is optional.

Why no word: see?

By **Kevin Carney** on Friday, July 20, 2001 - 10:59 am: Edit

Why is the WORD SEE not included with quartus forth? To my understanding, it is a ANS-83/94 Forth word. It would help out with just starting to learn Forth. By the way, great product!!!

By **Neal Bridges (Nbridges)** on Friday, July 20, 2001 - 11:01 am: Edit

Thanks!

SEE is provided. It's in the **disasm** module.

Neal

By **Harry Winter** on Saturday, July 21, 2001 - 02:31 am: Edit

Why is the WORD "DUMP" not included with quartus forth? To my understanding, it is a ANS-83/94 Forth word.
Harry

By **Neal Bridges (Nbridges)** on Saturday, July 21, 2001 - 02:32 am: Edit

DUMP is available; there are a number of incarnations of it in the File Area and Forum archives. You can write a simple version of DUMP with just a few lines of code; give it a shot.

Neal

By **Kris Johnson (Kdj)** on Saturday, July 21, 2001 - 02:38 am: Edit

DUMP is part of the ANS Programming-Tools wordset. That wordset is not required (but does have some cool stuff).

DUMP is pretty trivial to implement on your own:

```
: dump ( addr u -- )
  for dup @ . cell+ next drop ;
```

It could be a little more sophisticated. But I'd prefer that Neal spend his time on stuff within the Forth kernel that can't be done by users.

-- Kris

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Launching app on MMC / SD Card

By **A.Schönfeld** on Thursday, July 19, 2001 - 06:35 pm: Edit

Is there a way to launch an app from the MMC / SD Card on a palm m50x ? Launch memopad demo with cardnumber 1 doesn't seem to to do the trick (app not found).

By **Neal Bridges (Nbridges)** on Monday, July 23, 2001 - 01:55 pm: Edit

The MMC/SD card isn't a memory card, as such -- more like a tiny disk. There's a way to launch apps from it under Palm OS 4; I'll look it up later when I'm in front of the docs.

Neal

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Using Assembly language in Quartus Forth

By **Bryan Zimmer** on Thursday, July 19, 2001 - 10:31 am: Edit

Hello,

I am interested in writing some routines in assembler for Quartus Forth on my Palm III xe. I am having a hard time finding any examples to follow. Could someone point me in the right direction for some examples?

In particular, I am trying to emulate some of the of routines that modern Forth no longer seems to support, routines that might, for example, display the name field address of a colon-defined word, or convert cfa>pfa on a non-CREATEd word.

Any help you can offer would be appreciated.

I also am trying to learn gforth, so if anyone has examples that might work on both systems, I'd appreciate it.

Thanks,

Bryan Zimmer
baz@baz-tech.com

By **Chapman Flack** on Thursday, July 19, 2001 - 02:12 pm: Edit

Hi,

Help and examples are available in and linked from:
http://www.sleepless-night.com/wiki/Asm68KModule

-Chap

By **Neal Bridges (Nbridges)** on Thursday, July 19, 2001 - 04:18 pm: Edit

From Chapman Flack (the forum software has decided not to display the original msg):

> Quote:
>
> Hi,

Help and examples are available in and linked from:
http://www.sleepless-night.com/wiki/Asm68KModule

-Chap

Add a Message

Support requests

By **Neal Bridges (Nbridges)** on Wednesday, July 18, 2001 - 11:08 am:
Edit

Of late I've been dealing with a number of support requests via email. That's fine, of course, but I do encourage the use of the forum; a question asked here garners many more responses.

Neal

By **Kris Johnson (Kdj)** on Thursday, July 19, 2001 - 09:49 am: Edit

The discussion forum's Last Day and Last Week links aren't working for me. I see "This forum awaits your messages" even though I and others have posted a few things.

Is anyone else seeing this?

-- Kris

By **Neal Bridges (Nbridges)** on Thursday, July 19, 2001 - 11:15 am:
Edit

Kris -- thanks for the heads up. I thought everybody was just being really quiet this week!

Neal

Add a Message

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Password:

E-mail:

This is a public posting area. If you do not have an account, enter your full name into the "Username" box and leave the "Password" box empty. Your e-mail address is optional.

New Quartus App: BJStrategy

By **Barry Ekstrand (Ekstrandbb)** on Monday, July 16, 2001 - 06:43 pm: Edit

FYI - I released my newest app over the weekend: BJStrategy. This is a program to study, learn, and test knowledge of the basic strategy for the card game Blackjack, aka 21. This is not a Blackjack game simulator, but rather is a Blackjack strategy reference and tutor program.

BJStrategy has reference screens showing the right action for the various dealer upcard / player hand combinations - presented in a form my father used and which is a lot easier to follow than the 'standard' matrix most books use. The program also has a Blackjack Strategy Challenge, a game / drill that shows random dealer / player combinations and asks you to input the right action, keeping track of # right and wrong. You can check the right answer after your guess, if you desire to do so.

Barry

By **Kris Johnson (Kdj)** on Saturday, July 21, 2001 - 05:59 pm: Edit

I'm planning to play with this as soon as I have a couple of spare hours.

Here's the PalmGear link for those who are interested: http://www.palmgear.com/software/showsoftware.cfm?prodID=16457

-- Kris

By **Kris Johnson (Kdj)** on Wednesday, August 1, 2001 - 10:26 am: Edit

I finally got around to using it. It's a nice little program.

A couple of suggestions:

- It would be nice if there was a "Reveal" button on the form. I found myself using that menu option quite a bit. In fact, I'd like the correct answer (and the appropriate chart) to automatically pop-up whenever I answer incorrectly.

- The buttons are a little small. I'm not sure how to re-layout the form to let them be bigger, but larger buttons would be nice.

Don't forget to add a BJStrategy page to the wiki. 🙂

-- Kris

By **Barry Ekstrand (Ekstrandbb)** on Monday, August 6, 2001 - 01:26 pm: Edit

Kris,

I appreciate the suggestions. I agree with your thoughts and will work to implement them, although I'm not sure I can increase the button sizes much.

I'll update the wiki asap. Thanks again for the input.

Barry

Add a Message

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Password:

E-mail:

This is a public posting area. If you do not have an account, enter your full name into the "Username" box and leave the "Password" box empty. Your e-mail address is optional.

Exit and inline question

By **Barak Shilo (Barak)** on Thursday, July 12, 2001 - 12:37 pm: Edit

Does an inlined word do more than simply "paste" it's definition into the calling word? I tried the following:

```
: a exit ; inline
```

```
: b 1 . a 2 . ;
```

When I execute b, "1 2" is printed, instead of just "1"
What's going on?

By **Mark Beckman (Mbeckman)** on Thursday, July 12, 2001 - 04:23 pm: Edit

It looks like what you are trying to do is use inline like a macro pre-processer. Try this:

```
: a s" exit" evaluate ; immediate
```

```
: b 1 . a 2 . ;
```

By **Barak Shilo (Barak)** on Thursday, July 12, 2001 - 05:14 pm: Edit

Thanks, that works nicely. Can you explain why my definitions don't work?

By **Mark Beckman (Mbeckman)** on Thursday, July 12, 2001 - 06:19 pm: Edit

Well I don't know exactly what **inline** does. It may be just a hint to the compiler (Neal?). However:
by using **SEE** (from the disasm module) the **A** in your definition **B** does not show up at all. My guess is that **EXIT** compiles to the assembly instruction **RTN** and the compiler moves inline code from a definition up to but not including the **RTN**.
This is a not that easy to "**see**" because the optimizer seems to turn a sequence like

```
    JSR "word" RTN ...
```

into

```
JMP "word" ...
```

try the \ **disasm** module and "**see**" for your self.

By **Neal Bridges (Nbridges)** on Thursday, July 12, 2001 - 07:22 pm:
Edit

INLINE works nicely unless the INLINEd word contains EXIT; you've tripped over the one caveat in the system. I had a look for that info in the manual and can't find it -- but it's in the discussion forum archives in several places.

I'll amend the manual.

Neal

By **Barak Shilo (Barak)** on Thursday, July 12, 2001 - 07:34 pm: Edit

Ah, that makes sense since exit is another way to end a word's execution. Thanks.

By **Chris Bucsko** on Friday, July 13, 2001 - 12:27 pm: Edit

So does 'inline' simply paste its' definition into the calling word? Or is there more going on here? Sorry but the manual simply states that inline 'flags the previous word as an inline word' in the manual.

By **Neal Bridges (Nbridges)** on Friday, July 13, 2001 - 12:38 pm: Edit

INLINE does just that -- it flags the previous definition as 'inline'. The compiler will then code-copy that definition into the calling definition at compile-time.

Neal

Add a Message

Username:

Password:

E-mail:

This is a public posting area. If you do not have an account, enter your full name into the "Username" box and leave the "Password" box empty. Your e-mail address is optional.

IR Support ???

By **Randy Young** on Thursday, July 12, 2001 - 09:03 am: Edit

Sir(s)

Just a quick note to inquire about using Quartus Forth with IR. I'm using a Handspring Visor @ Palm OS 3.0x, but I understand there is a patch to make the IR I/O more like the serial port...

I did check this subject on the forum but I wasn't sure of meaning of the topics listed visa vi this question.

Thanks

By **Barak Shilo (Barak)** on Thursday, July 12, 2001 - 05:39 pm: Edit

It depends what sort of device you want to communicate with. If it's another IrDA device, you can certainly access the IrDA port with the same functions you'd use to send/receive data on the serial port. This thread is one of several that mention doing this.

Add a Message

Username:

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This is a public posting area. If you do not have an account, enter your full name into the "Username" box and leave the "Password" box empty. Your e-mail address is optional.

Redirecting serial to IR

By **jeff** on Monday, February 5, 2001 - 02:15 pm: Edit

I'm in the beginning phases of an application which will be communicating via IR to another piece of hardware (non-palm).

I've been searching for a way to redirect the serial IO to the IR of the palm. I know this is possible because it is done both through a program called ComLink and in PocketC.

However, this is going to be a distributed program (to clients), and I don't want to require HackMaster or ComLink or PocketC runtime to use it.

Can Quartus Forth do this? If so, it would be a major selling point for me. Some code samples would be helpful, too, if it can.

Thanks!
Jeff

By **Samuel Tardieu (Sam)** on Monday, February 5, 2001 - 02:33 pm:
Edit

Well, this is related to what I posted a few days
ago. I may have found something useful from Neal in the archives.
Cut-n-paste errors are mine.


```
needs serial

9 constant serCtlIrDAEnable
10 constant serCtlIrDADisable

: SerControl ( &valueLenP. &valueP. op -- err )
  43030 serSysTrap4n nip ;

: IrEnable ( -- err )
  0. 0. serCtlIrDAEnable SerControl ;

: IrDisable ( -- err )
  0. 0. serCtlIrDADisable SerControl ;
```

Neal had not tested the code, neither did I.

Sam

By **Harry Chou** on Wednesday, February 7, 2001 - 03:09 am: Edit

We have done a lot of IR redirect applications in Palm, maybe it might help.

http://www.tapspring.com

There are also some program examples to show the SIR communication.

http://www.tapspring.com/HATcker_AP_TV.htm
http://www.tapspring.com/HATcker_AP_RF.htm

harry

By **Neal Bridges (Nbridges)** on Wednesday, February 7, 2001 - 03:09 pm: Edit

Thanks for posting that, Harry. That's really interesting work!

Neal

Add a Message

Username:

Password:

E-mail:

This is a public posting area. If you do not have an account, enter your full name into the "Username" box and leave the "Password" box empty. Your e-mail address is optional.

Setting Field Attributes

By **Elan Goldman** on Tuesday, July 10, 2001 - 07:14 pm: _Edit_

I am trying to create a word that will set a field's attributes to editable. Originally the field is not editable. The following code does not work. Any ideas?

In the Palm sdk the field attributes type is defined as a UInt16 bit field. The third bit is supposed to control the editable attribute.

The FldGetAttributes and FldSetAttributes both apparently take two arguments: &attribP. and &fld.

create attributes 1 cells allot

```
: >editable ( field_id -- )
\ save the field_id and prepare the
\ attributes address
>r attributes >abs
\ Get the field_id's object ptr value
r> GetObjectPtr
\ Save the Object pointer for later use
2dup 2>r
\ Get the current attributes
FldGetAttributes
\ set the enable attribute to true
attributes @ 4 or attributes !
\ Set the field's attributes to the new value
attributes >abs 2r@ FldSetAttributes
\ now redraw the field so that the attribute
\ settings take effect
2r> FldDrawField
;
```

I can write to the field when I set it editable usign the resource editor. I cannot write to the field if I do not set the field resource editable, and instead try to set it editable using the >editable function.

I also tried using until-drawn in the calling function to ensure that I was not writing to the field before FldDrawField had finished executing. Any ideas?

TIA,

Elan

By **John Newell** on Friday, July 13, 2001 - 06:30 pm: <u>Edit</u>

I haven`t tried your code but I think you`ll find that the editable bit mask is (hex) 2000.
Regards
John

Add a Message

Username:

Password:

E-mail:

This is a public posting area. If you do not have an account, enter your full name into the "Username" box and leave the "Password" box empty. Your e-mail address is optional.

&list vs. &plist

By **Elan Goldman** on Monday, July 9, 2001 - 08:05 pm: Edit

Hi,

in the documentation the word LstGetSelection is reported to take an argument referred to as &list. The word LstGetNumberOfItems's argument is documented as &plist.
I am using GetObjecPtr to create the argument &list for the LstGetSelection (ListID GetObjectPtr). What do I do to create the &plist argument &plist for LstGetNumberOfItems?

TIA,

Elan

By **Steve Bohrer (Skb)** on Sunday, July 15, 2001 - 10:27 pm: Edit

The best answers for this sort of question come from the "Palm OS SDK Reference", which you can download for free from http://www.palmos.com/dev/tech/docs/.

Here are the C prototypes for the two functions you mention:
```
Int16 LstGetSelection (const ListType *listP)

Int16 LstGetNumberOfItems (const ListType *listP)
```

Thus, both take a pointer to a ListType structure, so **GetObjectPtr** works for both.

Add a Message

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This is a public posting area. If you do not have an account, enter your full name into the "Username" box and leave the "Password" box empty. Your e-mail address is optional.

What's the opposite of popup form?

By **Chris Bucsko** on Monday, July 9, 2001 - 06:26 pm: Edit

Perhaps this is a silly question, but if I use the PopupForm command to show a form, how do I close it? Do I just use ShowForm with the previous form ID to close the popup?

By **Mark Beckman (Mbeckman)** on Monday, July 9, 2001 - 07:23 pm: Edit

Chris,
Try FrmReturnToForm

Example:

```
: ShowAboutBox ( -- )
  \ save current state
  cursor-position 2>r
  FrmGetActiveFormID >r
  \ draw form
  AboutFormID  PopupForm
  \ Loop until a button pressed:
  begin
    ekey ctlSelectEvent = if
      event >abs itemid if
        r> FrmReturnToForm
        2r> at exit
      then
    then
  again  ;
```

This assumes that AboutFormID is a constant with the ID of some popup form and the form has at least 1 control (like an (OK) button)

By **Wade Carlson** on Tuesday, July 10, 2001 - 06:33 am: Edit

Yes, you must use FrmReturnToForm as Mark described. I found out the hard way that a number of popup forms without a FrmReturnToForm will eventually crash your program (greater than about 50 or so)

By **Chris Bucsko** on Wednesday, July 11, 2001 - 05:08 pm: Edit

Thanks, FrmReturnToForm works well. I also found that you can do some

'read-only' popup stuff by defining a Talt resource in rsrcedit. These 'popup' by themselves and disappear when you tap an included button. But read/write access requires PopupForm.

By **John Newell** on Monday, July 16, 2001 - 08:04 am:

This is how I understand forms usage.

```
The three functions:
  FrmInitForm
  FrmSetActiveForm
  FrmDrawForm
open (and activate) a form (seems to be equivalent to FrmPopupForm)

The two functions:
  FrmEraseForm
  FrmDeleteForm
release a form

The function:
  FrmPopupForm
does NOT release the current form but opens a new form

The function:
  FrmReturnToForm
releases the current form and returns to the existing inactive one

The function:
  FrmGotoForm
releases the current form and opens a new one
```

Using the functions FrmInitForm and FormDrawForm allows controls to be set usable/not usable/enabled/disabled before the form is drawn so that they don't appear/disappear when a form is displayed.

Regards
John

Add a Message

Username:

Password:

E-mail:

This is a public posting area. If you do not have an account, enter your full name into the "Username" box and leave the "Password" box empty. Your e-mail address is optional.

Double Cell Values & Rounding

By **Barry Ekstrand (Ekstrandbb)** on Monday, July 9, 2001 - 01:56 pm:
Edit

I am using single and double cell values in a program and need to display final answers. Using the approach that I used with floats, I convert all values to double cells and then process for display. For rounding, I previously (using floats) added 5e-1 before converting to double cells so when the display truncated the value it would show up as rounded up or down as appropriate; however, using all doubles I don't seem to be able to make it work the same way.

Here are snippets of what I have:

```
variable r1
variable t1
2variable r2
2variable w2

  : d>### ( d -- c-addr u )
\ formatting routine to give 0
\ decimal places on output
tuck dabs
<#  #s sign #> ;

r1 @ s>d 100. D*  t1 @ s>d d/ 2dup r2 2! 100. 2swap d- w2 2!
r2 2@ d>###  type
w2 2@ d>###  type
```

The above code takes r1 and multiplies by 100, then divides by t1. r1/t1 is always less than 1; I had to multiply by 100 to get d/ (from dbl-mult) to work right - that is okay because I'm wanting to display as a percentage anyway. I store the result as r2, then subtract it from 100 to get the w2 percentage.

When I display, without any rounding, it truncates as expected: if r1=2 and t1=3 r2 will display as 66 and w2 as 34. I then modified the code to try to round:

```
...
r2 2@ 0.5 d+ d>###  type
w2 2@ 0.5 d+ d>###  type
```

Now the display shows r2 as 71 and w2 as 39. Obviously I got 5 added to the result instead of 0.5. All my attempts to correct this have not been successful.

I guess this is my punishment for being used to using floats instead of fixed width. What am I missing?

Barry

0.5 isn't 1/2 -- it's 5, expressed as a double-cell integer. That's why you're getting that result.

There's no fractional part to an integer, so there's nothing to round -- it's already rounded. You need to round during the calculation. Try adding 5 to the value after you multiply it by 100, and before you divide it.

Neal

Thanks, Neal, I was stuck in the paradigm of fractional parts. I made the adjustment - just a little more complicated since the 5 is being divided by t1 also - and all is working properly now. Thanks for the reminder.

Barry

No problem, Barry. Glad it helped.

Neal

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New Database Tutorial on the Wiki

By **Ron Doerfler** on Friday, July 6, 2001 - 01:56 am: Edit

Hi everyone,

Well, believe it or not, I've finally completed a Quartus Database Tutorial and posted it on the Wiki website at:

http://64.21.136.85/cgi-bin/twiki/view/Main/DatabaseTutorial

As always, feel free to provide comments or ask questions, although I will be unable to respond between July 7 and July 23.

Cheers!

Ron

By **Neal Bridges (Nbridges)** on Friday, July 6, 2001 - 02:19 pm: Edit

Looks very good, Ron!

Neal

Add a Message

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Password:

This is a public posting area. If you do not have an account, enter your full name into the "Username" box and leave the "Password" box empty. Your e-mail address is optional.

E-mail:

E-mail:

VFS

By **david** on Monday, July 2, 2001 - 07:54 am: Edit

I know this was asked before, but....
I am having some trouble trying to find out what the systrap numbers are for the VFS functions. Everything in the PalmOS headers are easy to understand. i.e. Find a library and initialize-call systrap. But for some reason I can't figure out where the VFS Manager systraps start. It would be fun to try to write VFS aware programs in QF. Thanks for any help.
david

By **Neal Bridges (Nbridges)** on Friday, July 6, 2001 - 02:20 pm: Edit

Hi David. I don't know that anybody's undertaken to implement the VFS calls yet. What bits of the header info are you confused about?

Neal

By **mmmkdm** on Friday, July 6, 2001 - 05:19 pm: Edit

Hey Neal,
In trying to find the systraps for say..the CF functions on the TRGPro,it was easy to find the actual numbers by looking for the last systrap defined. After looking for the SysLibLoad function, you could see where the next systrap number for the CFCardInserted define would be.(ie decimal 43015). Load up the stack with the the needed arguements,the 43015 and call systrap.
This is where I loose it. I can't seem to find what that number should be for say...VFSFileOpen.
The header is using a __SYSTEM_ type macro, but I am not that good.
thanks
david

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Password:

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Quartus FTP program?

By **Jim N. Deakin (Jndeakin)** on Tuesday, June 26, 2001 - 11:33 am:
Edit

Hi,
Has anyone ever developed a simple FTP program
in Quartus, or in Forth in general? I've checked the archives, and found
some basic references to sockets, but I know nothing about them and was
hoping someone might already have done the hard work (understanding
it!).

If anyone can help me. or provide pointers to writing just the basic put and
get functions, I'd appreciate it.
Thanks

By **collin** on Wednesday, June 27, 2001 - 12:31 pm: Edit

Look at http://acftp.sf.net
This ftp server was written in Forth and now supports even MySQL
authorization.

By **Jim N. Deakin (Jndeakin)** on Friday, June 29, 2001 - 05:55 am: Edit

Thanks, I've found the source (not over-obvious on that site!). I'll examine
it later.

Add a Message

Username:
This is a public posting area. If you do
not have an account, enter your full

Password:

E-mail:

name into the "Username" box and leave the "Password" box empty. Your e-mail address is optional.

QF 1.25R and the Sony Clie 710

Quartus Handheld Software: Discussion Forum: **Quartus Forth (PalmOS version)**: QF 1.25R and the Sony Clie 710

By **Gregg Bergman** on Tuesday, June 26, 2001 - 01:45 am: Edit

I just purchased a Sony Clie 710 using Palm version 3.5.2 and can not get QF 1.25R to work without a "Fatal Exception" error when exiting the app either with the Home key or when performing a Cold restart(from the menu or typing COLD). I originally beamed the app from my Palm IIIxe but have also tried reinstalling it from scratch. I tried removing my startup file (startup.quartus) and also diabled all hacks. I've been using Afterburner 3.0z but disabled that too. QF works fine on my old Palm IIIxe. All the apps on my Clie are all the same versions I hsve on my IIIxe, has anyone else experienced this sort of trouble using the Clie 710?

By **Neal Bridges (Nbridges)** on Tuesday, June 26, 2001 - 01:47 am: Edit

I don't know, Gregg. Yours is the first Clie problem report. Send me an email, I'll send you the latest beta to try.

Neal

By **Mike Will** on Tuesday, June 26, 2001 - 10:09 am: Edit

I received my CLIE a month ago. It was DOA and I sent it back. The screen was in permanent 'funky' mode. Unfortunately, I never even tried loading Quartus (or anything else). The irony is that I bought the SONY after Palm's lack of support for my gorched IIIxe left a bad taste in my mouth.

[customary rant about crappy hardware omitted]

Mike

By **Chirs Bucsko** on Wednesday, June 27, 2001 - 10:20 am: Edit

I just tried it on a Sony we have here. I don't have the memo library on the PDA, but the basic math words, + * / work, and csunused returns '-21184', which is right. There's a setting in Prefs for 'HiRes assist.' I toggled that off and on, and QF still is OK. My version is 1.2.5R as well. Hope this helps narrow down the problem.

By **Gregg Bergman** on Wednesday, June 27, 2001 - 11:39 pm: Edit

I just spent the last two days (almost?) trying to figure out what was causing the "Fatal Exception" error on my Clie when exiting QF either with

the Home key or when performing a Cold restart. I'm using an application for mounting the memory stick media card called MSMount. This app is apparently using some system resources that are also used by QF. I found that if I disable MSMount, the "Fatal Exception" error is gone. I'm not sure what resources are common, but will contact the author of MSMount and try to resolve this issue.
Thanks to all for the help and support.
Gregg

By **Jamie Cairns (Jamie)** on Thursday, June 28, 2001 - 12:05 pm: Edit

Thanks Greg - I was watching this to see what the resolution would be - it affects the Handera 330 as well (if using MSMount)
Jamie

By **Neal Bridges (Nbridges)** on Thursday, June 28, 2001 - 03:55 pm: Edit

MsMount is still in beta, after all. I have no idea what might be tripping it up -- Quartus Forth doesn't do anything illegal, and it deliberately creates its workspace on memory card #0 (normal system storage).

Neal

Add a Message

Username:

Password:

E-mail:

This is a public posting area. If you do not have an account, enter your full name into the "Username" box and leave the "Password" box empty. Your e-mail address is optional.

I want to GET data from a Web Server on a Palm VII

By **Don Golding** on Saturday, June 23, 2001 - 12:54 pm: Edit

Does anyone know how to call/use the Internet functions in a Palm VII?

IE:
server--> http://www.google.com

request--> /custom?q=robot

I just bought one for $119 from Palm…Just sign up as a developer which anyone using Quartus is…

By **Neal Bridges (Nbridges)** on Saturday, June 23, 2001 - 12:59 pm:
Edit

Don, quite a long time ago I assisted somebody in doing something like this on the Palm VII. It involved calling the clipping app with certain parameters.

We don't have VII functionality in Canada, so I haven't had much occasion for hands-on.

Neal

By **Don Golding** on Saturday, June 23, 2001 - 01:43 pm: Edit

Do you have any code examples from that effort? Is the web clipping docs the place to start? I haven't gotten up to speed with Quartus/Palm programming yet but I am an experienced Forth programmer….

By **Neal Bridges (Nbridges)** on Saturday, June 23, 2001 - 04:18 pm:
Edit

I am digging. I don't know what I kept; I was assisting somebody else with getting their own code running.

The docs are certainly going to be required, so grab hold of them straight away.

Neal

Add a Message

Username:

Password:

E-mail:

This is a public posting area. If you do not have an account, enter your full name into the "Username" box and leave the "Password" box empty. Your e-mail address is optional.

Basic FP input and output

By **stschad** on Saturday, June 23, 2001 - 12:06 pm: Edit

I've got lots of small numeric routines I'd like to quickly put into Quartus, no user interface required. Can someone demonstrate how to prompt for a floating point number (like 2.4--perhaps accepted as a string and converted to floating point), perform a calculation (square root, etc.), and display a label+answer? I'm picking up Quartus again after a prolonged absence and I'm trying to re-RPN my brain!

Thanks- <STS>

By **ChapmanFlack** on Saturday, June 23, 2001 - 12:40 pm: Edit

```
needs core-ext \ for PAD
needs float-ext \ for F.

: go
  ." gimme a number: "
  PAD 84 ACCEPT CR
  >FLOAT
  FSQRT
  F.
;
```

If you need floating-point functions fancier than fsqrt you might wind up looking at http://www.sleepless-night.com/wiki/MathLib

-Chap

By **Chapman Flack** on Saturday, June 23, 2001 - 12:46 pm: Edit

Ooops, I forgot labeling the output, but of course ." will do that. If you end the go word above with a little event loop:

BEGIN EKEY DROP AGAIN

then you can make it a trivial standalone square-root app; without the loop it will exit immediately after displaying the result, so you can't see it.

-Chap

Hang about -- ACCEPT only returns the count.

pad dup 84 accept

should work.

Neal

darn, it worked for me … I hate when I get lucky …

-Chap

What's the simplest way to display a fp number in decimal form without the exponent (i.e.- 24.8 instead of 0.24800000E2)? Convert it to a string first?

<STS>

needs float-ext ok
24.8e ok
F. 24.7999999 ok

Notice the slight innaccuracy, because FPs are binary fractions of finite length, and 24.8 is (exactly) 124/5 and anything with 5 in the denominator is an infinite (nonterminating) binary so it can't be stored exactly. (The same way things with, say, 7 in the denominator are nonterminating in decimal).

Because of things like that, you usually want to round/chop to whatever precision you really need.

For fancier formatting needs, see REPRESENT.

-Chap

I use 'n' set-places (where n is the number of digits you want after the decimal point) and then (f.) which returns an address and length on the

stack, where you can treat it like a string, using type for immediate output, or string>field for program output.

The 'n' set-places did the trick, although it took me a few tries before I deduced that my zipped version of the library files didn't contain the newest version of float-ext (the zipped version omits the definition for set-places). I'll also try using REPRESENT.

It's looking like I'll eventually need to load MathLib to get a full complement of trig functions, and the readme file mentions Chapman as the author! Congrats on truly formidable amount of coding. Are there any howto documents on loading and using the library?

<STS>

Well, the most concentrated glob of information is the readme file, and there's more information on the wiki, including the list of MathLibFunctions with links to their individual documentation.

I know I haven't had time to expand the wiki pages into a real tutorial, but most of the info should be in there or in the readme. Please let me know if you run into any questions I haven't answered adequately, and that kind of guidance helps me figure out what to focus on when I have time to work on the tutorial. Or go ahead and do the wiki thang--ask your own questions and put down what you're thinking the answers are, and if I think of better answers I'll fix 'em.

So there's two "libraries" you have to load. One is the MathLib shared library itself, which is not Quartus-Forth-specific; one copy of MathLib on a handheld can be used by all floatish applications no matter how they were built. All you have to do for that part is get a copy of MathLib.prc and load it onto your device like any app. You don't do anything else with it. (If you have a Visor it's already in ROM, and you might check it didn't get installed already by some calculator or other kind of app you're already using.)

The other "library" you need is the collection of Quartus Forth memos that provide the words you need for using the MathLib functions. The current version is downloadable from the wiki as FloatLib. (I think the version in Contrib is a bit older.)

When you go to the wiki to download FloatLib, you'll see it refers to some other downloads on other wiki pages, and one of them is InitializationAndFinalization, and it refers to a couple more. Anyway, it

won't really be long before you've loaded on everything you need. ;)

Assuming you're using the newest version, there's really no trick to using it. If you'll need basic IEEE floating point, add "needs NewFloatMgr" to the top of your program. If you'll need MathLib functions, add "needs MathLib". Then just go ahead and write your code and build your app.

If you build an app that uses MathLib functions and install it on a handheld that doesn't have MathLib.prc, your app will still run as long as it doesn't actually call any MathLib functions. If it does, there'll be a -21 THROW (unsupported operation) that you can CATCH and give a helpful message.

Let me know if anything else seems murky.

-Chap

BTW, I wasn't the author of all those mathematical functions themselves--they were mostly written by paid numerical analysts at Sun (and better them than me!) with a few added by GNU folks, and Rick Huebner ported them into the form of a PalmOS shared library. I just wrote the glue so you can call them from Forth.

By **stschad** on Wednesday, June 27, 2001 - 05:55 pm: Edit

I added:

needs NewFloatMgr
needs MathLib

--at the start of a test program and got this error on load:

Exception in file: sfdf
included by: MathLib
included by: testprog
(2>r)? undefined word

--I can't seem to find this word defined anywhere, and the load seems to stops at the point where the sfdf file defines DFROT using (2>r). Is there a newer version of sfdf than 2001.4.4 JCF? I still missing a file?

<STS>

By **Chapman Flack** on Wednesday, June 27, 2001 - 08:14 pm: Edit

There's a version of CoreExtModule on the wiki that includes (2>r) and friends. I put them there because they turn out to be implementation factors of an improved 2>R and company, and that was an easy way to

maximize the benefit of the optimization.

I think Neal is kernelizing and (I hope) optimizing some of the common words for the next version, and I don't know exactly what will be where after he does, so I might have to find a new home for the (...) factors then, if Neal doesn't make them available as natural factors of the kernelized words. But I'll cross that bridge when there's a bridge to cross.

Bottom line, download core-ext from the wiki, you should be in business.

-Chap

I loaded the new file and it gets me much further...but halts with this message:

Exception in file: inifini
included by: MathLib
included by: testprog
xts? non-existent file

--Did I miss a file?

<STS>

Sorry, yes. xts.txt comes from XtLiterals on the wiki. (That one I think I did mention on the FloatLib page.)

Lessee, you'll probably also run into needs dspaces (wiki MultipleDataSpaces) and needs ans+loop (wiki PlusLoopTerminatesEarly), if you don't have them already.

The whole thing presents a little puzzle in how best to organize the wiki. It's a Good Thing to break out generally useful functions like xtliterals and dspaces so they can be easily used wherever there's a use ... but it makes for more files to download. At the other extreme, every module could aspire to be self-sufficient, but in a real app that would likely lead to a lot of duplication of code, and lots of different words that do the same kinds of things. So I lean toward factor-into-small-modules.

It would be nice if the FloatLib page, say, listed every other module it depends on so you know what to download, but how to handle transitivity? If the FloatLib page says it needs inifini, should it also say it needs xtliterals, ans+loop, and dspaces, because _inifini_ needs them? That could

be a nightmare to keep up to date; suppose inifini is revised and now needs the Foo module as well; does that mean somebody has to add Foo to the "other modules needed" list for every module that _uses_ inifini?

Some automated mechanism on the wiki to display the transitive closure of needed modules for a given module would be really cool, but I don't yet have any more than a vague idea how it ought to look; I haven't suggested it to Kris yet.

Meanwhile, sorry it seems so sisyphean to get all the files you need.

-Chap

By **Kris Johnson (Kdj)** on Tuesday, July 3, 2001 - 11:41 pm: Edit

I think for now, it's best for module authors to just manually list references to other needed modules. There really aren't that many, and the great thing about the wiki is that if anyone notices something missing, it can be instantly fixed.

But some sort of common convention would be useful, so that people know where to look. For example, putting all dependencies at the top of a page, and labeling it "Other Needed Modules".

Something else I've considered is creating a page that has links to all attachments everywhere in the wiki. There's a FileAttachmentIndex page that lists all of the pages with attachments, but it has a level of indirection.

-- Kris

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Multiply two double-cell values

By **Bob Ryan** on Friday, June 22, 2001 - 06:09 pm: Edit

Ok I must be missing something 😦

Is there a convenient way to multiply two double-celled values together?

I can't seem to find the built-in word that does this.

By **Neal Bridges (Nbridges)** on Friday, June 22, 2001 - 07:23 pm: Edit

This'll do the trick:

http://www.quartus.net/discus/messages/23/1139.html?#POST7400

Neal

By **Chapman Flack** on Friday, June 22, 2001 - 09:23 pm: Edit

I was going to suggest a CODE implementation would be neater, but it looks like 32-bit multiply instructions only came in with the 68020. Oh well.

-Chap

By **Rick Harmsen** on Saturday, August 11, 2001 - 03:01 pm: Edit

Here are some double-celled and triple-celled math routines that I copied from Tim Hendtlass's "Real Time Forth":

```
\ triple  (Tim Hendtlass)
\ Double and triple precision words
\ from "Real Time Forth" © 1993

needs core-ext

: ?dnegate ( ud n -- d )
   0< if dnegate then ;

: ud*c  ( ud1 ud2 -- ud3 ?overflow )
   dup >r rot dup >r >r over >r
   >r swap dup >r um*
   0 2r> um* d+ 2r> um* d+
```

```
      0 2r> um* d+ or 0<> ;

: ud*  ( ud1 ud2 -- ud3 )
     rot >r over >r >r over >r
     um* 2r> * 2r> * + + ;

: d*  ( d1 d2 -- d3 )
    dup >r dabs 2swap dup >r dabs
    ud* 2r> xor ?dnegate ;

: t*  ( ud un -- ut )
    dup rot um* 2>r
    um* 0 2r> d+ ;

: t/  ( ut un -- ud )
    >r r@ um/mod swap
    rot 0 r@ um/mod swap
    rot r> um/mod swap drop
    0 2swap swap d+ ;

: ud*/  ( ud1 un1 un2 -- ud2 )
    >r t* r> t/ ;

: ud/  ( ud1 ud2 -- udquot )
    dup 0= if swap t/
    else
        dup 65536. rot 1+ um/mod >r
        drop r@ t* drop 2>r
        dup 0 2r@ ud*/ d-
        2r> r> rot rot nip ud*/
        nip 0
    then ;

: d/mod  ( d1 d2 -- drem dquot )
    2 pick over xor >r
    dabs 2swap dabs 2swap
    2over 2over ud/ 2dup 2>r
    ud* d- 2r> r> ?dnegate ;

: d/  ( d1 d2 -- dquot )
    2 pick over xor >r
    dabs 2swap dabs 2swap
    ud/ r> ?dnegate ;
```

Thanks, Rick!

Neal

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Double-asm help please

By **Mike Ressler** on Thursday, April 5, 2001 - 02:03 pm: Edit

The recent splash about Dragon Forth got me reinterested in 32-bit math with Quartus. I've downloaded Ken Corey's double-asm which defines d* and d/, among others, but I can't get any sensible results. Of course, I could just be misinterpreting everything since Ken unfortunately didn't include any stack diagrams.

I'm still tinkering with Quartus 1.2.1U, but have downloaded the most recent library files. I start Quartus, include double-asm, it runs asm68k v1.2.1, then I try "3. 2. d*". I would expect to see a 64-bit "6" (6 0 0 0) left on the stack, but I only see "0 0", a double 0. If I try "6. 0. 2. d/", which is how I assume I would enter a 64-bit "6", I get the following gibberish left on the stack:

6 0 0 0 2 4112 4112 4112 [many 4112's] 4112 -1 -1

What am I doing wrong? I don't know 68k assembler, so I can interpret the code very well.

Mike

By **Neal Bridges (Nbridges)** on Thursday, April 5, 2001 - 02:38 pm: Edit

Mike, a couple of things -- first, double-cell values in Quartus Forth are 32-bit, not 64-bit. Second, there appear to be some problems with the double-asm code; I'm looking at it now.

I'd swear it worked when I looked at it last. Maybe bit rot has affected either it, or me. 🙂

Neal

By **Neal Bridges (Nbridges)** on Thursday, April 5, 2001 - 02:39 pm: Edit

In the meantime, here's a routine courtesy of Carl Jacobsen:

```
: d* ( d1. d2. -- d1*d2. )
  >R >R 2DUP
  R> 1 M*/ 2SWAP
  R> 1 M*/ DROP 0 SWAP D+ ;
```

Neal

Oops-- don't use that, it doesn't handle negative values. Use Ron Doerfler's enhancement:

```
needs double
needs dblmath

: extract-signs (d1. d2. -- +d1. +d2. negflag )
  2over 2over d0< rot rot d0< xor >r
  2swap dabs 2swap dabs r> ;

: d* ( d1. d2. -- d1*d2. )
  extract-signs >r
  >r >r 2dup
  r> dm* 2swap
  r> dm* drop 0 swap d+
  r> if dnegate then ;

: d/ (d1. d2. -- d1./d2. )
  extract-signs >r
  ud/mod 2swap 2drop
  r> if dnegate then ;
```

By the way, I'm pulling all of this out of the forum archives -- this was from archive8.pdf.

Neal

Yes, I know double cell numbers are 32-bit. What I'd really like is something which would handle 32-bit numbers with a 64-bit intermediate result. A "d*/" function that left a double on the stack would be adequate, though accessing the 64-bit intermediate result would be wonderful. (I'm interested in integer calculations of sidereal time which are valid for all of known history, not just 1 century :-)

I thought double-asm might do that, but as I said, I can't read the asm code very well - my 68k assembler is even worse than my Forth! And since I tried many variations of input, and never got a sensible result, I'm just plain confused. Thanks for the Forth code, however; I'll start tinkering with that.

Mike

You should be able to modify the Forth sources of **D***, above, to produce the triple-cell value you're looking for.

Neal

Removing the ROTs from Extract-signs makes it a bit more efficient:

```
: EXTRACT-SIGNS
( N. N. -- +N. +N. NEGFLG )
    2DUP D0< >R DABS 2SWAP
    2DUP D0< >R DABS 2SWAP
    2R> XOR ;
```

-- Bob

Thanks, Bob!

Neal

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Resources in separate file - again

By **Richard Chamberlain (Rac)** on Friday, June 22, 2001 - 06:15 am:
Edit

Hi,

I want to pop a set of resources in a separate pdb file. In the calling application how do I retrieve the resources.

I presuming I just need to open it using DmOpenDatabaseByTypeCreator. I then use DmGetResource to retrieve any of the resources?

If so a few questions:

Do I just discard the dbRef? -- it doesn't seem required.

Do I need to close the database when I close the app or does that happen anyway?

What do I need to set the creator and type to?

Creator presumably my application's creator, but what about the type?

Thanks,

Richard

[sorry if this appears twice the first didn't seem to work]

By **Bob Ryan** on Friday, June 22, 2001 - 10:59 am: Edit

You use DmOpenDatabaseByTypeCreator and DmGetResource.

You won't need the dbRef for DmGetResource, but keep it around so you can close the DB.

Its a good idea to close the DB after you're done with it. Use the "closeDB" word from the DataMgr memo. It might happen anyway, but its better to be safe.

Use your application's Creator ID. The type can be any 4-letter sequence except 'Appl'.

-- Bob

By **Richard Chamberlain (Rac)** on Friday, June 22, 2001 - 11:37 am:
Edit

Thanks Bob,

It might be easier just to mail my questions straight to you in future ;-)

Richard

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Xxx d0 .w a0 di) d1 .l move ?

By **Amy Yeah (Amy)** on Thursday, June 21, 2001 - 01:31 pm: Edit

How to express "xxx d0 .w a0 di) d1 .l move" on quartus forth assembler ?
That is long-sized operations and word-sized index register .

thanks

Amy

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Xxx d0 .w a0 di) d1 .l move ?

By **Amy Yeah (Amy)** on Thursday, June 21, 2001 - 01:23 pm: Edit

How to express "xxx d0 .w a0 di) d1 .l move" on quartus forth assembler ? That is long-sized operations and word-sized index register .

thanks

Amy

By **Neal Bridges (Nbridges)** on Thursday, June 21, 2001 - 01:39 pm: Edit

Hi Amy. Did you not get my email reply to this question? From memory--

di) assumes a word-sized index register.

```
1234567. #  d0 a0 di)  d1 .l move
```

should do the trick, though I'm unable to test it right this second. Let me know.

Neal

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~Dynamic Binding?

By **Elan Goldman** on Tuesday, June 19, 2001 - 06:59 pm: Edit

Hi,

I have different save words for different forms. save_nnn saves values from form nnn and save_mmm saves value from form mmm.
I would like to have a word defined, let's call it save, and whenever a form is loaded, that word will be assigned the save_xxx for that particular form.
I.e. whenever a form is closed the word save will be evaluated, and as a result the appropriate save_xxx routine (save_nnn, save_mmm) will be evaluated.
In C I would declare a pointer to a function and assign the address of a function to the function variable at runtime. I would then call the function via the function variable.
How do I do something like this in Forth?

TIA,

Elan

By **Neal Bridges (Nbridges)** on Tuesday, June 19, 2001 - 07:09 pm:
Edit

In much the same way:

```
variable save

: routine1  ." One" ;
: routine2  ." Two" ;

: go
  ['] routine1 save !
\ or
  ['] routine2 save !
\ and later on...
  save @ execute
;
```

Neal

By **Elan Goldman** on Tuesday, June 19, 2001 - 08:34 pm: Edit

Aha! Very nice.

Thanks.

Elan

Add a Message

Large Quartus applications

By **John Newell** on Tuesday, June 19, 2001 - 08:12 am: Edit

Neal,
Can you help me here? I have a large application which consists of 5 Forth programs. That's because the code is much to big for Quartus to handle in one go (prc's are a total of 228k). At the moment they transfer control between each other by launching each other when required. However, I would like them to be in a single prc. Is there any way of combining them into a single prc? Thank you.

Regards
John

By **Barry Ekstrand (Ekstrandbb)** on Tuesday, June 19, 2001 - 08:41 am: Edit

John,

I'll soon be attempting the same thing. I haven't yet dug into it, but here is a link to a previous discussion on the topic:
http://www.quartus.net/discus/messages/23/613.html?ThursdayJuly2020001052pm

Hope it helps,

Barry Ekstrand

By **John Newell** on Tuesday, June 19, 2001 - 12:42 pm: Edit

Thanks Barry. That's a big help. I should have searched myself.

One of the reasons for asking my question was to prevent the sub-apps from appearing in the launcher. My 5 prc's all have different creator ID's but are all of type "appl". I'll probably keep the creator ID's as they are but change the type to something other than "appl" on all except the main-app. Only the main-app will appear in the launcher then.

I still wonder if it is possible to get it all into one prc though.

Regards
John

By **Mark Wickens (Markwickens)** on Tuesday, June 19, 2001 - 02:41 pm: Edit

John

Unless you really want to go to the trouble of combining your apps, you may like to consider using an App' called invisible which lets you hide the icons of defined applications. Its a neat little utility that only costs a few dollars and does exactly what

ot says on the tin! Try visiting www.palmgadget.com if you're interested.
Regards

Mark

John,

I believe the approach Jim Purdy took with his great ProStats application is to have 1 of the 5 apps be the main one and keep its type as "appl". The others are changed in RrscEdit to something else for the type - say "sub1", "sub2", etc. They should all have the same creator ID.

I understand that changing the type from "appl" will result in no icon being shown for those apps, which effectively become subroutines to the main app. In the end you get 1 icon as desired. The user still has multiple prc files to load but it appears to be one program overall, and if the main program is deleted I assume the subs go with it since they share the same creator ID.

I would be interested in how you are calling the different apps from each other and passing data to one another, if that is something you care to share. It might be helpful to me as I embark on the effort.

Barry

Hi people,
Various responses here.

I use McPhling as my launcher. You can both hide apps. or make apps. permanently visible to McPhling. It's easy to use, immediately available and its FREE. I highly recommend it and wouldn't do without it.

I am calling the sub-apps using SysUIAppSwitch (using a method cribbed from somewhere else on this discussion forum). I place the CalledFrom app and ReturnTo app creator ID's in a preferences record so that each app knows where it has been called from and where it should return to. The link Barry suggested uses SysAppLaunch. I would like to know what advantages one has over the other.

The application is in five parts with three databases. One database is associated with the main-app and two of the sub-apps have responsibility for the other two databases although the remaining two sub-apps do read them. It is possible to run just a part of the whole application that would not require all of the sub-apps to be on the PDA.

I am torn between either:
Case1: using multiple creator ID's and all apps of type "appl" (as I have it at the moment;) or
Case2: using a single creator ID and different tytes; or
Case3: using multiple creator ID's with just two types.

```
E.g.
Case1:
Main-app    - cre1   appl
Sub-app1    - cre2   appl
Sub-app2    - cre3   appl
Sub-app3    - cre4   appl
Sub-app4    - cre5   appl
or
Case2:
Main-app    - cre1   appl
Sub-app1    - cre1   sub1
Sub-app2    - cre1   sub2
Sub-app3    - cre1   sub3
Sub-app4    - cre1   sub4
or
Case3:
Main-app    - cre1   appl
Sub-app1    - cre2   suba
Sub-app2    - cre3   suba
Sub-app3    - cre4   suba
Sub-app4    - cre5   appa
```

In all cases the main-app would be of type "appl" to make it visible to the launcher.

Case1 is how I have it at the moment. You can use the custom launcher to hide the sub-apps if required. Un-required parts of the application can be deleted without losing the whole application. Each app can be compiled under Quartus without having to change the type.

Case2 would mean that when the Main-app is deleted, all the apps disappear. However, since Quartus only creates prc's of type "appl", I would have to change the type every time I compile a prc and always compile Main-app last (otherwise it would be deleted whenever a sub-app was compiled).

In Case3 I could compile all the apps. and change the sub-app types later. However, each app would have to be deleted separately. However, it is possible to run just a part of the whole application which would not require all of the sub-apps to be on the PDA. That may suggest using Case3.

[Pauses to tear hair]

Regards
John

By **Richard Chamberlain (Rac)** on Wednesday, June 20, 2001 - 06:14 am: Edit

John,

Could you not use DmSetDatabaseInfo to change the type after creating each sub app?

Richard

Richard,
I guess that would work although I haven't tried it out. The Case2 problem of generating the main-app would still exist of course.

I was really just kiting some options to get some feedback.

John

OK, I converted to Case2. It seemed the right choice to me.
I tried out Richards idea and it worked … but with problems. Perhaps Neal can help.

After issuing:
['] go CreatorID MakePRC Sub-app1

I assumed that the latest open resource database would be the PRC and I did the following:

0. DmNextOpenResDatabase srcDbr 2! \ Get database pointer
0. cardnum >abs 0. 0. dbID >abs srcDBR 2@ DmOpenDatabaseInfo throw \ Get database ID and card number
(ID) sub1 sp@ 0. 2swap 0. 0. 0. 0. 0. 0. 0. 0. 0. dbID 2@ cardnum @ DmSetDatabaseInfo throw 2drop \ Set the database type

This worked as it was supposed to and changed the type of the PRC to 'sub1'.

The problems occur when I try to re-compile the Sub-app1. In that situation, Quartus crashes with the "Fatal Error" screen and I have to reset the Palm. If I delete the Sub-app1 before the re-compiling it works OK.

Neal,
Is there any way of setting the type of the PRC being produced by MakePRC?
Why do I get Fatal Error if the app exists with a type of 'sub1'. Note that the Fatal Error does not occur for an app of type 'appl'?
Quartus always deletes the app of type 'appl'. This means that I either 1) have to change the type of the Main-app to something else, compile the sub-app, the change the type of the Main-app back; or 2) re-compile the Main-app every time I compile a sub-app.

Any suggestions?

Regards
John

Simplest solution is to deliberately delete the 'sub1' app yourself before the MakePRC.

Neal

Simplest? For whom? A few people have commented on the creation of large applications, requiring a Main-app and several sub-apps called when required. If the entire application is to have the same Creator ID for all its PRC's then the problem is going to come up again.

Instead of just calling Quartus to compile a sub-app I have to:

Enter RsrcEdit
Change the Main-app creator ID to a dummy value
Delete the Sub-app
Call Quartus
Enter RsrcEdit
Change the Main-app creator ID back to its proper value

… and do it each time I want to compile one of the five sub apps.

I guess I could develop some code to do this before the MakePRC command (though I don't really want to).

You don't comment on the acceptability/safeness of changing the sub-app type in this way (particularly the assumption that "the latest open resource database would be the PRC").

Quartus appears to create an app called Quartus app and then change the creator ID and Name to that specified in the MakePRC command. Is that something to do with why Quartus crashes if the app does not have a type of 'appl'?

Regards
John

'Simplest' in terms of the amount of code required. I'll draw up the code tonight and post it; it's quite straightforward.

Neal

… and I'll provide some commentary on your other questions also. 🙂

Neal

I currently use method 2 to compile my large app consisting of several modules. The problem you are running into when you re-compile a sub module is the name of the sub module already exists and you cannot have an "appl" type and "sub1" type with the same name.

My solution was to compile the name with something appended to the end (e.g. "-A").

After compiling I do the following in rsrcedit:

1. Delete the old sub1 module
2. Remove the -A from the name and change the type to sub1 of the newly compiled module

It would be great if this could be automated ... it is time consuming when several modules are involved. It would be even greater if larger modules could be compiled (hint hint).

- Jim Meadows

By **Jim Meadows** on Monday, June 25, 2001 - 11:46 am: Edit

I have an additional question concerning multiple module apps and gremlins ... how do you run gremlins across the multiple modules?

I use SysUIAppSwitch and pass parameters via records in a database. I need the gremlins to keep running when I switch modules since my sub-module cannot be run by itself (each sub module requires certain passed parameters to be setup properly).

Any thoughts?

By **Neal Bridges (Nbridges)** on Monday, June 25, 2001 - 02:45 pm: Edit

I've never tried that, Jim. My first reaction is to guess that the Gremlins carry happily on when the sub-app is called -- do they not?

Neal

By **Ron Doerfler** on Monday, June 25, 2001 - 05:07 pm: Edit

Yes they do. I use SysUIAppSwitch and pass global variables via Saved Preferences, and Gremlins runs back and forth between them just fine.

Ron

By **Jim Meadows** on Thursday, June 28, 2001 - 01:25 pm: Edit

Ok ... I think I have determined my problem. If your sub-modules have type of "appl" the gremlins run just fine. However, if you use method 2 to hide the sub-modules by changing their type to say "sub1" then the gremlins will not run on the sub-modules.

The example below runs the gremlins fine (when you tap the screen of the main module it switches to the sub module for a short time). If you change the type of the sub module to "sub1" and change the switch routine to use the following

[ID] TRY1
[ID] sub1

to switch modules, the program runs fine stand alone but does not run the gremlins. I use the following command line to run gremlins horde 0:

Emulator.exe -psf Try.psf -run_app Try0 -horde_apps Try0,Try1 -horde 0

I am going to look into leaving the type as "appl" and hiding the icons.

Notes: The program actually switches twice when the screen is tapped due to 2 events generated. Also this method does not switch until the main program exits and then restarts the calling program from the beginning when the sub module finishes.

Jim

Example:

```
\ Project main

.( main )
needs tools-ext
needs ids
needs toolkit
needs textalign
needs events
needs forms

create DmSearchStateType 16 allot
variable cardnum
2variable localid
2variable gpt

: switch
\ find app
localid >abs cardnum >abs true
[ID] TRY1
[ID] appl
DmSearchStateType >abs true
DmGetNextDatabaseByTypeCreator throw
18 s>d MemPtrNew gpt 2!
0 gpt 2@ MemPtrSetOwner throw
\ launch it
gpt 2@ 0 localid 2@ cardnum @
SysUIAppSwitch throw
;

: go
page
40 40 at
." Main Program "
60 40 at
." Tap to switch ... "
100. systaskdelay drop
begin ekey until
switch
```

```
80 40 at
." exiting to switch … "
100. systaskdelay drop
;


' go (id) TRY0 makeprc Try0

\ -----------------
\ Project sub

.( sub )

needs tools-ext
needs ids
needs toolkit
needs textalign
needs events
needs forms

: go
page
40 40 at
." Sub Program "
100. systaskdelay drop
;


' go (id) TRY1 makeprc Try1
```

By **Neal Bridges (Nbridges)** on Thursday, June 28, 2001 - 03:59 pm:
Edit

I haven't explored this, Jim -- it surprises me, as I'd expect the gremlins process to carry on furiously without any regard as to the type of a given resource database. Does it actually come to a halt?

At any rate, even if this is a hard limitation, it's easy to compile with 'appl' as your sub-app type, Gremlin test, and re-compile with another type for release.

Neal

By **Ron Doerfler** on Thursday, June 28, 2001 - 09:33 pm: Edit

I have my main app as creator ID Cfil and type appl, and my sub-app as CfIO with type QMod, and Gremlins works fine across them when launched in the POSE, which is version 3.0a4, an older version. So it looks like I really use Case 3, where the creator ID's are also different. Note that you can access the Saved Preferences of another app just as easily as yours, so I don't have a problem with that.

Ron

By **Neal Bridges (Nbridges)** on Thursday, June 28, 2001 - 09:38 pm:
Edit

That's just how I would expect it to go, Ron. Jim, are you sure the gremlins are stopping, and can you tell me what version of POSE you're using?

Neal

I am running 3.0a5 currently with a 3.0 debug rom (I have new versions that I am going to test with as well).

What happens is when the main program exits to allow the switch, the sub program is not run and control is returned to the Palm launcher screen. The gremlins then merrily go about clicking on things like beam, info, etc. on the main palm screen.

Jim

If I stand on one foot and hold my mouth just right....

OK I think I have it running OK now using method 2. I changed the command line as follows for my simple test program:

Emulator.exe -psf Try.psf -run_app Try0 -horde 0

Note that I removed the "-horde_apps Try0,Try1" parameters which was to restrict it to just running Try0 and Try1. However this apparently didn't allow Try1 to run … maybe because the Try1 type had been changed from appl to sub1. Anyway it appears to run gremlins OK now!

Thanks for all your feedback!

Jim

Ah, very good. I have never used the command-line options for the emulator.

Glad you got it sorted!

Neal

I have come up with the following code to create a sub-app, giving it the correct creator and type, and without deleting the Main-app.

First of all it deletes the old sub-app (because Quartus doesn't like it being there). Then it makes the sub-app, using a dummy Creator ID. (This will be given a type of 'appl' by Quartus).
Then it changes the Creator ID and type to that required for the sub-app.
(Note that any resources required by the sub-app can be copied after it has been re-named.)

```
\ ReCreator 3-7-01 17:06 jrn
needs core-ext
needs ids

2variable dbID \ Local DB Id
0. dbID 2!
variable cardnum
0 cardnum !
create DmSearchState 16 cells allot

: setCreatorType  ( <40> creator. type. -- )
2>r 2dup or 0= if 0. else sp@ then
2r> 2swap
2>r 2dup or 0= if 0. else sp@ then
2r> 2swap
0. 0. 0. 0. 0. 0. 0. 0. 0. dbID 2@ cardnum @ DmSetDatabaseInfo throw
2drop 2drop
;
: GetDatabase  ( creator. type. -- lid. cnum err )
2>r 2>r
dbID >abs cardnum >abs true
\ creator type
2r> 2r>
DmSearchState >abs true
DmGetNextDatabaseByTypeCreator
dbID 2@ rot cardnum @ swap
;
: ChangeCT  ( newC. newT. oldC. oldT. -- )
GetDatabase nip nip nip 0= if
  SetCreatorType
else
  2drop 2drop
then
;
: DeleteCT ( Creator. type. -- )
GetDatabase 0= if
  DmDeleteDatabase throw
else
  drop 2drop
then
;


\ Make a sub-app that will have Creator ID of 'Cre1' and a type of 'subx'

(ID) Cre1 2CONSTANT Creator \ Application Creator ID
(ID) Dumy 2CONSTANT Dummy \ A dummy creator ID
(ID) appl 2CONSTANT appl  \ Application type
(ID) subx 2CONSTANT subx \ Sub-app type

: go
." Hello"
```

```
;

Creator subx DeleteCT  \ Delete old version of sub-app - Cre1 subx
' go Dummy MakePRC AppName \ Make new app - Dumy appl
Creator subx Dummy appl ChangeCT \ Change to Cre1 subx
```

... and it works.
Regards
John

John, that's very good. I just realized I never posted my promised code; however, yours is very close to what I would have done.

Neal

Thank you.
A little while ago, in another thread, I asked about setting the Creation Date of the PRC. That could be done here by adding the following:

```
: setCreationDate  ( <20> seconds. -- )
sp@ 2>r
0. 0.
0. 0. 0. 0. 0.
2r>
0. 0. 0. dbID 2@ cardnum @ DmSetDatabaseInfo throw
2drop
;
: ChangeCD  ( <60> seconds. Creator. Type. -- )
GetDatabase nip nip nip 0= if
  SetCreationDate
else
  2drop
then
;

\ Set Creation date/time for sub-app
TimGetSeconds Creator subx ChangeCD
```

Regards
John

John, in your stack comments you have things like <20>, <40>, and <60>. I haven't seen that before--what does it signify?

-- Kris

Kris,
<ba> in the comment signifies the number of cells that the word expects on the stack on entry (before) and the number it leaves on the stack on exit (after).

I wrote a : word which automatically recorded the name of all defined words along with these numbers (which it expected at the beginning of the bracketed comment after the words name - the < and > being delimiters). Then, every time the word was executed, it checked that there were at least 'b' cells on the stack on entry, but more usefully that there were 'b-a' less cells on the stack after exit. (It could even check the number of cells expected at any other point within the word.) If there was a mismatch, it printed out a message giving the name of the word with the problem, where the problem had occurred, details of the stack mismatch and then stopped. You could then interrogate cells and abort or even change the stack and continue.

```
e.g.
: fred ( <31> n1 n2 n3 - n )  \ Expect 3 words, leave 1
.  \ Prints n3
( <2A> )     \ Expect 2 words
*   \ Multiplies n1 by n2
( <1B> )     \ Expect 1 word
.  \ Prints n1 * n2
5  \ Puts 5 on the stack
;     \ Expect 1 word
```

The problem was/is that it takes up so much dictionary space that it is not usable for large (or even medium) apps. (I was also having problems with does> words and the development slowed down and stopped). However, I got into the habit of putting the <ba> into the comment for each word. I continue to do it because I find it a useful reminder.

Got more than you bargained for huh!

Regards
John

I have split one of my large applications into 2 modules so I can do some expansion for the next version. All seems to work right on the device, but when I try to run it in POSE, I get very nearly the same issue that Jim identified above. The first app module (type = appl) runs fine for awhile and then ultimately POSE freezes. A reset shows that POSE had attempted to switch to the second module (type = mod2); it simply stopped without exiting. I can resume and it will go back to the first module for awhile and then the same thing occurs again. I've tried messing with POSE's command line parameters but I get no difference.

One other oddity is that before it freezes, I watch POSE jump between the 3 screens in the first module a whole bunch before it ever tries to switch modules. Since the jumps are called by button taps, it seems really strange that the jump attempt to the

second app doesn't happen much, much earlier, assuming there should be a kind of randomness to the button tapping. This appears to not be the case.

Anyway, if someone can offer more enlightenment on how to get the gremlins to run through app switches, please let me know.

Thanks,

Barry

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Palm specific tutorials

By **Bill Dobson** on Monday, June 18, 2001 - 01:37 pm: Edit

I have been teaching myself Forth using the Quartus Forth on my Palm IIIc. I've master the (very) basics, and now want to try some more sophisticated applications with user input from the screen or buttons, and graphical output. Are there any tutorials that discuss these or other Palm specific implementations of Forth, other than studying other's source code?

Bill

By **Bob Ryan** on Monday, June 18, 2001 - 02:51 pm: Edit

There are quite a few tutorials on the Quartus Forth Wiki:

http://www.sleepless-night.com/cgi-bin/twiki/view/Main/QuartusForthTutorials

If you have specific questions just ask here. We're always willing to help. J

By **Chris Bucsko** on Monday, June 18, 2001 - 03:39 pm: Edit

Also check out the excellent intro from the QF files area:
http://www.quartus.net/files/PalmOS/Forth/Contrib/Tutorial-v1.02.zip

By **Kris Johnson (Kdj)** on Monday, June 18, 2001 - 04:28 pm: Edit

The most common comment I get about the tutorials in the wiki is that they are still too far over newbies' heads. I'm not sure exactly what to do about that, but I'd encourage people who know what they're doing to write some more basic tutorials, and for the in-the-dark newbies to post some questions about exactly what they want to know that they can't find.

-- Kris

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Please review microticks code

By **Les Grundman (Lesgrundman)** on Sunday, June 17, 2001 - 11:02 am: Edit

Attached is some code to measure time in microticks; each microtick is approximately .2 microsecond. Please review and offer comments for improvements and corrections.

I need this capability for a data acquisition project - general use might be to be determine code optimization benefits. For example it is possible to see a 5 microsecond improvement in a simple pass when inlining is used.

The idea for this code was taken from a 1998 article by Ken Krugler, "PalmOS Microsecond Timing".

http://oasis.palm.com/dev/kb/papers/1969.cfm

```
\ microticks 2001June17 LAG
\
\ NOTE!!! This code is hardware
\ dependent and will not work beyond
\ current Dragonball 328vz processor
\ i.e. Visor Edge or m505
\
\ Also please note that this code will
\ not work if an overclocking utility is
\ in use

needs ids
needs ver
needs float-ext

\ determine processor ID
\     328db = 1, 328ez = 2, 328vz = 3

: Pversion ( -- processorID )
  ver >abs  2  psys  FtrGet drop
  ver 1+ c@  ;

\ timrlocxxx = counter register
```

```
\ timrcompxxx =
\        timer-compare register
\ prescalerxxx = prescaler register
\
\ 1/100th second "ticks" are created:
\
\     incrementing the counter register
\     every
\         system clock/(prescaler + 1)
\     when the counter register = the
\     timer-compare value then
\     1/100 sec has passed
\
\ Example:  for orig Palm III
\
\     (3/16,580,608 Hz) * 55268
\           = .009999875 second
\
\ Values for 16Mhz, 20Mhz & 33Mhz
\
\  Clock    prescaler a@+1 timrcompar
\  16,580,608Hz      3          55268
\  20,250,650Hz      4          50626
\  33,161,226Hz      6          55268

(hex) ffff.f608 2constant timrloc328ez/vz
(hex) ffff.f614 2constant timrloc328db
(hex) ffff.f604 2constant timrcomp328ez/vz
(hex) ffff.f60C 2constant timrcomp328db
(hex) ffff.f602 2constant prescaler328ez/vz
(hex) ffff.f60A 2constant prescaler328db

2variable timrloc

2variable ticksStart
2variable ticksEnd
variable  microticksStart
variable  microticksEnd

variable timrcompare

: timrloc!  ( -- )
   Pversion dup 2 = swap 3 = or
 If
   timrloc328ez/vz timrloc 2!
 Else
   timrloc328db timrloc 2!
```

```
 Then ;

: timrcompare@  ( -- timrcompare )
   Pversion dup 2 = swap 3 = or
 If
   timrcomp328ez/vz @a
 Else
   timrcomp328db @a
 Then ;

: prescaler@  ( -- prescaler )
   Pversion dup 2 = swap 3 = or
 If
   prescaler328ez/vz @a 1+
 Else
   prescaler328db @a 1+
 Then ;

: countStart  ( -- )
    timrloc!
    timgetticks ticksStart 2!
    timrloc 2@ @a  microticksStart ! ;


: countEnd  ( -- )
    timrloc 2@ @a  microticksEnd !
    timgetticks ticksEnd 2! ;


: countmicroticks
     ( -- microtickscount. )
    ticksEnd 2@ ticksStart 2@ d-
    timrcompare@ 1 rshift 1 m*/
    2 1 m*/
    microticksEnd @
    microticksStart @ 2dup
    < if -1 timrcompare - + -
      else -
      then
    0 d+ ;

\ convert to float seconds from
\    microticks

: m>Fs
    ( microtickscount. -- ) ( F:  -- f )
    D>F prescaler@ dup 6 = swap 3 = or
```

```
    if      1.809343e-7
    else    1.973245e-7
    then  f* ;

\ example of how to use microticks

: somethingtotime  9 0 do loop ;

: getelapsedtime ( -- )
    countstart
    somethingtotime
    countend
    countmicroticks 2dup
    m>fs cr cr
    ." Seconds:        " f. cr
    ." MicroTicks: " 0 d.r space cr cr ;
```

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Copying resources into standalone application

By **Duane Foster** on Thursday, June 14, 2001 - 02:20 pm: Edit

I am preparing a 'make' file for standalone compilation. When a tFRM resource is copied into the application (via copyRsrc), does it bring in the button resources associated with that form or do they have to be copied explicitly?

Should I copy all the resource items dumped out from OnBoard RsrcEdit 'build resource list'?

DuaneG

By **Ron Doerfler** on Thursday, June 14, 2001 - 02:29 pm: Edit

It brings the internal resources with the form. You should have one line in your make file for every line appearing when you first open your resource database in RsrcEdit. I'm not sure what all is dumped out in the build resource list from RsrcEdit, as I've never used that list.

Ron

By **Duane Foster** on Thursday, June 14, 2001 - 03:41 pm: Edit

Thanks for the clarification on that.
It seems a much more manageable scenario now.
Build resource list creates a template for naming all the resources as constants. So all the resources are listed by it (every button, popup list, string, u-name-it).

DuaneG

By **Bob Ryan** on Thursday, June 14, 2001 - 04:13 pm: Edit

An automated way to copy your resources is available here:

http://www.sleepless-night.com/cgi-bin/twiki/view/Main/AutomatedMake

The make module not only generates the PRC, it also copies all of the resources from your resource file to your new executable.

Cheers,
Bob

I just tried the Build Resource List in RsrcEdit just to see what it does. Not very useful I'd say; it creates constants for various UI elements, which could be handy, but the names it creates aren't much more enlightening than the numbers, and for some elements it includes the label as part of the Forth constant name. Good luck with that if any of your labels contain spaces.

-Chap

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PopupTrigger vs. SelectorTrigger

By **Elan Goldman** on Thursday, June 14, 2001 - 02:43 am: Edit

Hi, it's me again.

I'm using OnBoard RsrcEdit to edit my resources.

When I use a SelectorTrigger control a ctlSelectEvent is reported when I click on the trigger.

If I leave everything as is, but change the type of control from SelectorTrigger to PopupTrigger, I can no longer detect a ctlSelectEvent. I did, however, expect to get one.
By "leave everything else as is" I mean that I have made no modifications to the other settings of the control (in RsrcEdit) and I have made no changes to the Forth code that processes the events. Since the Resource ID has remained unchanged, the same resource is now simply defined as being a PopupTrigger, I would think that my app should behave exactly the same way, no matter which type of control I use.

Any ideas?

TIA,

Elan

By **Kris Johnson (Kdj)** on Thursday, June 14, 2001 - 07:15 am: Edit

According to the Palm OS docs, it looks like a popSelectEvent is sent by a popup trigger.

I'm not sure that it makes sense to expect the application to work the same way with different types of controls.

-- Kris

By **Elan Goldman** on Thursday, June 14, 2001 - 03:39 pm: Edit

Hi Kris,

thanks for the info. I'd tried using the popSelectEvent before I reported my problem, and that hadn't worked either (at least not the way I thought it should).

I didn't understand how triggers work, but I've finally figured it out. RsrcEdit takes care of it for me (I create a PopupTrigger, a List, and a Popup). I don't need to (and probably can't) intercept the trigger's event. My guess is that the popSelectEvent is generated by the popup associated with the trigger, and not by the trigger itself.

Elan

By **John Newell** on Friday, June 15, 2001 - 06:22 am: Edit

You need R1.2.6R to catch popSelectEvents.
See
http://www.quartus.net/discus/messages/23/734.html?
or
http://www.sleepless-night.com/cgi-bin/twiki/view/Main/QuartusForthBugs
if you can get into the twiki (which I never have yet)

John

By **Kris Johnson (Kdj)** on Friday, June 15, 2001 - 07:34 am: Edit

What problem do you have with the wiki? Does the name not resolve, or does it just not return any data?

-- Kris

By **John Newell** on Monday, June 18, 2001 - 07:31 am: Edit

Kris,
Using the Quartus Forth Wiki links I get, using Netscape or Using Explorer, a timeout - 10060 Connection timed out.

John

By **kdj** on Monday, June 18, 2001 - 11:13 am: Edit

It's been a long time since I've had a timeout--the wiki always responds within a second or two. I suspect that there is some sort of a routing problem between your ISP and my host provider.

If you don't mind, could you try doing a traceroute to sleepless-night.com to see what's going on? You can send the results to my e-mail: kris@sleepless-night.com.

Thanks,
-- Kris

Kris,
I'm on a proxy server and the traceroute software doesn't seem to work in that environment. Any suggestions?

Regards
John

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Known Bugs

By **Steve Bohrer (Skb)** on Saturday, March 24, 2001 - 09:27 am: Edit

Serial library source has errors.

The header of the broken version is

> **Quote:**
>
> \ serial 99.2.20 7:30 pm NAB
> \ based on Wade Johnson's work
>
> needs core-ext
> ...

Fix: Replace the serial memo with the updated version of serial.

Also add the following line to the header:
```
\ updated 00.5.14 10:43pm WDM
```

By **John Newell** on Wednesday, March 28, 2001 - 03:50 am: Edit

Callback End-callback is best avoided. Use Steve Bohrer's alternative.

Events which do not occur:
sclRepeatEvent
sclEnterEvent
lstEnterEvent

Rather than have this useful information as a thread, perhaps Neal would consider maintaining a Known Problems section, included in the Documentation of the Menu panel on the Quartus Discussion page?

John

By **Neal Bridges (Nbridges)** on Wednesday, March 28, 2001 - 04:07 pm: Edit

Just as a point of clarification -- Steve Bohrer's code doesn't replace callback/end-callback, but rather works with them and compensates for

problems with certain OS routines corrupting one of the system pointers.

Neal

By **Wade Carlson** on Saturday, March 31, 2001 - 03:55 pm: Edit

SEARCH behaves unexpectedly. Workaround: Don't use it.

By **Neal Bridges (Nbridges)** on Saturday, March 31, 2001 - 11:28 pm: Edit

There's a better workaround coming shortly, Wade 🙂 Do you have 1.2.7? Let me know -- I'll send it to you for SEARCH testing on Monday.

Neal

By **Kris Johnson (Kdj)** on Tuesday, April 10, 2001 - 10:51 pm: Edit

I've added a page to my wiki that lists these bugs. Please take a look and let me know if it is a more useful way of tracking these issues.

http://www.sleepless-night.com/cgi-bin/twiki/view/Main/QuartusForthBugs

-- Kris

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Stuck with IR

By **krokodil** on Thursday, March 22, 2001 - 04:07 pm: Edit

Hi!

I am trying to implement word, reading 1 byte
from IR port with blocking. Here is
what I have:

```
variable inbyte
: read-byte ( -- err | byte 0 )
  1 serRecvWait dup 0= if
  drop
  inbyte 1 serRecv dup >r
  0= rot rot 1. d= and if
   rdrop
   inbyte c@ 0
  else
   r>
  then
then;
```

rdrop is defined as "r> drop".

When I run this code it cause fatal error
and I have to reset my palm.

What is wrong with my code?

By **Neal Bridges (Nbridges)** on Thursday, March 22, 2001 - 04:47 pm:
Edit

Make sure your RDROP is defined like this:

```
: RDROP
  R> DROP ; INLINE
```

Neal

By **krokodil** on Thursday, March 22, 2001 - 05:24 pm: Edit

Neal,

it is (except lower case), but it still
crashes.

By **krokodil** on Thursday, March 22, 2001 - 05:29 pm: Edit

Could it be related to word-boundry address
alignment? Just thinking aloud.

By **krokodil** on Thursday, March 22, 2001 - 06:31 pm: Edit

Looks like it crashes is in serRecvWait.
My timeout is set to -1 (it is used
in this call).

Serial library is initalized, and before
calling this method, I've sent some data to
this port.

I have not set my own receive buffer - I am using PalmOS default one.

This is under PalmOS 3.3

By **krokodil** on Thursday, March 22, 2001 - 07:39 pm: Edit

Ok, looks like it is error in serial.txt
which was mentioned in forum archives.

To fix it, in serial.txt in serRecvWaitA
you have to replace 43023 with 43022.

It did trick for me.

serial.txt in the file are is not updated.

Perhaps Neal could correct me if I am wrong
here.

I am glad it resolved. I spend 2 days
figthting this!!

By **Wes Matchett (Wesm)** on Friday, March 23, 2001 - 01:14 am: Edit

There is a fully tested serial.txt with all mods from the entire news group

```
history…

\ serial 99.2.20 7:30 pm NAB
\ based on Wade Johnson's work

needs core-ext
needs zstrings
needs toolkit
needs struct

hex 300 decimal constant serErrorClass

serErrorClass
dup 1 or constant serErrBadParam
dup 2 or constant serErrBadPort
dup 3 or constant serErrNoMem
dup 4 or constant serErrBadConnID
dup 5 or constant serErrTimeOut
dup 6 or constant serErrLineErr
dup 7 or constant serErrAlreadyOpen
dup 8 or constant serErrStillOpen
dup 9 or constant serErrNotOpen
10 or constant serErrNotSupported

hex
1 0 2constant serSetFlagStopBitsM
0 0 2constant serSetFlagStopBits1
1 0 2constant serSetFlagStopBits2
2 0 2constant serSetFlagParityOnM
4 0 2constant serSetFlagParityEvenM
8 0 2constant serSetFlagXonXoffM
10 0 2constant serSetFlagRTSAutoM
20 0 2constant serSetFlagCTSAutoM
C0 0
2constant serSetFlagBitsPerCharM
0 0 2constant serSetFlagBitsPerChar5
40 0
2constant serSetFlagBitsPerChar6
80 0
2constant serSetFlagBitsPerChar7
C0 0
2constant serSetFlagBitsPerChar8
decimal

: 2or ( d1. d2. -- d3. )
rot or rot rot or swap ;
```

```
serSetFlagBitsPerChar8
serSetFlagStopBits1 2or
serSetFlagRTSAutoM 2or
2constant serDefaultSettings
500 constant serDefaultCTSTimeout

1 constant serLnErrParity
2 constant serLnErrHWOverrun
4 constant serLnErrFraming
8 constant serLnErrBreak
16 constant serLnErrHShake
32 constant serLnErrSWOverrun

variable SerLib#
variable serErr

\ Iinit the serial library:
: InitSerLib ( -- err )
SerLib# >abs
z" Serial Library" drop >abs
SysLibFind ;

: serSysTrap ( # -- )
SerLib# @ swap systrap drop ;

: serSysTrap2n ( a b # -- n )
serSysTrap 2drop d0 drop ;

: serSysTrap4n ( a b c d # -- n )
serSysTrap 4drop d0 drop ;

: serClearErr ( -- )
43016 serSysTrap ;

: serOpen ( baud. -- err )
0 43009 serSysTrap 3drop d0 drop ;

: serClose ( -- err )
43010 serSysTrap d0 drop ;

\ OS 1.0 send routines
: serSend10A ( &addr. len. -- err )
2swap 43017 serSysTrap4n ;

: str>lstr ( &addr len -- &addr. len. )
>r >abs r> 0 ;
```

```
: serSend10 ( &addr len -- err )
str>lstr serSend10A ;

\ OS 2.0 send routines
: serSendA ( &addr. len. -- #. err )
2swap 2>r serErr >abs
2swap 2r>
43031 serSysTrap 4drop
@a d0 rot ;

: serSend ( &addr len -- #. err )
str>lstr serSendA ;

: serSendWait ( -- err )
-1. 43018 serSysTrap2n ;

\ Timeout for receive commands:
2variable SerRecvTO
-1. SerRecvTO 2!

: set-timeout ( timeout. -- )
SerRecvTO 2! ;

: get-timeout ( -- timeout. )
SerRecvTO 2@ ;

\ OS 1.0 receive routines
: serRecv10A ( &addr. len. -- err )
2swap 2>r get-timeout
2swap 2r>
43021 serSysTrap 6drop d0 drop ;

: serRecv10 ( &addr len -- err )
str>lstr serRecv10A ;

\ OS 2.0 receive routines
: serRecvA ( &addr. len. -- #. err )
2swap 2>r 2>r SerErr >abs
get-timeout 2r> 2r>
43032 serSysTrap 6drop @a d0 rot ;

: serRecv ( addr cnt -- #. err )
str>lstr serRecvA ;

2variable templong 0. templong 2!
: serRecvCheck ( -- bytes. err )
tempLong >abs
```

```
43023 serSysTrap 2@a d0 drop ;

: serRecvFlush ( -- )
get-timeout
43024 serSysTrap 2drop ;

: serRecvWaitA ( bytes. -- err )
get-timeout 2swap
43022 serSysTrap4n ;

: serRecvWait ( bytes -- err )
0 serRecvWaitA ;

\ warning: bug in OS 2.0
: serSetRecvBuffA
( &addr. len. -- err )
swap 2swap 43025 serSysTrap4n ;

: serSetRecvBuff ( &addr len -- err )
str>lstr serSetRecvBuffA ;

variable ctsOn variable dsrOn
: serGetStatus ( -- cts dsr err )
dsrOn >abs ctsOn >abs
43015 serSysTrap4n
ctsOn c@ dsrOn c@ rot ;

struct
2 cells field serSet.baud
2 cells field serSet.flags
2 cells field serSet.ctsTO
end-struct serSettings:

: serGetSettings ( &settings -- err )
>abs 43013 serSysTrap2n ;

: serSetSettings ( &settings -- err )
>abs 43014 serSysTrap2n ;

: cts? ( -- flag ) (hex) fffff906. @a
1 9 lshift and 0= 0= ;
```

By **Vadim Zaliva (Krokodil)** on Friday, March 23, 2001 - 03:16 am:

Thanks Wes,

I will use this one from now on.

Wes,
To avoid confusion, I think you should have changed the date and time or put some comment in to indicate that it is a different version from the delivered one.

John

I agree, and I should have done that. I'd suggest the following header and that Neal put a current version in the file area. I made these updates a while back:

\ serial 99.2.20 7:30 pm NAB
\ based on Wade Johnson's work
\ updated 00.5.14 10:43pm WDM

I'm not sure that would work Wes. The first line should show the current version information so that it is obvious in Memo Pad or pEdit which one you have. Maybe:
\ serial 00.5.14 10:43pm WDM
\ update of serial 99.2.20 7:30 pm NAB
\ based on Wade Johnson's work
or
\ serial yy.mm.dd hh:mm NAB
\ update of 99.2.20 7:30 pm
\ based on Wes Matchett work 00.5.14 10:43pm
\ based on Wade Johnson's work

John

Well, since all I did was apply fixes listed in the forum archives - I really don't want any credit for actualy doing anything - how about:

\ serial 00.5.14 10:43pm NAB
\ update of serial 99.2.20 7:30 pm NAB
\ based on Wade Johnson's work

or just

\ serial 00.5.14 10:43pm NAB

\ based on Wade Johnson's work

I think the most important thing is to get a working version in the file area.

By **John Newell** on Wednesday, March 28, 2001 - 03:32 am: Edit

That's fine.
Sorry if I seem a bit pedantic but it MUST be clear which version of any library you are using. There is no version control on the Palm so you have to do it the hard way - by eye. It's a real pain chasing down a bug which has already been fixed.

I'll say no more.

John

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Floodfill weirdness

By **Matthew Burke (Mmb)** on Tuesday, June 12, 2001 - 10:47 am: Edit

I have the following code:

```
: draw-sun
    yellow foreground
    4 80 80 circle
    80 80 floodfill ;
```

which works fine until I modify my app to use double-buffering. Then all I get is a yellow outline circle.

As far as I can tell, floodfill should work fine. The WinGetPixel call gets the pixel value from the current draw window.

Can anyone think of something I might be doing wrong? (yeah, I know, with a straight line like that ….)

Matt

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[NEWBIE] ">r", "r>", and ShowForm

By **Elan Goldman** on Tuesday, June 12, 2001 - 02:56 am: Edit

Hi.
Here's what I'm trying to do:
When a button on my main form is selected I want to save the ID of the current form and display a new form. When the "Done" button is clicked on that second form I want to retrieve the ID of the previous form and return to it.

I discovered that the input library uses the following code sequence to (I believe) accomplish what I am trying to do.

In the input library the following code snippets are used. The definition for the word get-input includes the expression:
FrmGetActiveFormID >r
The same function later uses the expression
r> FrmReturnToForm

I tried using these two expressions but in my case the app crashes before the new form is shown.
The expressions are used in two different if … else … then branches. After having detected that I am dealing with a ctlSelectEven and having done the obligatory event>abs itemid dup I continue:

```
….
mFirstButton = if
FrmGetActiveFormID >r
secondForm ShowForm drop
else dup
mSecondButton = if
r> FrmReturnToForm
then then
….
```

My guess is that the return stack is used during the evaluation of ShowForm and perhaps it's not such a great idea to mess around with the return stack before calling ShowForm. Correct?
If I leave out ">r" and "r>" by storing the first form's address in a variable and then using the value stored in that variable like this:

```
variable cf
….
```

mFirstButton = if
FrmGetActiveFormID cf !
secondForm ShowForm drop
else dup
mSecondButton = if
cf @ FrmReturnToForm
then then
....

then secondForm ShowForm executes properly, but when I hit the mSecondButton then an empty form is displayed (instead of the my first form, which I expected to see).

1. Is it illegal to embed ShowForm between ">r" and "r>"?
2. Am I missing some convenience function that would make it simpler to travel between different forms?
3. If I have to use a variable to store the return form's id, is there an easy way to implement it as a stack?
4. If I use ShowForm the second time around (i.e. to return to the first form in response to the "Done" button) instead of using FrmReturnToForm, then the form is displayed correctly. Is it safe to do that repeatedly?

TIA,

Elan

By **Kris Johnson (Kdj)** on Tuesday, June 12, 2001 - 10:39 am: <u>Edit</u>

The problem is that you have to restore the return stack to its original state before returning from a word.

If I understand correctly, you have a word something like this:

```
: handle-thingee ( -- )
   ... if
      ... >r ...
   else
      ... r> ...
   then ;
```

The problem is that you are putting something onto the return stack in the IF part, and then leaving the function before taking it off. You can't do this, because on entry to the word, the top of the return stack contains the return address, and you have now covered that with "garbage".

The return stack is not being changed by ShowForm. In general, you can

assume that calling any function is going to leave the return stack intact.

Your variable-based solution is on the right track. I'm not sure exactly why it doesn't work.

-- Kris

I spent a while figuring this out (being a rank newbie myself) and this works well. I needed to go to the same Preferences screen from several different possible screens, and wanted to return to the calling screen. This code snippet assumes that you're using buttons to control navigation...

```
variable PrvForm  /previous form

When going to new form :
GetPrefsButton of
  FrmGetActiveFormID
  PrvForm !
  PrefForm PopUpForm
endof

When returning to previous form :
PrefOKButton of
  Process-PrefForm
  PrvForm @ FrmReturnToForm
endof
```

Hope this helps

Jamie

The Forth standard, DPANS94.doc, says:

3.2.3.3 Return stack
Items on the return stack shall consist of one or more cells. A system may use the return stack in an implementation-dependent manner during the compilation of definitions, during the execution of do-loops, and for storing run-time nesting information.
A program may use the return stack for temporary storage during the execution of a definition subject to the following restrictions:
- A program shall not access values on the return stack (using R@, R>,

2R@ or 2R>) that it did not place there using >R or 2>R;
- A program shall not access from within a do-loop values placed on the return stack before the loop was entered;
- All values placed on the return stack within a do-loop shall be removed before I, J, LOOP, +LOOP, UNLOOP, or LEAVE is executed;
- All values placed on the return stack within a definition shall be removed before the definition is terminated or before EXIT is executed.

Have you got the Save Behind attribute set for the called Form?

John

By **Elan Goldman** on Tuesday, June 12, 2001 - 03:22 pm: Edit

Hi and thanks for all the responses.

John wrote:
> Have you got the Save Behind attribute set for the called Form?

I just checked, and yes, I do have the Save Behind attribute set for the called form.

Does anyone know if it is safe to use ShowForm repeatedly on a form, even though the Save Behind bit of the subsequent form was set?

Does anyone know of a standard stack (Last In First Out) implementation? My problem with using a variable to store previously displayed forms is that it does not allow me to keep a log of the sequence in which forms were displayed.

TIA,

Elan

By **Kris Johnson (Kdj)** on Tuesday, June 12, 2001 - 03:28 pm: Edit

For a stack implementation, check out
http://www.quartus.net/files/PalmOS/Forth/Snippets/stacks.txt

-- Kris

By **Neal Bridges (Nbridges)** on Tuesday, June 12, 2001 - 03:34 pm: Edit

Thanks Kris -- you beat me to it. I remembered writing such a thing some moons ago.

Neal

Again, thanks for the answers. It's great to see that this forum is so responsive.
I'm sure I'll have more questions as I continue my project. I hope you guys don't mind some increased traffic over the next few days ;-).

Elan

I just looked at the snippet. What a great idea!! But in the calling example, you have "10 stack mystack" to create a 10 cell stack called mystack. Shouldn't it read "10 mystack stack" ?

'stack' is the name of the creation function; the name of the stack it creates must come after it to be parsed, not before it.

Neal

that's what I thought by looking at the stack diagram. apart from reading the code is there anyway of representing that in the diagram?

Richard

The stack diagram for that word indicates it:

: stack (size "name" --)

The "name" is common-practice for indicating a forward-parsing word.

Neal

Ahhh - I am enlightened.

Thanks Neal.

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Free Handle

By **Richard Chamberlain (Rac)** on Monday, June 11, 2001 - 07:48 am:
Edit

Hi,

For those who haven't read my recent messages I've moved a set of S" into resource strings (via some nice code that Bob wrote).

At runtime I get the handle to the string resource and write it to a field. So far so good.

Everything compiles ok and the resource strings copy across ok.

In my program I have a word that picks a random number and then shows the string associated with that number using handle>field in string2anyfield.

This works a few times and then I get a freehandle exception which bombs my palm big time. It's got a nice reset button but when it resets the exception just pops back up again. So I need to do a hard reset - ouch - I should really use POSE :-(.

Any ideas what is causing this?

What if there wasn't a resource with a certain number what would dmGetResource return?

Thanks,

Richard

By **Bob Ryan** on Monday, June 11, 2001 - 11:10 am: Edit

Your last line answers the question :o) Trying to do a DmGetResource on a resource that doesn't exist almost aways crashes the Palm.

BTW did you try doing a warm reset? Press the up-arrow key while pressing reset. It's strange that you had to do a cold reset for this.

-- Bob

By **Bob Ryan** on Monday, June 11, 2001 - 11:20 am: Edit

Actually I ment to say that the Palm will crash when you try to USE the value returned from DmGetResource.

DmGetResource returns a double-cell zero if it cant find the resource.

Check the value DmGetResource returns using:

```
: DmThrow ( addr. -- addr. )
   2dup or 0=
   IF
      DmGetLastErr throw
   THEN ;
```

By **Neal Bridges (Nbridges)** on Monday, June 11, 2001 - 11:22 am:

Indeed it is strange that you'd need a hard reset. I suspect something more drastic is occurring -- maybe a severe stack underflow.

Neal

By **Richard Chamberlain (Rac)** on Monday, June 11, 2001 - 11:28 am:

Yes, I tried a warm reset.

That restarted the palm into preferences and is OK until I go into the Launcher at which time it bombs again.

So I can use the programs attached to the hardware buttons but nothing else.

Thanks for code Bob - I'll put it in and see what happens, although I don't think this is actually happening. I'm pretty sure I'm always calling a real resource.

Richard

By **Richard Chamberlain (Rac)** on Tuesday, June 12, 2001 - 04:30 am:

I'm still having troubles.

I looked through all my resources and they are all consecutive (1-287) and I tested my rand code to make sure I wasn't choosing a quote outside that range.

I looked at the code I was using in string2anyfield (handle>field). This calls a word called freeHandle which calls the palmos MemHandleFree - is this the problem?

I presumably don't want to free the handle because it's a handle to a resource. If you call string>anyfield I can understand calling freeHandle because you're using against a s", but in this case I'm not sure you do.

Thanks,

Richard

Here's some code that might help. I didn't get a chance to test it though.

tSTR>s will search all open resource files for a tSTR with a given ID and returns the string in the form (c-addr u).

```
\ tSTR>s

\ Allot a temp string at least as
\ long as your longest quote
create tempStr 256 chars allot

: tSTR>s ( ID -- c-addr u )
   [ID] tSTR DmGetResource DmThrow
   MemHandleLock 2dup 2>r
   tempStr >abs StrCopy
   2r@ MemHandleUnlock throw
   2r> DmReleaseResource throw
   2dup StrLen >r >rel r> ;
```

Thanks again Bob.

Unfortunately it doesn't work - but I haven't had time to work out why yet.

Richard

I'm a bit lost...

```
: tSTR>s ( ID -- c-addr u )
[ID] tSTR DmGetResource DmThrow
MemHandleLock 2dup 2>r
```

I've commented bits of this out - it crashes at 2>r for some reason? I've checked the stack at this point and there is 4 items on it.

```
tempStr >abs StrCopy
2r@ MemHandleUnlock throw
2r> DmReleaseResource throw
```

I don't understand the next bit. I think the stack would probably be empty at this point (unless i've missed something).

```
2dup StrLen >r >rel r> ;
```

Help,

Richard

Oops, I put the '2dup 2>r' combo in the wrong place. Here's the corrected code:

```
: tSTR>s ( ID -- c-addr u )
   [ID] tSTR DmGetResource DmThrow
   2dup 2>r MemHandleLock
   tempStr >abs StrCopy
   2r@ MemHandleUnlock throw
   2r> DmReleaseResource throw
   2dup StrLen >r >rel r> ;
```

-- Bob

StrCopy leaves a pointer to the destination string on the stack. This is a 2-cell (32-bit) pointer to the original tempStr.

StrLen gets the length of the string, which is temporarily stored on the r-stack.

>rel converts the 32-bit pointer into a 16-bit one.

We're getting closer :o)
Bob

Thanks Bob that works perfectly.

I'll keep going I'm sure one day soon I'll figure it all out.

Richard

Here's a much shorter version of tSTR>s :

```
create tempStr 256 allot
: tSTR>s ( ID -- c-addr u )
    tempStr >abs SysCopyStringResource
    tempStr dup >abs StrLen ;
```

I just now stumbled over the SysCopyStringResource function in the SDK. It's amazing what you can find when you're not looking for it J .

Thanks Bob,

I'll have a play.

Richard

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Memory and program size questions

By **Les Grundman (Lesgrundman)** on Saturday, June 9, 2001 - 08:50 am: Edit

Hello all; I am working on my first Palm app - a data acquisition project that requires microsecond timing, assembly language to quickly & directly access the palm hardware and advanced math routines to do a Fast Fourier Transform; in other words I am jumping in way over my head 🙂

On a historical note, I have used Forth before but it was 17 years ago on an Atari (valForth).

Ok, now to the point of this post. I have been trying to understand the "big" picture for programming with Quartus Forth on the Palm relative to memory use, program size, etc. so I am going to make some statments and ask some questions. Please correct errors in the statements and answer the questions as possible:

STATEMENTS:

Palm memory is divided into two types, dynamic & storage. Dynamic memory is between 12k and 64k - it depends on Palm ROM version. It is possible to freely write to dynamic memory, but it is only possible to write to storage memory through PALM OS system calls. (to paraphrase the Quartus Manual Q&A page).

The Quartus dataspace is in Dynamic memory and holds the Forth stack, the location of data pointed to by variables or returned by constants, system variables, etc. To reserve a large block of dynamic memory requires either the "ALLOT" command at compile time or the ALLOCATE or (ALLOCATE) command at run time. If you use "ALLOT" it will cause the PRC files to be larger than necessary.

The Quartus codespace is in Storage memory; word definitions are then compiled into codespace. "CSUNUSED" lists the amount of remaining codespace, 44352 bytes for Quartus v1.2.5R. No Quartus app can be created which requires more than 44352 bytes of codespace unless the sub apps approach is used. ProSTATS is an excellent Quartus application which uses this sub apps approach.

QUESTIONS:

How do I determine how much dynamic memory is available? On my IIIxe with 4meg free "MEM D. D." returns 219778 and 198596 - clearly out of the 12k to 64k range noted above.

What are the latest thoughts on the use of "ALLOCATE" versus "(allocate)" versus an alternate heap memory manager? Previous postings pointed out that "ALLOCATE" must be called repeatedly until it finally works. Does this repeated call strategy always eventually work? Does the repeated call strategy work with PalmOS 4.0?

Are there any code examples on using the sub apps approach? When the sub apps approach is used, how is data passed? Is the only way PalmOS databases?

Thanks,
Les

By **Kris Johnson (Kdj)** on Saturday, June 9, 2001 - 03:19 pm: Edit

Regarding memory allocation, I'd recommend using (allocate), or the Palm OS memory routines. However, that means that your application will have to use double-cell absolute addresses rather than single-cell addresses, which may complicate things (or may simplify them, depending upon how you are using memory).

However, if your memory usage is bounded (that is, you know the maximum amount you'll need), then there's nothing wrong with using ALLOT to put it all in dataspace. I'm not sure what the maximum amount is that you can ALLOT.

BTW, my introduction to Forth was on an Atari computer as well. Things have changed a little since then.

-- Kris

By **Les Grundman (Lesgrundman)** on Saturday, June 9, 2001 - 04:59 pm: Edit

Kris,

Thanks for the comments.

Yes, computers have changed quite a bit since the Atari days. I remember splurging and getting two extra 16K memory cards for $100 each for my Atari 800… I then had a whole 48K of ram…

Thinking back, the disk i/o (96k 5.25" floppy)was also kind of humorous; you could always tell how fast data was moving cause there was a beep every time a few hundred or so bytes were transferred...

I do think, though, that I like programming on the Palm with Quartus so much because it is similar to the old days. It is possible/necessary to understand the computer and software down to a low level.

Les

By **Chapman Flack** on Monday, June 11, 2001 - 11:44 am: Edit

Your whole Forth dataspace including your variables, constants, everything you allot, cannot together exceed 32k (the limit of positive, signed 16-bit offsets from A5). And yes, doing the ALLOT prior to MakePRC will expand your PRC file by the amount you allot. (And doing the ALLOT in the standalone app is likely to crash the device because ALLOT depends on an internal global variable that doesn't get initialized in the standalone app startup.)

I agree with Kris in recommending (allocate) or the PalmOS API.

In recent versions of PalmOS the dynamic heap can be bigger than 64k depending on the device, 96k is not uncommon and on recent devices it is sized at reset time according to the total memory on the device. But the dynamic heap is shared; it's not all for your application. Also, be very careful about the validity of pointers when writing to memory allocated in the dynamic heap--there is no protection to keep you from writing to another app's dynamic memory chunks. 😐

-Chap

By **Les Grundman (Lesgrundman)** on Tuesday, June 12, 2001 - 09:47 pm: Edit

Chap,

Thanks for the comments. I am afraid I am still not quite straight about (allocate).

When you use (allocate) is the memory it reserves outside of the dataspace (and the 32k limit)? Since the stack diagram shows an unsigned cell input, does that mean I can additionally (allocate) 64k?

http://www.palmos.com/dev/tech/hardware/compare.html shows that my PalmIIIxe can have upto a 256k dynamic heap; it would be nice to be able to use more of it.

Thanks,
Les

You can use (allocate) to allocate dynamic memory up to the amount available on the device; this may well exceed 64k in later models.

Neal

(allocate) only accepts a 16-bit parameter, but it is just a wrapper for the MemPtrNew Palm OS function. You can pass a 32-bit value to MemPtrNew, so I assume it is possible to allocate a chunk bigger than 64K.

FWIW, this works on my Visor Deluxe:

```
65505. MemPtrNew
```

but any value higher than 65505 fails. I can allocate three chunks of size 65505; the fourth attempt fails.

-- Kris

> **Quote:**
>
> Also, be very careful about the validity of pointers when writing to memory allocated in the dynamic heap--there is no protection to keep you from writing to another app's dynamic memory chunks.

What does this mean? I was under the impression that only one app runs at a time under Palm OS, so the entire range of dynamic memory would be used by the running app plus whatever OS usage is going on (and Hacks, I guess).

-- Kris

Oh, you're going to ask for precise definitions…. Hmm, I'm not sure I know enough. What I should have said was "nothing stops you writing to dynamic heap that your app didn't allocate." That would pretty much cover the

bases. You can clobber anything the OS might have in dynamic heap ... you can clobber unallocated portions of dynamic heap (not harmless, because that's likely to be where the allocation-management structures live) ... you might certainly clobber dynamic heap allocated by hacks ... and it would not surprise if you can clobber other apps' dynamic data when you are running as a subcall or under an alternate launch code.

-Chap

Broadly speaking, the CPU in current Palm devices doesn't have memory-protection built in except in an extremely broad sense -- 'storage' RAM is protected from casual writes, and hence is much harder to corrupt accidentally.

Dynamic RAM is unprotected, so your app could merrily go off and corrupt low memory addresses if it so chose. The Palm OS Emulator is good at catching this sort of infraction.

Neal

OK--I wasn't trying to be a stickler on definitions. An application should never write to memory that it doesn't own, no matter what the memory protection mechanism is, so I was wondering why you explicitly made this point.

And I was just wondering how multiple apps could be simultaneously using the heap. When running as a subroutine, then yes, your app could be sharing the heap with another app.

-- Kris

I explicitly made the point because when applications do address memory they don't own, it's usually by accident, not because the programmer deliberately tried to do it. We're all imperfect. But many of us are accustomed to operating systems that tell us when we have made that mistake, so we can fix it. It's worth a heads up to be *much more careful* under Palm OS, which will give you no sign you have written outside your allocated dynamic heap chunks, and there is *no telling what will happen* if you do.
Considering possible direct and indirect effects, basically all bets on the integrity of anything you have on your PDA are off. Most of us have already

come to grips with that awful truth of the Palm environment, but it bears repetition for the benefit of newbies.

-Chap

By **Les Grundman (Lesgrundman)** on Sunday, June 17, 2001 - 11:09 am: Edit

Thanks for all the comments. I still have a long way to go, but this info really helps.

The support from Neal and the members of this forum is amazing and very much appreciated.

Les

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More String Resources

By **Richard Chamberlain (Rac)** on Friday, June 8, 2001 - 01:59 am: Edit

Hi,

I'm going to need my hand held all through this I think…

Ok the code that Bob posted works perfectly copying the string resources in the prc.

What I need to do now is get the strings into a field.

What's the best of way of doing that?

Presumably I need to:

DmGetResource
MemHandleLock

and then I was considering using FldSetText - but for that I need to get the size - is there a function for that - i.e. something that returns resource size given a handle.

Or is there a better way?

Thanks as always,

Richard

By **Neal Bridges (Nbridges)** on Friday, June 8, 2001 - 11:54 am: Edit

If your strings are stored zero-delimited, the StrLen systrap will return the length.

Simplest way to get a string into a field -- use http://www.quartus.net/files/PalmOS/Forth/Contrib/string2anyfield.txt.

Neal

By **Chapman Flack** on Friday, June 8, 2001 - 12:04 pm: Edit

If you're using a tSTL (a list of zero-delimited strings) then StrLen is the way to go.

You may have another choice if each string is in its own tSTR resource: you can also get the size of the resource with MemHandleSize which operates in constant time (StrLen requires time proportional to the length of the string).

-Chap

By **Bob Ryan** on Friday, June 8, 2001 - 12:54 pm: Edit

What I would do is:

1) DmGetResource to get a handle to the resource.
2) MemHandleLock to get a pointer to the string (it will be zero terminated).
3) String>Field (from the Fields module) to copy the string to the field.
4) MemHandleUnlock the handle
5) DmReleaseResource the handle

This is untested, but should give you a good starting point.

-- Bob

By **Bob Ryan** on Friday, June 8, 2001 - 12:59 pm: Edit

Actually String>AnyField is a better choice :o)

By **Richard Chamberlain (Rac)** on Friday, June 8, 2001 - 04:26 pm: Edit

MemHandleLock returns a handle. and string>anyfield expects a handle - do I therefore need to call >rel then push the String Length and Field ID onto the stack?

Thanks for everyone's help so far!

Richard

By **Neal Bridges (Nbridges)** on Friday, June 8, 2001 - 04:55 pm: Edit

string>anyfield doesn't expect a handle, but one of its factors -- handle>Field -- does. You could use that directly.

Neal

By **Richard Chamberlain (Rac)** on Friday, June 8, 2001 - 05:36 pm: Edit

Hi Neal,

I've tried that but can't get it to work,

something like:

```
1000 [ID] tSTR
dmGetResource 2dup
MemHandleLock
fldQuote handle>field
MemHandleUnlock
```

Thanks,

Richard

Almost. If you lock a handle, it becomes a pointer -- you don't want that. Pass the handle directly, without using MemHandleLock/MemHandleUnlock.

Neal

Thanks Neal,

I had things the wrong way round I thought you got a pointer and locked it to get a handle.

Thanks again,

Richard

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String Resources

By **Richard Chamberlain (Rac)** on Tuesday, June 5, 2001 - 03:53 am:
Edit

Does anyone know an easy way to insert string resources into a pdb or prc file?

I want to convert a long list of S" strings into resource strings. However it would take me forever in RsrcEdit as there are about three hundred or so.

I've never used pilrc but I believe that generates a .bin file is there anyway that could be inserted into a pdb file?

Thanks,

Richard

By **Tim Hulme** on Tuesday, June 5, 2001 - 11:35 am: Edit

If you have them on your PC try a program called 'Bigdoc' (http://visionary2000.com/bigdoc/). Its a shareware text editor for Windows that can write pdb files. I have used it a number of times to get things into POSE since I haven't bothered to setup a network hotsync. It works well.

By **Richard Chamberlain (Rac)** on Tuesday, June 5, 2001 - 12:10 pm:
Edit

Thanks for the reply Tim.

Not quite what I meant. That's approximately how I'm doing it at the moment (except using WordSmith). Which is a long file full of S".

What I want to do though is replace all those (they're quotations) with tStr resources.

I can create a string resource in something like RsrcEdit, but it would take me several months to copy and paste all the quotes.

I could do it in pilrc but then I'd have to merge my current rsrc file which is a bit of a pain.

Richard

Why not write a little memo that redefines S" (and maybe a few other words) and then includes your file full of strings, so what your redefined S" really does is just make the string into a tSTR resource (or add it to a tSTL), and what it actually compiles is a code sequence to retrieve the right resource and put its address and length on the stack at run time?

-Chap

That's an interesting approach, Chap. One tricky bit -- the address of a string in a resource is a 32-bit value, and you'd have to accomodate that.

Neal

I kind of thought of that, but haven't the skill to implement it :-(.

Any pointers?

Richard

The StringListResource topic on the wiki has a little memo attached that will show how to make string list resources. The structure of a tSTR resource is even simpler; I think it's just the string.

With a string list, what you can do at run time is call SysStringByIndex (part of the 2.0 new feature set) which will copy the selected string into a buffer of your choosing (it handles the get/lock/unlock/release of the resource for you).

If you pass it the 32-bit address of a buffer in Forth dataspace, you can then put the 16-bit address and length on the stack and pretend you are really S".

So at compile time you parse the string from the input buffer and stash it away as a resource, and you compile a literal with the string index, followed by a word that calls SysStringByIndex, and StrLen, and puts the 16-bit address and length on the stack.

-Chap

Here's some tested code. S>tSTR takes an S" string and a resource ID on the stack and creates a tSTR resource containing that string.

```
\ s>tSTR RLR 2001-06-05

needs resources
needs core-ext
needs ids

2variable DBref
2variable String

\ Of course you would open your own
\ resource DB here. Be sure to open
\ it in Write mode.
DmModeReadWrite (ID) RyPz (ID) util
DmOpenDatabaseByTypeCreator
DBref 2!

: DmThrow ( addr. -- addr. )
   2dup or 0= if
      DmGetLastErr throw
   then ;

: Make_tSTR ( size resID -- h. )
   >r 0 r> [ID] tSTR DBref 2@
   DmNewResource DmThrow ;

: EndData ( u destPtr. -- )
   2>r >r 0 1. r> 0 2r>
   DmSet drop ;

: CopyData ( c-addr u destPtr. -- )
   2>r >r >abs r> 0 2swap 0. 2r>
   DmWrite drop ;

: S>tSTR ( c-addr u resID -- )
   >r String 2!
   String 2@ nip 1+ r>
   Make_tSTR 2dup 2>r
   MemHandleLock 2dup 2>r
   String 2@ 2swap CopyData
   String 2@ nip 2r> EndData
```

```
    2r@ MemHandleUnlock throw
    2r> DmReleaseResource throw ;

: test
    s" Hello" 1000 S>tSTR ;
```

By **Richard Chamberlain (Rac)** on Wednesday, June 6, 2001 - 02:19 am: Edit

Wow!

Thanks guys for all that - marvellous. I haven't had time to try it yet but I'll drop some feedback when I have.

Thanks again,

Richard

By **Kris Johnson (Kdj)** on Wednesday, June 6, 2001 - 09:54 am: Edit

Bob, would you mind if I were to post your code to the wiki? (Or would you like to do it yourself?)

I intend to put together a sort of "resource compiler" by gathering a bunch of resource-creation words posted to the Quartus forum. If all goes well, I won't have to do any work at all. 🙂

-- Kris

By **Bob Ryan** on Wednesday, June 6, 2001 - 10:36 am: Edit

Kris, Please feel free to post it on the Wiki.

The resource compiler idea is cool, if I can help in any way just drop me a line.

Bob

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Reading from extension card

By **eli** on Monday, June 4, 2001 - 06:09 pm: Edit

I have m505 with 32mb extension card, does somebody know how to read from the extension card.
I have seen in this forum, that I need to change the cardnum to 1, I tried it, but I get fatal alert.

By **Neal Bridges (Nbridges)** on Monday, June 4, 2001 - 06:15 pm: Edit

The extension card is not addressable in the same way as normal storage memory. There's a new API in Palm OS 4 that allows access to it -- it provides VFS functions.

The card gets formatted in 16-bit FAT format (you may remember this from DOS). The VFS systraps access it accordingly.

I haven't exposed the Palm OS 4 API systraps yet, but I will do shortly. If some enterprising soul wants to undertake it in the meantime, that'd be fine!

Neal

By **eli** on Tuesday, June 5, 2001 - 02:45 pm: Edit

does Quartus Forth support VFS functions?
Eli

By **Neal Bridges (Nbridges)** on Tuesday, June 5, 2001 - 02:46 pm: Edit

You can call any systrap from Quartus Forth. The VFS systraps are not implemented by name yet, but can certainly be called anyway. I'll be including them in the kernel soon.

Neal

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Docneeds

By **Richard Chamberlain (Rac)** on Saturday, June 2, 2001 - 11:54 am:
Edit

Hi,

For the first time I decided I'd try using doc files. I copied a memo verbatim into a doc file but I get a control structure mismatch error.

Has anyone had this problem?

Thanks

Richard

By **Neal Bridges (Nbridges)** on Saturday, June 2, 2001 - 11:48 pm: Edit

Can you post the memo in question, Richard?

Neal

By **Richard Chamberlain (Rac)** on Sunday, June 3, 2001 - 01:07 am:
Edit

Sure, not much to it though,

\ sc-quotes1 31.10.2000 RAC

: getQuote1 (-- str u) rand 31 mod case

0 of S" A closed mouth gathers no foot." endof

1 of S" Get outside! It's too nice a day to be stupid indoors!! -- Ren (to Stimpy)" endof

2 of S" Sometimes I think the surest sign that intelligent life exists elsewhere in the universe is that none of it has tried to contact us. -- Bill Watterson" endof

3 of S" an unbreakable toy is useful for breaking other toys." endof

4 of S" God is real, unless declared integer." endof

5 of S" Childhood is that state which ends the moment a puddle is first viewed as an obstacle instead of an opportunity. -- Kathy Williams" endof

6 of S" No job is so simple that it cannot be done wrong." endof

7 of S" You can only be young once, but you can be immature forever." endof

8 of S" Everything is possible except skiing through revolving doors." endof

9 of S" The sum of the intelligence on the planet is constant, but the population is increasing." endof

10 of S" There's no such thing as a tough child -- if you parboil them first for seven hours, they always come out tender. -- W.C. Fields" endof

11 of S" Alcohol & calculus don't mix. Never drink & derive." endof

12 of S" Americans always try to do the right thing -- after they've tried everything else. " endof

13 of S" In California, they don't throw their garbage away - they make it into TV shows. -- Woody Allen" endof

14 of S" German in the most extravagantly ugly language - it sounds like someone using a sick bag on a 747. -- Willy Rushton" endof

15 of S" I never forget a face, but in your case I'll make an exception. -- Groucho Marx" endof

16 of S" The chief excitement in a woman's life is spotting women who are fatter than she is. -- Helen Rowland" endof

17 of S" Women are like elephants to me: nice to look at, but I wouldn't want to own one. -- W. C. Fields" endof

18 of S" He may look like an idiot and talk like an idiot but don't let that fool you. He really is an idiot. -- Groucho Marx" endof

19 of S" Sharp as a sack full of wet mice. -- Foghorn Leghorn" endof

20 of S" You've got the brain of a four-year-old boy, and I bet he was glad to get rid of it. -- Groucho Marx" endof

21 of S" A great many people now reading and writing would be better employed keeping rabbits. -- Edith Sitwell" endof

22 of S" If all the girls who attended the Harvard-Yale game were laid end to end, I wouldn't be surprised. -- Dorothy Parker" endof

23 of S" Thank you for sending me a copy of your book - I'll waste no time reading it. -- Moses Hadas" endof

24 of S" This is not a book that should be tossed lightly aside. It should be hurled with great force. -- Dorothy Parker" endof

25 of S" He has no enemies, but is intensely disliked by his friends. -- Oscar Wilde" endof

26 of S" He is one of those people who would be enormously improved by death. -- H. H. Munro" endof

27 of S" I'd call him a sadistic, hippophilic necrophile, but that would be beating a dead horse. -- Woody Allen" endof

28 of S" Only dull people are brilliant at breakfast. -- Oscar Wilde" endof

29 of S" Some cause happiness wherever they go; others whenever they go. -- Oscar Wilde" endof

30 of S" Don't look now, but there's one too many in this room and I think it's you. -- Groucho Marx" endof

endcase ;

Last night I tried another of the memos which is just a header file setting up constants that worked fine.

Thanks,

Richard

By **Neal Bridges (Nbridges)** on Sunday, June 3, 2001 - 01:09 am: Edit

Those are really long lines. The DocInclude module has a buffer size limit -- have a look. You can adjust it upwards, and that should remedy things.

Neal

By **Richard Chamberlain (Rac)** on Sunday, June 3, 2001 - 01:18 am: Edit

Jeez that was a fast answer - are you biologically attached to this forum?

That solved it straight away.

Thanks as always Neal,

Richard.

Electrodes, Richard. Glad it helped. 🙂

Neal

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Binary numbers

By **Dave Bennett (Dbennett)** on Friday, June 1, 2001 - 07:09 pm: Edit

I'm having a problem with binary numbers. I've defined a binary number (8bits) that I've split into two parts. The low order byte represents the tonal note, the high order byte the octave it is in. However, I'm having a difficult time storing them.

If I interactively create a variable and assign 001100 to it, it works. If I do this programmatically it doesn't. Not just the upper part of the 16bit word is trashed, but the lower part as well.

Any advice? Thanks.

Dave

By **Neal Bridges (Nbridges)** on Friday, June 1, 2001 - 07:21 pm: Edit

Dave -- let's see your code. That should be straightforward enough to sort out.

Neal

By **Kris Johnson (Kdj)** on Saturday, June 2, 2001 - 12:02 am: Edit

An example of doing this sort of thing is in the wiki:

http://sleepless-night.com/cgi-bin/twiki/view/Main/BinaryLogic

-- Kris

By **Dave Bennett (Dbennett)** on Monday, June 4, 2001 - 07:10 pm: Edit

```
\ bintest

variable s1t
variable s2t
variable s3t
variable s4t

:mgo
2 base !
01011000 s1t !
```

```
01010011 s2t !
01001011 s3t !
01000110 s4t !
decimal ;
```

I start quartus, type in "needs bintest", then enter mgo. I then enter "2 base !" and enter. Then I enter "s1t @ .s" and the display is 110110100111000.

If I start quartus, enter "variable s1t", "2 base !", "01011000 s1t !", then "s1t @ .s" I get back the same number I input.

Dave

Palm Vx, OS 3.3

Simple fix. You need to be in base 2 while compiling, or the compiler has no way of knowing those are not decimal numbers.

Two ways to do this:

```
\ bintest

 variable s1t
 variable s2t
 variable s3t
 variable s4t

2 base !  \ either this,
\ or use (binary) as below:

 :mgo
 2 base !
 (binary) 01011000 s1t !
 (binary) 01010011 s2t !
 (binary) 01001011 s3t !
 (binary) 01000110 s4t !
 decimal ;

decimal
```

Neal

In other words, setting BASE inside the definition doesn't help. The compiler will just compile the instructions that will set BASE when MGO is executed, but BASE stays equal to 10 while you're compiling.

Here's another way you can do what you want:

```
: mgo
  [ 2 base ! ]
  01011000 s1t !
  01010011 s2t !
  01001011 s3t !
  01000110 s4t !
  [ decimal ] ;
```

-- Kris

So putting (binary) in on a line by line basis directs the compiler to use base 2 on that particular line. Enclosing the "2 base !" in square brackets directs the compiler to have the behavior I was seeking in bintest.

Any caveats on either method?

(BINARY) always reads the next "word" in the input as a binary number. It doesn't affect the rest of the line. And I guess (BINARY) is "state smart", meaning that it works either in compile mode or in interpret mode.

I don't think there is anything wrong with either method. If I'm just using a few numbers, I'll put (BINARY), (HEX), or whatever in front of them. But if I have a long list, like you do in your example, I'll set BASE and then reset it to 10 at the end.

-- Kris

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Is case-insensitive search possible ?

By **Amy** on Friday, June 1, 2001 - 12:56 pm: Edit

I would like to Perform a case-insensitive substring search on quartus forth .
It can use FindStrInStr or TxtFindString api .
But the functions must use normalized string by way of TxtGluePrepFindString on PalmOSGlue library .
So could quartus forth call TxtGluePrepFindString of PalmOSGlue library or have another instead way ?

Amy

By **Neal Bridges (Nbridges)** on Friday, June 1, 2001 - 02:03 pm: Edit

Hi Amy. Did you get my e-mail response to that question?

Here's the short version: the Palm OS provides StrNCaselessCompare with which you can roll a case-insensitive search very easily.

I haven't ever looked at the Glue bits & pieces, so I can't speak yet on what would be involved.

Neal

By **Chapman Flack** on Friday, June 1, 2001 - 06:34 pm: Edit

I think later versions of PalmOS are sneaking in support for wide characters a la Unicode and all the support functions that requires, and the glue library allows some of those functions to be linked into an app and thus used on earlier OS versions.

The difference between StrNCaselessCompare and using the glue routines is StrNCaselessCompare will work correctly for ASCII where only 26 characters matter and UC and LC differ by one bit, but it has no chance of knowing that, say, ARMENIAN CAPITAL LETTER YIWN and ARMENIAN SMALL LETTER YIWN ought to compare equal. For that you'd need the glue stuff.

I looked at all that kind of stuff a couple years ago in the context of thinking how to add Unicode support to ANTLR, but I've been sort of avoiding thinking about what would have to happen to QF as PalmOS goes that direction.

On the bright side, I guess Forth has such piddly support for strings in the first place that the pain of writing an app that does something with wide strings might not be much more than what you have to do anyway. 🙂

By **Neal Bridges (Nbridges)** on Friday, June 1, 2001 - 07:41 pm: Edit

Actually the caseless comparison routines in the PalmOS are fairly sophisticated; they use a lookup table of character equivalencies, and will match accented and non-accented vowels, for instance.

Neal

By **Amy** on Sunday, June 3, 2001 - 11:02 am: Edit

Thanks,I had understood your meaning .
The solution is to call StrNCaselessCompare in proper order .

By **Amy** on Sunday, June 3, 2001 - 11:08 am: Edit

Thanks,I had understood your meaning .
The solution is to call StrNCaselessCompare in proper order .

By **Amy** on Sunday, June 3, 2001 - 11:20 am: Edit

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So could quartus forth call TxtGluePrepFindString of PalmOSGlue library or have another instead way ?

Amy

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Is there a way to call QForth from, say NSBASIC or AppForge VB ?

By **Ray Saarela** on Friday, June 1, 2001 - 03:08 am: Edit

Used to write embedded real-time apps with 4th
in 80's and early part of 90's. However, when
using PDA as GUI/H.I. for embedded application,
the GUI is much easier to write on something like
Appforge or NSBASIC, though latter is quite slow
indeed.

Clearly, one can write some faster code either
with Cwarrior and then call it as shared library
from NSBASIC or AppForge,but, if one wanted to
write the embedded "closer to real time" part
of code, say, in Quartus Forth, is there a way
to call QForth-app/code from AppForge or NSBASIC
(latter can called shared libraries) … ?

I would like to make a small Visor Springboard
with some Flash for app and a CAN-controller on
board, but need a nice way to develop and debug
the apps, and possibly, if somehow possible,
put Palm OS to sleep while executing some real-
time interrupt driven code (in Forth,C or Asm)
for the CAN communications, and then would let
the Palm come alive again once doing the operations that needed some speed
and timing
accuracy …

Also, Mr. Neal, have you considered "Visual"
forth aspect similar to what the UK company
has with their PC forth, … If one could perform
the GUI programming visually, and then the
application code-parts that do not deal with
text or databases/HI, one would like to use
either forth or C, I'd prefer forth, but only
if I could call it from AppForge VB, or NSBASIC
or even from CodeWarrior C ?

Now, why I am asking these questions before I
get into any deeper of this stuff, is because
I want to hear from more experienced whether

this would work or not, otherwise, I may be
better off just get an IPaq where there is
speed enough to use VB all the way, and if
necessary, access to VC++ written controls is
easy yet.

Really, the only, and very only reason I consider
Visors are the fact they have the quite open
hardware slot, and I have not found any others
yet that would have similar in CE handhelds or
even the Linux handhelds, which I would expect
from some of them at least. The display in palms
and visors is not that hot, backlights suck, and
160x160 and difficulty in producing true type
scalable fonts to screen hurts also, so, not sure
if one should waste more time on palm/visors
in spite of the fact that 68k is nice, Forth
is nice and Visor seems to be pretty stable.

Appreciate, Ray S.

Re: just your last paragraph, I think it depends on the sort of application you
happen to admire or want to create. PalmOS devices are simple, inexpensive,
and adequate to showcase the value of truly useful, non-bloated software, of
which they have a great variety available. Do I need scalable fonts on my
PDA? Did I buy the PDA to save myself time, or to give myself yet another way
to futz away time and RAM deciding if I like my appointments better in Palatino
or Goudy Old Style?

Not intending to start a religious war, just to represent the point of view that
parsimony is not a bad thing.

-Chap

Seeing the words 'futz' and 'parsimony' used in the same post is what makes
this forum what it is. Thanks Chapman (and Mr. Neal, of course).

Mike

Palm screens are small, the backlight can't guide your way in the fog -- but the
battery life is long, and you can do a remarkable amount even in 160x160
monochrome if you aim at the right target. Make apps that do one thing well,
and present the user with only the information he needs at any given time.

The screen layout is the smallest part of such apps, significantly less than 5% of the total effort of writing an app. I haven't given much thought to a drag'n'drop GUI constructor for the Palm for that reason, and also because there are already such out there on the market.

Re calling Quartus Forth from other apps -- I'm neither an AppForge nor an NSBASIC customer, but if either one can call sub-apps, there's no reason they can't call a Quartus Forth app. From what I know of them, taken alone they benchmark very slowly indeed, and have significant run-time overhead; there are a number of significant advantages to writing your entire app in Quartus Forth.

Neal

By **Travis Casey** on Friday, June 1, 2001 - 03:34 pm: Edit

Just to put my own 2 cents in… you can draw a set of screens in Codewarrior, create an "empty" application with them, put that on your Palm, and then use RsrcEdit and Quartus to pull them over into a Quartus app. When I did the time dialog for my toolkit, I did essentially that… just did a copy-and-paste in RsrcEdit of the time dialog from Preferences into my own resource database.

Doing it that way, you can use whatever tool you want to create the screens, and Quartus to do the programming.

--
Travis Casey

By **Kris Johnson (Kdj)** on Friday, June 1, 2001 - 04:59 pm: Edit

The real value to the "visual" types of GUI builders is not only the drag-and-drop control placement, but also the automated way of connecting controls to code. Tney generally provide some way that you can select a control and say "I want to handle a tap for this", and the tool will automatically create some sort of "WhenButtonTapped" function, hook it into the event handler, and then put the cursor at the beginning of the empty function so that you can write the code.

For the simple applications I've created, this sort of work represents a lot more than 5% of the total effort of the application.

Of course, the downside to such automated tools is that the final application takes up ten times the memory space and runs at one tenth the speed.

-- Kris

By **Ray S.** on Saturday, June 2, 2001 - 05:10 am: Edit

To Neal: Thanks for the comments, yes, the problem
is that some people do not have very good eyes
that are target users = some are elderly people
and even the largest Palm font is a bit small, that is all, would not want to
have to create bitmaps for all of the larger characters, if not forced to do so.
I'd rather use true type font
importing allowing to scale hopefully to larger
size, if not, then, Visor may be dead for the
application that it is planned for, and may
require CE handheld or Linux handheld.

To Travis: Really appreciate your message, which
I found very useful and kind. Idea of these type
of message boards is to be helpful, and your
answer was helpful in that I tried the method
and it is not totally dead.

To Kris: I also appreciate your message a lot,
because I have similar situation, I have to
produce "looker" demos fast, with less effort
placed in swapping, dupping and rotting, or
writing "novel" recursive create does>'s ...

One reason for the Ipaq's is that they are up
to 40 times faster and have up to 16 times
more memory, yet, they cost max 2x the Visor,
and look better than Visor, yet, the Visor's
could serve as a low-end terminal for some of
the users, and Ipaq's for the upper end.

==
other than that, 4th was always a way to have
fun, not to get fuzzing or fighting, therefore,
I just like to thank everyone who had a friendly
tone and helped me with the answers, I know now
what I need to do, thank you, and btw, I am not
native E speaker, therefore, I leave the more
sophisticated linguistic to those who get kick
out of such.

4th writers used to be one of the finest people
out there, when 4th was still a language of
somewhat "idealistic" fellows. It was an honor
to meet some of those great people back in early
80's, did not get chance to get into the 70's
forth gig though. Too Bad.

Ray

By **Neal Bridges (Nbridges)** on Saturday, June 2, 2001 - 10:22 am:

Regarding larger fonts -- there are tools available that allow you to make a Palm font out of any TrueType font, which can then be used in any PalmOS 3.0 or later application.

Neal

By **Kris Johnson (Kdj)** on Saturday, June 2, 2001 - 06:32 pm:

Ray, before you give up on Visors/Palms as being too slow, you might want to do some simple benchmarking. I don't know exactly what you want to do, but if all you need is some sort of "data terminal", the 68K's should be plenty fast.

Also, the speed advantage of the iPaq's is not as great as it would seem by just looking at the numbers. CE is a slower operating system than Palm OS, and the better displays means more CPU power is required for the graphics processing. And they have a lot more memory because they need a lot more memory.

-- Kris

By **Neal Bridges (Nbridges)** on Saturday, June 2, 2001 - 06:38 pm:

Plus, MHz speeds alone do not determine the speed difference between brands of CPU. For example, a 33 MHz 486 benchmarks quite differently from a 33 MHz 68000, or a 33 MHz ARM.

Neal

By **Ray S.** on Saturday, June 2, 2001 - 06:56 pm:

To Neal :
"Regarding larger fonts -- there are tools available that allow you to make a Palm font out of any TrueType font, which can then be used in any PalmOS 3.0 or later application.
Neal"

Could you be kind enough and let me know such
a tools name, I tried something called Xfont but
I did not find it very easy to use. Is there
better tools than that ?

I am not giving up in Visor's because of speed,
with Forth and in-line assembly which I can
write ok(at least did with all 4th's I've written
with before) for several processors, I know I
can get quite a lot of power even from 5 mips

processor, more than enough for the needs, only
thing I would need is a way to get control over
the "real-time" i.e. get timer-interrupt driven
tasks going and ability to still go back and forth
to PalmOS for the displaying stuff.

I need fairly moderate real-time response for
CAN-bus communications, as the VISOR would serve
as a "GUI/HI" monitoring device in a mobile vehicle application, where it would serve as
control terminal for a C167CR based application
that controls all kinds of little motors and
valves etc. and in that application there is
some needs to be able to poll the devices for
feedback data trough the can without getting dead
for seconds.

But, I NEED larger fonts (and room service too)
and fast way to develop the "looker" screens.

Would it be possible to develop the "LOOKS" in
NSBASIC, and then, if necessary, modify those
with the Rcp-whatever it was, to get the hooks
to bind the forth code to the graphics/gadgets ?

I find the NSBASIC desktop perhaps the best
way to develop the "looks" and as it is not too
expensive at $99, if one could use that as the
GUI development tool, then the Rc-thing for
binding the graphics to Quartus, I would probably
be content with that, as the product concept
has place for low-cost version that would be the
visor, and a high-end version, with the CE/Ipaq,
b/c there is 2 versions of the controlled hardware with massive difference in cost and
performance, therefore, there would definitely
be place for Visor also.

In any case, I appreciate your kind responses,
lack of development funds is one reason why I
dared to ask for help from you, as I do not have
the luxury of being $'d while learning these
first hand myself …

Thank You, Ray

By **Neal Bridges (Nbridges)** on Saturday, June 2, 2001 - 07:08 pm: Edit

This is the package I was thinking of:

I doubt you'll find many NSBASIC users here; you'll likely get a better answer from them on whether it can interface to other apps.

Neal

By **Ray S** on Saturday, June 2, 2001 - 08:34 pm: Edit

Thank You, Neal, it seems it coukd solve the size problem.

I experimented with building the "looks" with
NSBASIC, and it was totally editable with the
RsrcEditor program recommended for Quartus, so
it would appear one could well use NSBASIC as
a fairly cheap and excellently easy Visual GUI
builder for Quartus ... I have to play with this
during next week when there is some spare time
hopefully, and see if this combo would be the
way to go. Those events where NSBASIC is fast
enough, there would be no reason to switch to
Quartus, but the communications routines where
I definitely need faster speed than NSB can do,
QUARTUS would be optimal for me to write the
CAN words, as I have already written such for
other embedded applications, would just need
to port those ... Which would not be too bad.
I guess I have to do something myself now, experiment with NSBASIC GUI &
RsrcEdit combo,
and trying to get the Quartus code called. Thanx.

R

By **Ray S** on Saturday, June 2, 2001 - 11:10 pm: Edit

About TrueType Fonts program ... seems
to crash ... DataMgr.c,Line:5304
DmWriteCheck failed ...
So ... never got to see those larger fonts.

Seems have to find some other True Type font
proggie, or something's wrong with the Visor Dx
or me ...

By **Neal Bridges (Nbridges)** on Saturday, June 2, 2001 - 11:13 pm: Edit

I was thinking particularly of the conversion program, the one that converts
TrueType fonts to PDB files on the desktop. Those PDB files then contain Palm
fonts, and those fonts can be accessed by your applications.

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Newbie - double length numbers ?

By **Tim Hulme** on Wednesday, May 30, 2001 - 02:23 pm: Edit

I'm currently reading "Starting Forth" and I'm into the chapter about numbers, Double-length numbers in particular. Leo Brodie talks about entering a number such as 200,000 at the console and states that most forth's will see the punctuation as an indicator that the number is double-length and put it on the stack in two cells. Aside from the comma, Brodie mentions (. / : -) as punctuation marks that can be entered in along with numbers. My question is which library file "needs" to be loaded to make this work in Quartus Forth. I'm not having any luck turning up the right file to make this work. Neal, if you have the book I'm on page 164 and 165. By the way - entering this in Swiftforth works as illustrated by Brodie. I realize thats because double-length numbers are built-in on that system. Up to this point I have been able to get the majority of Brodie's stuff to work while practicing in Quartus Forth, sorry for such a silly question but at times I just get lost trying to track things down on my own.

TIA,
Tim

By **Neal Bridges (Nbridges)** on Wednesday, May 30, 2001 - 02:49 pm: Edit

No files need to be included. In Quartus Forth, as per the ANSI Standard, a '.' signifies a double-cell value.

200000. is the canonical form, but 20.0000 or 200.000 will also work.

Neal

By **Tim Hulme** on Wednesday, May 30, 2001 - 03:09 pm: Edit

If you wanted (for some reason ?) to enter something like 12:27:30 or 05/30/01 what would the accepted practice be per ANSI standard. I may be missing the point of Brodie's discussion, but the text is illustrating that certain punctuation results in double-length numbers and then 'D.' will return them in a consistant format.

By **Neal Bridges (Nbridges)** on Wednesday, May 30, 2001 - 03:18 pm: Edit

Well, even if / or : were supported as double-cell indicators, you'd still only

get two cells per value entered. That mechanism isn't really suited for entering times, or dates, or anything other than double-cell values.

20.0000 and 200.000 and 200000. and 2.00000 all return exactly the same two cells on the stack; the placement of the '.' isn't relevant.

When you say 'enter', do you mean from the console, or from within an application? Different parsing solutions would pertain to each.

Neal

Here's a general-purpose word that will convert any delimited string into a series of single-cell values on the stack:

```
: string>numbers ( c-addr u -- i*x )
  begin
    0. 2swap >number
    rot drop
    dup while
      1- swap 1+ swap
  repeat
  2drop ;
```

Example:
```
parse-word 12:13:15 string>numbers .s -> 12 13 15
```

Neal

Again, I'm working thru Starting Forth and merely trying to work all the examples. I'm not not sure why you would want to enter a date or time at the console, but that's the example Brodie sights. In an application the input can of course be parsed, so punctuation would not be of interest except to aid the users input. Interestingly enough it does work that way in SwiftForth. i.e. if I enter (at the console) 12:23:30 or 12/23/30 and then execute
'D.' I get back '122330' in both cases. Is this a problem of reading a text that was written in 1981? If so, how do I know when to ignore some of this kind of thing. My head already hurts!

Likewise, in Quartus Forth:

```
122330. d. -> 122330
12233.0 d. -> 122330
1223.30 d. -> 122330
122.330 d. -> 122330
12.2330 d. -> 122330
1.22330 d. -> 122330
```

Some Forths permit multiple separators, and separators other than '.'. The ANSI Standard requires only the '.', and while it allows it to be recognized anywhere in a number, a compliant system is still considered compliant if it only recognizes it at the end of the number.

Quartus Forth recognizes one instance of the '.' separator anywhere after the first digit, which is compliant, and a deliberate design decision. With the small size of the Palm screen, the proportional Palm fonts, and the perhaps greater possibility of typos when using Graffiti, I feel it's better to generate an 'undefined word' exception for entries like '1,2.3' or '51/' than it is to parse them silently into double-cell numbers.

To separate the wheat from the chaff in that 20-year-old text, it is best to have the ANSI Standard on-hand to consult when conflicts arise.

Neal

By **Tim Hulme** on Wednesday, May 30, 2001 - 04:00 pm: Edit

I was beginning to arrive at that conclusion. Thanks for your help Neal.

Tim

By **Kris Johnson (Kdj)** on Wednesday, May 30, 2001 - 05:20 pm: Edit

Here's my recipe for making good sense of the differences between Starting Forth and the ANS Forth standard:

1) Read Starting Forth.

2) Do nothing with Forth for fifteen years.

3) Read the ANS Forth spec.

This worked well, as I remembered just enough about Forth to make sense of the ANS spec, but not enough to be confused by the changes.

If you think that step #2 is impractical, then all I can say is that you're

obviously not dedicated enough. 🙂

-- Kris

By **Tim Hulme** on Wednesday, May 30, 2001 - 06:51 pm: Edit

If I subscribed to that plan then I may as well take up kite flying or something else. Fifteen years from now we will more than likely only have to think about what we want to develop and it will magically appear on our brain implanted PDA's. The point is to learn NOW and hopefully catch the current wave before it's too late - AGAIN!

Tim

By **Neal Bridges (Nbridges)** on Wednesday, May 30, 2001 - 07:09 pm: Edit

But Tim, by then all the kites will be flying themselves too!

🙂

Neal

By **Tim Hulme** on Wednesday, May 30, 2001 - 07:31 pm: Edit

Your right as usual!
My airplane has autopilot too, but that hasn't stopped me from flying. I'm as dedicated as my current schedule allows. For now it's just another hobby. I know more about forth now then last December when I got my first PDA and found out about forth for the first time. I'll keep plugging away, that's for sure!

Tim

By **Chris Bucsko** on Thursday, May 31, 2001 - 05:31 pm: Edit

Here's a couple of other suggestions. Buy the Forth programming book from Forth, Inc., and check some other Forth sites like http://www.albany.net/~hello/comus.htm and http://www.albany.net/%7Ehello/simple.htm for updated info. Starting Forth is great for the basics, but the particulars can be different.

If you see something doesn't work in QF, consult other sources, and the forum. Myself, I never use the specs, but I don't try to do all the examples in Starting Forth. Just the ones I may need at the moment.

By **Tim Hulme** on Thursday, May 31, 2001 - 06:53 pm: Edit

I have recently purchased from Forth, Inc. the "forth applications techniques" and downloaded the trial version of "Swiftforth" in order to get the .pdf version of "Forth programmers handbook". Both left me with more questions then answers until I got a copy of Starting Forth thru my local library. I'm nearly finished with the first read and I feel I have gained more from that text then any other so far. I read Leo Wong's Simple Forth at least six times and most of it leaves me wanting clearer examples. I'm new enough at this language that the spec is very confusing at this point. In fairness to Kris, I maybe should have surfed the Wiki a little closer. I see now the answer to my question was actually there already. But, Neal is still the first place to go when you want a quick answer and time constraints or laziness prevail. Even if it makes me look silly or not too dedicated.

Tim

By **Neal Bridges (Nbridges)** on Thursday, May 31, 2001 - 08:40 pm:
Edit

Questions about Forth are certainly not silly, and anyone with the enthusiasm to pursue those matters which may not be entirely clear is decidely dedicated.

Keep asking!

Neal

By **Kris Johnson (Kdj)** on Thursday, May 31, 2001 - 09:29 pm: Edit

Yeah, keep asking! And if you have any ideas about making the wiki more useful for newbies, please make suggestions.

You might want to take a look at some of the Forth tutorials on this page, if you haven't already:
http://sleepless-night.com/cgi-bin/twiki/view/Main/ForthTutorials

-- Kris

By **Hans Nordstrom** on Sunday, June 3, 2001 - 02:59 pm: Edit

There´s a link in the Quartus online manual to ANSized code from Starting Forth, rendered by Benjamin Hoyt.
It might help, catch the nuances of Forth code.
Starting Forth examples ANSized

By **Vincent Oberson** on Monday, July 2, 2001 - 11:10 am: Edit

Hi all!

Just another newbie question, sorry to bother you... I'm currently reading Steven Donahue's QF Tutorial, and creating a "Hello, World!" app. This code needs the "ids" library included in QF's package. My question is: what is the role of ">in @" and ">in !" in the "ID" word definition found in this library?

TIA
Vincent

>IN is the address of the current offset into the input buffer. ">in @" retrieves the value; ">in !" stores the value.

What the ID word does is use ">in @" to get the current offset. Then, it calls "(ID)", which reads a word from the input and therefore moves the offset forward. So calling ">in !" restores the original offset, so that the same word that was used by (ID) can also be used by 2CONSTANT.

-- Kris

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SetDate

By **Richard Chamberlain (Rac)** on Wednesday, May 30, 2001 - 09:42 am: Edit

Can anyone please give me an example of using the SetDate systrap? I'm kind of mystified by it.

Thanks,

Richard

By **Neal Bridges (Nbridges)** on Wednesday, May 30, 2001 - 11:00 am: Edit

There's no SetDate systrap, per se -- which specific systrap are you referring to?

Neal

By **Richard Chamberlain (Rac)** on Wednesday, May 30, 2001 - 11:07 am: Edit

Sorry.. I wasn't thinking straight - it's the SelectDay function that I want to use.

Richard

By **Neal Bridges (Nbridges)** on Wednesday, May 30, 2001 - 11:32 am: Edit

Here's one helpful thread (there are others in the archives):

http://www.quartus.net/discus/messages/23/630.html?TuesdayJuly1820000304pm#POST3927

Neal

By **Richard Chamberlain (Rac)** on Wednesday, May 30, 2001 - 12:13 pm: Edit

Thanks Neal,

Just what I was looking for!

Richard

By **Richard Chamberlain (Rac)** on Thursday, May 31, 2001 - 07:31 am: Edit

Hi,

I'm trying to use the systrap SelectOneTime - but it doesn't work. I'm I doing something stupid (likely) or isn't it implemented?

Thanks

Richard

By **Neal Bridges (Nbridges)** on Thursday, May 31, 2001 - 10:53 am:

Here you go:

```
: SelectOneTime ( &titleP. &minute. &hour. -- Boolean )
  (hex) a34f systrap
  2drop 2drop 2drop
  d0 drop 255 and ;
```

Neal

By **Richard Chamberlain (Rac)** on Thursday, May 31, 2001 - 11:07 am:

Thanks Neal.

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This is a public posting area. If you do not have an account, enter your full name into the "Username" box and leave the "Password" box empty. Your e-mail address is optional.

What exactly does S" ??

By **Jindra Vavruska** on Tuesday, May 29, 2001 - 12:47 am: Edit

Sorry for this, I got lost when looking for answer in docs.

According to ANS specs, S" does
```
( ... <"> -- addr u )
```

which should be temporary storage somewhere in memory.

But in Quartus S" obviously returns just address.

Now, is the address returned by Quartus S" also pointing to a temporary storage (i.e. not in the dictionary space and I don't have to care how to release it afterwards)?
How do I recognize end of the string?

How does it work in compile mode vs. runtime vs. interactive?

-- JV

By **Neal Bridges (Nbridges)** on Tuesday, May 29, 2001 - 01:29 am: Edit

… the Quartus Forth S" returns (-- c-addr u) just as required by the Standard. The kernel contains the CORE version of S", which only works from within a definition.

If you want the FILE version of S" -- the one that works while interpreting, and uses a temporary buffer -- do

needs file

to load the appropriate definition.

Neal

By **Kris Johnson (Kdj)** on Tuesday, May 29, 2001 - 01:47 am: Edit

For more information on strings, you might want to check out the Strings Tutorial in the wiki:
http://sleepless-night.com/cgi-bin/twiki/view/Main/StringsTutorial

-- Kris

Thanks for all hints. I actually mixed S" with C" which probably made my question quite confusing.

I'll check the tutorial, that should help.

--JV

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Stupid newbie Q: Can I create a lookup table or "private dictionary"?

By **Jindra Vavruska** on Monday, May 28, 2001 - 12:57 pm: Edit

Hi there,

I want to implement a simple lookup table/array (associative array). This kind of structure is also called dictionary (IIRC in Postscript and Python at least).

In my project I want to lookup a value of code (constant) assigned to a character. Since the keys would be the most common characters (0-9, A-Z, and few more), I certainly do not want these to mess the Forth dictionary.

Is there a "forthy" way to do it? I am not a big expert in stack computing 🙂

-- JV

By **Neal Bridges (Nbridges)** on Monday, May 28, 2001 - 01:33 pm: Edit

An array would be the simplest route.

```
needs toolkit
256 array lookup

17 char A lookup !
42 char B lookup !
```

and so on. To retrieve a value from within a definition:

```
: go
  [char] A lookup @ . ;
```

Neal

By **Bev** on Tuesday, May 29, 2001 - 12:20 am: Edit

Thank you. I actually thought of something "more fancy" 🙂 but ARRAY will be perfect for the job.

I'd rather implement CARRAY for that thing, but the difference is insignificant.

In the same project (morse code trainer) I am having trouble to understand strings, but that's in a new thread...

By **Bev** on Tuesday, May 29, 2001 - 12:23 am: Edit

Thanks for hint. ARRAY was actually one solution I thought of. When reimplemented as CARRAY it fits perfectly!

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Creating an API

By **Mike Will** on Sunday, May 27, 2001 - 02:39 pm: Edit

Has anyone done any work on or thought about exposing an API to their Quartus app? I have a database app that I'd like to do this with. I like the way products like HanDBase and ThinkDB allow 3rd party apps to use their databases and engines. Ideally, this would enable developers to create plug-in modules (presumably in C/ASM, though Quartus would be cool) that would be enumerated and incorporated by my app at startup.

TIA

Mike

By **Neal Bridges (Nbridges)** on Sunday, May 27, 2001 - 03:40 pm: Edit

The launch-code Quartus Forth beta fits that bill, Mike. Do you have it already?

Neal

By **Mike Will** on Sunday, May 27, 2001 - 04:48 pm: Edit

Uh, I have 1.26R
I've been so successful with it, I haven't even asked for a more recent release since last summer!

I'll look back through the forum for launch-code discussions, thanks Neal.

Mike

By **Neal Bridges (Nbridges)** on Sunday, May 27, 2001 - 04:50 pm: Edit

I'll send you the beta.

Neal

Add a Message

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This is a public posting area. If you do not have an account, enter your full name into the "Username" box and leave the "Password" box empty. Your e-mail address is optional.

Random Numbers

By **Bob Ryan** on Thursday, May 24, 2001 - 09:17 pm: Edit

To get a random number between 0 and 7, I use:

rand 7 and

The question is: Does this suffer from the same bias tword zero as

rand 8 mod ?

By **Neal Bridges (Nbridges)** on Thursday, May 24, 2001 - 11:44 pm: Edit

You're in good shape with that range, and in fact with any $2^{(n-1)}$ mask.

Neal

By **Chapman Flack** on Friday, May 25, 2001 - 07:13 pm: Edit

… and of course rand 8 mod is completely equivalent to rand 7 and.

The situations that give you bias are simple enough. Suppose you say rand 10 mod. rand gives you a number from 0 to 32767. 0 to 9 cover your range … 10 to 19 cover it again … and 20 to 29 … and so on, even 32750 to 32759 .. but then 32760 to 32767 only cover the 0 to 7 part of the range. You wind up with each final result 0 through 7 having 3277 chances of selection, but 8 and 9 having only 3276 chances each. In other words you have a bias when the range from rand doesn't completely wrap your desired range a whole number of times. You're safe whenever (rand_max - rand_min + 1) is an exact multiple of (desired_max - desired_min + 1).

-Chap

By **Martin Dicks** on Saturday, May 26, 2001 - 05:04 pm: Edit

This thread caught my attention because I am writing a program that needs to generate some random numbers. I was going to ask why the number was biased but that has already been answered, thanks Chapman, I was using…

rand 100 mod

to generate a number between 0 and 99 but that is apparently biased towards 0-67 because of the last incomplete, compared to my divisor, range of 32700-32767.
Is it okay to remove the bias by just ignoring a rand result in that final range and getting a new number? For example;

begin rand dup 32700 < if true else drop false then until 100 mod

Thanks,
Martin

That is potentially an extremely slow method, Martin. You'd be better served by the random number code that's available in the Wiki; it provides unbiased numbers.

Neal

Is Martin's method really that much slower?

It seems that the code in the wiki calls RAND a number of times equal to the number of bits in the result. And it has several bit shifting and masking operations for each iteration.

Martin's method has a probability of 32700/32767 of calling RAND exactly once, and may call it a few more times, but has a very low probability of calling it 16 times. Then again, I guess there is no guarantee that a result will eventually be returned.

-- Kris

The code in the wiki can be optimized to use successive bits from a single RAND call, if you wish to do so; that'll speed it up still further.

Neal

Some years back I somewhere stumbled on a factoid that comes in handy for judging probabilistic methods like Martin's. The factoid was just this: computer systems make (or made, back when the factoid was current)

computational errors with physical, hardware causes (failing components, over temperature, static discharge, electromagnetic interference, etc.) with a probability somewhere on the order 10^-14.

That allows one to stick one's thumb in the air and say, hmm, the chance of Martin's method calling RAND more than five times is no greater than the chance the Palm glitches out for no reason related to the program at all.

No, unfortunately I can't remember the reference for the 10^-14 figure, but please let me know if you've seen a similar figure in the literature and can tell me where to cite it.

-Chap

By **Neal Bridges (Nbridges)** on Friday, June 1, 2001 - 02:37 pm: Edit

Martin's method for getting unbiased random values under 100 would work well enough, I expect. There's a 0.2% chance of receiving a value 32768>n>32700 from RAND -- and thus a chance, though not a high one, of being stuck in the loop for awhile discarding high values.

I am biased toward my own unbiasing code for two reasons -- it's deterministic, and it's general-purpose. No retooling required to return a different range of values.

Neal

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Emit? misses menu shortcut drawing

By **Steve Bohrer (Skb)** on Thursday, May 24, 2001 - 03:43 pm: Edit

When I draw at the bottom of the screen in response to a menu command, I find the drawing gets trashed by the background save/restore of the menu shortcut handler. **Emit?** does not give any warning of this condition: it returns -1 while the OS has "Command:" and then the name of the menu selection drawn at the bottom of the screen.

Is there any way to detect (and avoid drawing during) system menu shortcut processing?

By **Kris Johnson (Kdj)** on Friday, May 25, 2001 - 12:01 am: Edit

My JacksOrBetter game has a similar problem. The button at the lower left part of the screen changes its text from "Deal" to "Draw", and if a menu shortcut was used to deal or draw, then the text of the button gets munged.

In other words, the order of events seems to be:

- user enters menu shortcut

- Palm OS saves lower-left bits and draws menu command text

- JacksOrBetter changes button text as part of its menu command handler

- Palm OS removes menu command text and restores underlying area, leaving the button looking bad.

I don't think EMIT? would help me. I haven't bothered fixing it, as I assume most users use the buttons rather than the menu commands. I've even considered removing the menu commands, as having buttons and menu equivalents is considered to be bad form on Palm OS.

-- Kris

By **Neal Bridges (Nbridges)** on Friday, May 25, 2001 - 01:14 am: Edit

There's a system call that tells you if the command bar is being displayed; enhancing EMIT? with that would provide a solution. I'll hunt it down, unless someone beats me to it.

Neal

MenuEraseStatus clears the OS's menu drawing at the bottom of the screen. So, rather than using a modified **emit?** to wait for the OS to finish, pass a null pointer to MenuEraseStatus to have it get its stuff out of the way before you draw. Once again, thanks for the pointer to "check the OS docs"!

Here's what the Ref Guide says:

> **Quote:**
>
> You need to call MenuEraseStatus explicitly only if the command toolbar covers something that is going to be changed by the menu command the user has selected. For example, if the user selects a command that displays a new form, call MenuEraseStatus before executing the command. Also, if the command performs some drawing in the lower portion of the window, call MenuEraseStatus before performing the drawing function.

So, I added

```
0. MenuEraseStatus
```

to my menu handling words in forms where I draw at the bottom of the screen.

Thanks. I never bothered looking for such a thing; my assumption was that the OS was taking control and that there was nothing I could do about it.

-- Kris

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This is a public posting area. If you do not have an account, enter your full name into the "Username" box and leave the "Password" box empty. Your e-mail address is optional.

ARM Processor

By **Mike Will** on Tuesday, May 22, 2001 - 11:01 am: Edit

Forgive me, Neal, if this has already been covered. I'm just wondering if you plan to continue Quartus into the ARM processor once the DragonBall is finished. I realize that's a year away, but I'd like to avoid a surprise.

Have you noticed that surprises get less joyful and more fearsome as one ages?

Merci

Mike

By **Neal Bridges (Nbridges)** on Tuesday, May 22, 2001 - 11:25 am: Edit

Indeed, I have an ARM version of Quartus Forth already in the initial stages; I'm the proud owner of every relevant bit of ARM documentation, and have an ARM assembler/disassembler presently under construction in Forth.

Neal

By **Mike Will** on Tuesday, May 22, 2001 - 02:45 pm: Edit

Please mark me down for the first commercial copy.
Thanks Neal

Mike

By **Neal Bridges (Nbridges)** on Tuesday, May 22, 2001 - 02:54 pm: Edit

Thanks for the vote of confidence, Mike! 🙂

Neal

By **Barak Shilo (Barak)** on Tuesday, May 22, 2001 - 05:50 pm: Edit

I heard that Motorola was coming out with a DragonBall-compatible ARM processor, so I would think Quartus would still work as-is. However, I don't know anything more than I've read, and I'm sure if Quartus was recoded specifically for the ARM platform it would be more efficient.

By **Neal Bridges (Nbridges)** on Tuesday, May 22, 2001 - 08:04 pm: Edit

My understanding of that Motorola ARM processor is that it is compatible with DragonBall peripherals, so all the same bits & pieces (RAM, etc.) can plug into it, but otherwise it's an ARM chip.

The 68K instruction set can certainly be emulated, and Palm has indicated that they'll go that way for legacy apps; however, a native ARM version of the Quartus Forth compiler would be a good thing.

Neal

By **Alex Alava** on Wednesday, May 23, 2001 - 09:38 am: Edit

This is slightly off topic but could you suggest any good reference and learning books on the arm processor?

By **Neal Bridges (Nbridges)** on Wednesday, May 23, 2001 - 01:23 pm: Edit

The bible is "The ARM Architecture Reference Manual", ISBN 0201737191.

Neal

By **Neal Bridges (Nbridges)** on Wednesday, May 23, 2001 - 04:04 pm: Edit

Here's a link for Amazon for the ARM reference book:

http://www.amazon.com/exec/obidos/ASIN/0201737191/nealbridgesquart

and one for Chapters:

http://www.Chapters.ca/affiliate/itempage.asp?isbn=0201737191&affid=101454

Neal

By **Neal Bridges (Nbridges)** on Wednesday, May 23, 2001 - 04:10 pm: Edit

I've added the ARM reference manual to the Books section: http://www.quartus.net/books

Neal

By **Alex Alava** on Thursday, May 24, 2001 - 10:30 am: Edit

Thanks I ordered it.

As a contribution, anyone who needs a book can use the book search engine at

http://www.bestbookbuys.com

It can do a price comparison (Amazon, Barnes & Noble, Fatbrain, etc...) and gives their price availability and shipping charges for a total cost picture. It can even show used books if available.

By **Marcel Hendrix** on Friday, May 25, 2001 - 05:37 pm:

Mike wrote:

> I'm just wondering if you plan to continue Quartus into
> the ARM processor once the DragonBall is finished.
> I realize that's a year away, but I'd like to avoid a
> surprise.

That's interesting. I might want to have a PDA with
an ARM. Where'd you get that information?

-marcel

By **Neal Bridges (Nbridges)** on Friday, May 25, 2001 - 06:57 pm:

Palm announced their future ARM direction last December at the PalmSource
conference.

Neal

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not have an account, enter your full
name into the "Username" box and leave
the "Password" box empty. Your e-mail
address is optional.

Hack Programming

By **Bill Chan** on Tuesday, May 22, 2001 - 10:09 am: Edit

Hello, Can somebody tell me how to create a Hack extension by using Code Warrior or GCC compiler. Please kindly provide you solution to me if you know how to do it. Thank a lot.

By **Neal Bridges (Nbridges)** on Tuesday, May 22, 2001 - 10:10 am: Edit

Bill, you're asking in the wrong place. This forum is for Quartus Forth. If you need CodeWarrior and GCC help, you'll get better results elsewhere.

Neal

By **Geo. Figole** on Monday, June 18, 2001 - 04:57 pm: Edit

http://www.daggerware.com/hackapi.htm has info on coding hacks

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Add font to aplication

By **eli** on Saturday, May 19, 2001 - 02:26 pm: Edit

Does someone know how to add new font to an aplication. I made a font with Font Editor, and I want to add it to my aplication.

By **Neal Bridges (Nbridges)** on Saturday, May 19, 2001 - 02:33 pm: Edit

The call you want (Palm OS 3.0 and later only):

FntDefineFont (&fontP. fontID[>byte] -- err)

&fontP. is a 32-bit pointer to your font, and the fontID is a value 128 and greater. After using FntDefineFont, use FntSetFont to select it.

Neal

By **eli** on Saturday, May 19, 2001 - 03:37 pm: Edit

Thanks Neal
how I get the Pointer to the font? My font is a pdb file. and the resorces of my aplication is in seperate file.
Is there a way to put them together?
Eli

By **Neal Bridges (Nbridges)** on Saturday, May 19, 2001 - 05:20 pm: Edit

If you copy out the data in the PDB record, and create a resource, or even have those bytes directly compiled as data in your app, you'll have access to them without having to access a separate PDB.

I once did this laboriously by hand, but I don't have an automated solution to suggest; perhaps one of the developers here can suggest a route.

Neal

By **eli** on Saturday, May 19, 2001 - 08:24 pm: Edit

How can I directly compile this record as data in my app, what has to be the command in Forth?
Eli

create myfont
hex
1234 , 5678 ,

and so on. That's manual, and clumsy, but if your font data isn't too long it'd work.

Neal

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This is a public posting area. If you do not have an account, enter your full name into the "Username" box and leave the "Password" box empty. Your e-mail address is optional.

Naive CtlSetLabel question.

By **E.** on Thursday, May 17, 2001 - 08:22 pm: Edit

I pass CtlSetLabel (&newlabel. &pControl.), according to the systraps document.

I have a whole buncha of buttons which I set, and instead of doing things the Right Way, I copy a segment of data out of memory into TempString (17 chars allot) and then CtlSetLabel it, inside of a loop.

I find that when I click on the buttons thus labeled, when they are selected, their text changes to that of the last button.

Is this just more "E. Doesn't Know How To Code" wackiness, or is this an established concept of which I was previously unaware?

Yes, I've already figured out how to work around it (I'm not sure if I'm finally doing things the Right Way, so I'm going to refer to it as a workaround), so this question is just informational.

By **Kris Johnson (Kdj)** on Thursday, May 17, 2001 - 09:31 pm: Edit

CtlSetLabel does not make a copy of the string. You need to have multiple memory buffers.

-- Kris

By **E.** on Thursday, May 17, 2001 - 09:38 pm: Edit

Thank you. Coincidentally (and I'm sure that's what it was), that's the solution I adopted. Well, sort of. I have a great huge block of memory, and I store the offsets into it and cmove as necessary.

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Quartus Forth to the Arctic

By **Ron Doerfler** on Wednesday, May 16, 2001 - 05:36 pm: Edit

I see that the following article describes Palms specially modified for sub-zero temperatures and destined to be used in June by scientists on an Arctic expedition:

http://www.palminfocenter.com/view_Story.asp?ID=1923&MODE=FLAT#12414

In the comments, there is a link provided that lists the software that will be included on these Palms:

http://www.palmtop-pro.com/onltexte/software_polex.htm

and there we find PalmStats, now ProStats, written in Quartus Forth by our very own Jim Purdy.

Congratulations!

Ron

By **Jim Purdy** on Thursday, May 17, 2001 - 10:26 am: Edit

Thanks,

It was a great suprise to me that the German team
chose ProStats. I had NO idea they were even looking at it until they asked for some preliminary support and explained their plan.

Thanks again to the group for all the help.

Best Regard,

Jim

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How can I install library.mpa from a Linux box?

By **Jindra Vavruska** on Wednesday, May 16, 2001 - 02:16 pm: Edit

There is no Palm Desktop for Linux. What kind of format is library.mpa? Is there any compatible version of this file available?

By **Chapman Flack** on Wednesday, May 16, 2001 - 05:15 pm: Edit

Sure--download http://www.quartus.net/files/PalmOS/Forth/Contrib/libtxt.zip and unzip it (there are unzip implementations, post again if you need a link) and use install-memo to sync 'em over.

-Chap

By **Jindra Vavruska** on Wednesday, May 16, 2001 - 11:55 pm: Edit

Works nice! Thks!

It took some time to move all the new memos to a new category from "Unfiled". install-memo surely needs a command line option like --into-category=xxxx 🙂

By **Chapman Flack** on Thursday, May 17, 2001 - 01:02 am: Edit

Oops, sorry. My RefileMemos code is now posted on the wiki. Too late I know, but maybe you'll have to load in another bunch of memos some time….

-Chap

By **Dave Bennett (Dbennett)** on Friday, May 18, 2001 - 07:11 pm: Edit

Hey, my install-memo hasn't worked for the last three versions! What version are you running?

By **Kris Johnson (Kdj)** on Saturday, May 19, 2001 - 12:39 pm: Edit

I've stuck with version 0.9.3 of the pilot-link package, due to problems with subsequent versions.

If anyone knows of a newer, working version, please let us know.

-- Kris

By **Chapman Flack** on Saturday, May 19, 2001 - 11:24 pm: Edit

0.9.3 is what I'm using, and I just downloaded it recently (OK, March); I got the impression it was the "official" version at that time.

-Chap

By **Kris Johnson (Kdj)** on Sunday, May 20, 2001 - 10:56 am: Edit

There's a 0.9.5-beta version available in the Debian unstable distribution. I had problems with 0.9.4, so I downgraded to 0.9.3 and haven't upgraded it since.

I haven't checked out the official pilot-link site.

-- Kris

By **Jih-tung Pai** on Friday, June 22, 2001 - 04:42 pm: Edit

My pilot-link package is 0.9.4. When I type "install-memo --help", it shows:

usage: install-memo [-qrt] [-c category] [-p /dev/cua??] file [file] ...
-q = do not prompt for HotSync button press
-r = replace all memos in specified category
-t = use filename as memo title

So, it should be able to install the memos to certain category. If I remember correctly, it worked for me last time I tried.

Add a Message

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Username:

Password:

E-mail:

not have an account, enter your full name into the "Username" box and leave the "Password" box empty. Your e-mail address is optional.

FourTap

By **Kris Johnson (Kdj)** on Wednesday, May 16, 2001 - 12:45 am: Edit

I have a new game, available on the wiki:

http://sleepless-night.com/cgi-bin/twiki/view/Main/FourTap

FourTap is an imitation of the old "Simon" electronic memory game. It was developed with Quartus Forth, of course.

I'll post it to PalmGear and other places in a few days, but I'd appreciate any comments or testing the rest of you would like to provide.

Source code is included.

-- Kris

By **Neal Bridges (Nbridges)** on Wednesday, May 16, 2001 - 04:06 pm: Edit

Congratulations on the new game, Kris!

Neal

By **Norman "Buz" Stewart (Buz)** on Wednesday, May 16, 2001 - 06:43 pm: Edit

Ha! I was just talking to a friend about the possibility of my trying to write that game! I'm glad you wrote it first, so now I'll at least be able to point my friend to a high-quality version of it! Congratulations, Kris!

By **Kris Johnson (Kdj)** on Thursday, May 17, 2001 - 09:41 am: Edit

Buz found a problem: if game sounds are turned off in the Preferences app, then the buttons don't flash. (So much for "high-quality"…)

If anyone is interested in fixing it, replace the BTN-SOUND definition in the fourtap-sounds memo with this:

```
: btn-sound ( n -- )
  volume 0= if
    duration ms
    drop exit
```

```
    then
    >r volume duration r> btn-freq
    sound ;
```

I had assumed that SOUND would pause silently if volume is zero, but apparently it just does nothing and returns immediately.

Thanks for the report, Buz.

-- Kris

By **Kris Johnson (Kdj)** on Sunday, May 20, 2001 - 01:54 pm: Edit

Version 1.0 is now available from PalmGear:

http://www.palmgear.com/software/showsoftware.cfm?prodID=14875

-- Kris

By **Steve Bohrer (Skb)** on Wednesday, May 23, 2001 - 08:57 am: Edit

Sound delays (a tangent to Kris' note): very slight testing indicates that different versions of the OS deal with sounds differently. I have an auto-repeat button that incs a counter, and it seems that under OS3.1 the screen click slows down the counting, but under OS3.5 the sound is more async, and the counter increments more rapidly.

I suppose the solution is to use a timed delay in either case.

By **Kris Johnson (Kdj)** on Wednesday, May 23, 2001 - 11:07 pm: Edit

Hmmm. Does that mean that I need to buy an OS 3.5 handheld to test my sounds? Sounds like a good reason to buy a new Visor Platinum!

Does Palm have any documentation on "async" sound? I have a couple of apps where this might cause a problem.

-- Kris

By **Kris Johnson (Kdj)** on Wednesday, May 23, 2001 - 11:27 pm: Edit

To answer my own question: look here:
http://www.palmos.com/dev/tech/docs/palmos/SoundManager.html#924979

Async sound is apparently supported in OS 3.0 and higher. I can't find any info on differences in auto-repeat or screen clicks between 3.1 and 3.5.

-- Kris

My speed testing was on an m100 with OS3.5 vs a IIIe with OS 3.1 . Since Benchmark shows the m100 slightly slower than the IIIe, I assume that the sounds made the difference. But, perhaps they just changed the buton-repeat rate. (Is this rate user or program settable?)

But, now that some devices Bench at 204% out of the box, I suppose that we should use explicit delays for everything.

Version 1.1 is now available for download:
http://www.palmgear.com/software/showsoftware.cfm?prodID=14875

Sound now works properly on Palm OS 2.0.

-- Kris

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Anyone get WinGetBitmap or WinGetPixel to work?

By **Michael Park (Mpark)** on Monday, May 14, 2001 - 02:58 pm: Edit

I defined

```
: WinGetBitmap (hex) a3a2 systrap ;
: WinGetPixel (hex) a381 systrap ;
```

and neither seems to have any effect. What am I doing wrong? (This is on an m100.)

By **Neal Bridges (Nbridges)** on Monday, May 14, 2001 - 03:19 pm: Edit

Try this:

: WinGetPixel (hex) a381 systrap d0 drop ;

The result is returned by the Palm OS in the low part of the D0 register.

Neal

By **Michael Park (Mpark)** on Monday, May 14, 2001 - 04:10 pm: Edit

OK, thanks. I added 2drop to get rid of arguments:

```
: WinGetBitmap ( winhandle. -- &bitmap. )
 (hex)a3a2 systrap 2drop d0 ;
: WinGetPixel ( y x -- p )
 (hex)a381 systrap 2drop d0 drop ;
```

By **Neal Bridges (Nbridges)** on Monday, May 14, 2001 - 04:19 pm: Edit

Quite right.

Neal

By **Neal Bridges (Nbridges)** on Monday, May 14, 2001 - 04:19 pm: Edit

… though I'd need to test WinGetBitmap -- very possible the address is returned in A0 rather than D0.

Neal

By **Michael Park (Mpark)** on Tuesday, May 15, 2001 - 11:38 am:

WinGetBitmap seems to work with either D0 or A0. How are you supposed to know which to use? I suppose that if the function is declared (in C) to return a pointer, you should use A0?

By **Neal Bridges (Nbridges)** on Tuesday, May 15, 2001 - 11:47 am:

That's the rule of thumb, yes. Addresses (pointers) in A0.

Neal

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Misleading statements about Quartus?

By **Matthew Blair (Blair)** on Monday, May 14, 2001 - 01:50 pm: Edit

Hi Neal,

I've been browsing the Dragon Forth forum at Yahoo, and it seems like there are some misleading, if not downright false, statements being made about the Quartus Forth platform.

In particular, the "silly questions?" thread has Dmitry touting the advantages of Dragon Forth, with one advantage being that it is much faster in prc compiles - he even states that QF takes 10 minutes to create a prc, without giving the time that it took DragonForth to produce the same program, of course.

PRC compile time is a relatively minor issue, of course, but I'm concerned that the reputation of QF may be harmed, particularly among the customers who are trying to decide which way to go.

Sorry about the blathering - the thread really just irked me and I needed to unload it somewhere :-)

Matthew

By **Neal Bridges (Nbridges)** on Monday, May 14, 2001 - 03:16 pm: Edit

I daresay that when the competition resorts to groundless mud-slinging it says a great deal about the state of affairs in their camp.

MakePRC is very fast. I've just now timed the Benchmark app, as an example -- the MakePRC process takes only 1.19 seconds to build a stand-alone PRC, and that includes the time taken by the required CopyRsrc and DelRsrc commands.

His forum is open, so you could certainly set the record straight if you wished, but I'd suggest that the energy might better be spent doing something fun, something like, say, writing apps with Quartus Forth. 🙂

Neal

By **Neal Bridges (Nbridges)** on Monday, May 14, 2001 - 03:21 pm: Edit

By the way that 1.19 seconds is on a new Palm m505, not known for its fleetness of foot (Benchmark 2.0 puts it at a modest 155%). MakePRC will thus be even faster on, say, a Visor Platinum.

Neal

By **Matthew Blair (Blair)** on Monday, May 14, 2001 - 03:36 pm: Edit

Unfortunately I have already expended some energy on that forum; of course, setting the record straight is never that easy though. It appears that he is doing a bit of backpedaling on the compile-time issue though, and so I guess there is a small measure of satisfaction :-)

It appears that you are not overly concerned with it. If that's the case, then I don't need to be either :-)

Thanks as always,

Matthew

By **Norman "Buz" Stewart (Buz)** on Monday, May 14, 2001 - 09:12 pm: Edit

I would think the only people choosing Dragon at this point are those who aren't looking very hard. Can I point out once again that if more of you will add your own Quartus review to the Palmgear site, you will be helping those people who are taking the time to look?

By **Matthew Blair (Blair)** on Tuesday, May 15, 2001 - 08:49 am: Edit

Point taken, and acted on. Should have done it sooner!

Matthew

By **Ron Doerfler** on Tuesday, May 15, 2001 - 01:21 pm: Edit

Ditto!

Ron

By **chapman Flack** on Tuesday, May 15, 2001 - 05:26 pm: Edit

Is there any way to browse the DF Yahoo forum without adding yet another useless registration to my portfolio?

-Chap

By **Neal Bridges (Nbridges)** on Tuesday, May 15, 2001 - 05:32 pm: Edit

Yahoo requires a registration.

Neal

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Using Palm OS Floating Point Traps

By **Brette Blatchley** on Sunday, May 13, 2001 - 03:06 pm: Edit

Hi Folks, it's been a while since I've posted. I've been looking through the posts and archives and I'm really impressed with knowledge you have all contributed!

In investigating some other issues, I wanted to learn how to use the PalmOS Floating Point routines. It was a pain at first (since I'm still new to the Palm OS). So here is a piece of demo code I learned on for any one who is interested:

```
\ PalmFpTest 5/12/01 1:32 pm BLB

\ Test PalmOS  Floating point traps
\ (Extra comments for clarification)

needs core-ext
needs zstrings

\ Our PalmOS floats will live here...

create fpVal1 8 chars allot
create fpVal2 8 chars allot
create fpVal3 8 chars allot


\ Count a zstring and leave cstr
\ params for "normal" string ops

: z>cstr ( z-addr -- c-addr u )
  dup
  begin
    dup c@ while 1+
  repeat
  over -  ;


\ Put a Palm float on the stack

: fp8@ ( addr -- f[8] )
```

```
    >r
    r@ 6 + @  r@ 4 + @
    r@ 2 + @  r>  @ ;  \ little-endian!


\ Store a stacked Palm float
\ not used in this test, just here
\ for completeness

: fp8! ( f[8] addr -- )
  >r
  r@ !  r@ 2 + !
  r@ 4 + !  r>  6 + ! ;  \ little-endian!


\ Parse a null-terminated ascii
\ number into a PalmOS float and
\ store.

: z>fp8! ( z-addr fp8-addr -- )
  >r >abs r> >abs FplAtoF ;


\ Use the PalmOS floating point
\ traps to compute 2/3.  Uses:
\
\    FplInit initialize FP system
\    FplFree close-down FP system
\    FplAtoF ascii to float
\    FplFtoA float to ascii
\    FplDiv float division

: FloatTest ( -- )
  FplInit drop \ do before other fp ops
  \ drop error flag

    \ Parse "3.0", convert to float
    \ first implementation before
    \ factoring into a separate word:
    \
    \    z" 3.0" drop >abs \ &s.
    \    fpVal1 >abs              \ &f[8]
    \       FplAtoF

    z" 3.0" drop  fpVal1  z>fp8!
```

```
    \ Parse "2.0", convert to float

    z" 2.0" drop  fpVal2  z>fp8!


    \ Divide floats

    fpVal1 fp8@  \ fp[8]
    fpVal2 fp8@         \ fp[8]
    fpVal3 >abs        \ &fp[8]
      FplDiv  \ hmmm, no error flag

    \ Convert float to ascii
    \ (always in scientific notation!)

    PAD >abs
    fpVal3 fp8@
      FplFtoA drop \ drop error flag

    \ type the result, brackets to
    \ see if any odd chars are inserted

    PAD z>cstr ." [" type ." ]" cr

  FplFree \ do after Palm OS fp ops
;


: go page ." Float Test" cr FloatTest ;
```

Oh Neal? if you read this, would you kindly send me my username and password - I've forgotten/missplaced it again. Could you send it to "brettrix@yahoo.com" the first 3 and last 4 chars of my QF reg id are: "551" and "44km" respectively.

And any idea of when the next QF version is due out?

Take Care All!

By **Neal Bridges (Nbridges)** on Sunday, May 13, 2001 - 03:10 pm: Edit

Brette -- mail me with your new desired password, and I'll set it up.

Have you seen Chapman Flack's recent work on Palm OS floats? You might find it interesting.

I'm working on the next Quartus Forth release presently. I'm reticent to set a deadline; in the words of the very sadly departed Douglas Adams -- "I love deadlines. I love the whooshing sound they make as they fly by."

Neal

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Help for someone beginning programming?

By **Brian Jones** on Sunday, May 13, 2001 - 10:13 am: Edit

Can any of you suggest a way for one to get started with programming…like a simple tutortial or?

By **Kris Johnson (Kdj)** on Sunday, May 13, 2001 - 01:45 pm: Edit

You can start by taking a look here:

http://sleepless-night.com/cgi-bin/twiki/view/Main/QuartusForthTutorials

I'd suggest the QuickIntroToQuartusForth, the HelloWorldTutorial and the OnBoardDevelopmentTutorial.

Unfortunately, I don't think any of these are appropriate for someone with absolutely no background in programming. If these are over you head, please let us know what you are having problems understanding.

-- Kris

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Anybody have OS 4.0 ?

By **Chapman Flack** on Saturday, May 12, 2001 - 07:16 pm: Edit

So far I've confirmed that a) the _fp_round bug is present and b) my workaround works, in OS 2.0 through 3.5. But because the workaround needs the address of an undocumented Palm OS global, I would really like to know if the address is still the same in the latest OS.

Anybody have OS 4.0 and a few minutes to run the test memo on the wiki?

http://www.sleepless-night.com/wiki/_fp_roundBug

If no problems I'll roll the workaround into FloatLib so _fp_round Just Works (tm).

Thanks,
-Chap

By **Chris Bucsko** on Monday, May 14, 2001 - 02:37 pm: Edit

Yes, I have an OS4 Palm available. I have downloaded roundtst.txt. Is that all I need besides QF, and the memos in the needs list? Since this isn't my working Palm, can I just beam my registered QF (1.2.5R) to this Palm, or do I need to install it? I just run the 'tryit' word, right? Sorry for all the questions.

By **Chapman Flack** on Monday, May 14, 2001 - 04:55 pm: Edit

Thanks Chris,

I guess the most "officially correct" thing to do would be to stick a copy of the evaluation version on that Palm, but I think your registered copy would work without complaining, since you won't be using MakePRC.

Only the roundtst.txt memo and the standard library memos it refers to are needed. You shouldn't need to _do_ anything besides include roundtest; the memo itself runs 'tryit' several times on different arguments.

Thanks again,
-Chap

By **Chris Bucsko** on Tuesday, May 15, 2001 - 04:52 pm: Edit

OK done on the Palm M505 here's what i get:
ToNearest - OK
TowardZero:Right Mode API.OK
DownwardRight Mode global.OK
UpwardRightMode API.OK
Once more with feeling- everything's global except for Upward right mode
which is API.OK

I got the same messages on a kyocera smartphone running 3.5.2, so it
seems they haven't changed FP format substantially. I haven't got an
account at WIKI, but I'm sure I will one of these days... Hope this helps.

By **Chapman Flack** on Tuesday, May 15, 2001 - 05:39 pm: Edit

Thanks! I'll add the info. -Chap

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E-mail:

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not have an account, enter your full
name into the "Username" box and leave
the "Password" box empty. Your e-mail
address is optional.

Tables Re-re-visited

By **Matthew Blair (Blair)** on Saturday, May 12, 2001 - 07:27 am: Edit

Hi all,

I just downloaded Trevor's tables example. I installed the \ table source into the memopad, and installed the TableRsrc.prc file. After Quartus reads the file, I execute "go" and promptly get a Fatal Error.

I'm running this on a Visor Platinum (OS 3.5.2), and the version of Quartus that comes in the evaluation package.

Any ideas?

Thanks,

Matthew

By **Trevor Steele** on Monday, May 14, 2001 - 07:58 am: Edit

Hi Matthew

Hmmm not encountered this before. I have tried running the file using the Palm emulator and a variety of versions of Quartus without being able to reproduce the fault. The most recent version of ROM I have however is OS 3.5.0 so perhaps the problem lies there. Also I'm currently only able to emulate Palm devices and not the Visor.

I'll see if I can investigate any further.

Best regards

Trevor

By **Matthew Blair (Blair)** on Monday, May 14, 2001 - 08:09 am: Edit

Hi Trevor

I haven't had a chance to debug the problem in-depth, but one thing I need to check is that I did not mangle the source on the way in. When I imported the table source, I had some extra characters show up at the end of every line when viewed on the Palm...

Thanks,

Matthew

Just a follow-up - I checked the imported memo against the table source, and there were no problems.

Neal - can you reproduce the problem on your Visor Platinum with the unregistered evaluation version of QF (mine shows 1.2.1U)?

Thanks,

Matthew

I'm not sure, but I think Palm is slipstreaming the Palm OS on hardware. I've had people tell me that using the same hardware and OS version as I, that the same app fails. I cannot reproduce the problem, yet they cannot get the app to function.

Perhaps an "insignificant" change somewhere has caused this problem for you.

I suspect that that sort of problem is caused by something far simpler than variant versions of the hardware/OS -- more likely, it's reliance on uninitialized memory, assuming that a given area of memory contains, for instance, zero bytes; in testing it may very often do so in development, but in production, maybe not.

This situation would come up most frequently when transferring string data that needs to be zero-byte delimited.

Neal

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Launchcode beta

By **Neal Bridges (Nbridges)** on Friday, May 11, 2001 - 05:50 pm: Edit

It's been awhile since there was any discussion of it, but there is presently a Quartus Forth beta available for examination that supports launch codes. It's still available to any registered user who would like to give it a try; let me know.

Neal

By **Jonathan Lerwill** on Monday, May 14, 2001 - 03:44 pm: Edit

Problem: After some weeks of being unable to compile quartus on my Visor :-/ I finally gave in and did a hard reset. v1.26r & 1.27r now compile without problems again :-) I'm using SysAppLaunch to call a (sub) app. Could you please give me a hint as to how I should set the return value and where I can find the parameter block pointer.

Regards Jonathan

A suggestion: Perhaps the Beta version(s) should have thier own forum. That would give these versions of Niel's excellent product more prominence.

By **Neal Bridges (Nbridges)** on Monday, May 14, 2001 - 05:44 pm: Edit

The parameter block pointer is returned using **cmdPB**, as per the readme.htm that ships with the beta.

To set a return code -- not having tried this, I'm guessing -- you'd use **DO!** to set a return value just before exiting normally from your sub-app (i.e. not via BYE, but just by falling out of the main function).

Neal

Add a Message

Username:

Password:

E-mail:

This is a public posting area. If you do not have an account, enter your full name into the "Username" box and leave the "Password" box empty. Your e-mail address is optional.

Easy Q about callbacke

By **Chapman Flack** on Wednesday, May 9, 2001 - 10:53 pm: Edit

Are there PalmOS functions that register callbacks that may later be called asynchronously, that is, after the PalmOS call has returned, for example, when something interesting happens?

Or do all of the PalmOS functions that take callbacks just mean functions that can be called back repeatedly _during_ the execution of the PalmOS routine?

I'm sure it wouldn't take me that long to look up, but I bet somebody Just Knows the Answer.

Thanks,
-Chap

By **Steve Bohrer (Skb)** on Thursday, May 10, 2001 - 03:24 am: Edit

List draw callbacks are "sort of" async: they are installed with **LstSetDrawFunction**, which calls the callback for each displayed item before it returns, and then called when the user scrolls the list. This call is from within **FrmDispatchEvent**, which is called by **EKey**.

I am not aware of any callbacks that are called completely asynchronously, e.g. callbacks that interrupt user code. I believe that you have to explicitly hand off to some OS routine before you can be called back. But, I have not explicitly verified this.

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Periods?

By **Barak Shilo (Barak)** on Wednesday, May 9, 2001 - 03:19 pm: Edit

For some reason my last post didn't work…
Anyhow, I just have a little question. When you make a PRC in Quartus, a bunch of periods are displayed. What do they stand for?

By **Neal Bridges (Nbridges)** on Wednesday, May 9, 2001 - 03:41 pm: Edit

They are just an indicator that something is happening; you'll get more dots when creating a larger app.

Neal

By **Barak Shilo (Barak)** on Wednesday, May 9, 2001 - 05:34 pm: Edit

So there's no specific unit of time or memory for each dot displayed?

By **Chapman Flack** on Wednesday, May 9, 2001 - 05:35 pm: Edit

He's a hard man, he won't blab. 🙂 My two guesses would be that it's proportional to the number of distinct Forth words included in the app, or to the total size of the result codespace. I just managed to quickly rule out hypothesis 1:

: go foo foo foo foo foo ; makes more dots than

: go foo ; even though the number of Forth words is the same.

So far my number of dots seems to be consistently one more than the total size of p4ap 1 in 16-bit words, but this is all based on a couple minutes of noodling around with really small words.

-Chap

By **Neal Bridges (Nbridges)** on Wednesday, May 9, 2001 - 10:50 pm: Edit

I didn't give you intimate details because I wasn't in front of the source -- it's not time-specific, but it is part of the extraction loop. One dot for each subroutine extracted, plus or minus a couple of dots.

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A question of style……

By **Mark Wickens (Markwickens)** on Wednesday, May 9, 2001 - 04:04 am: Edit

Just a quick question. I have written a reference guide for archery. The information it contains is static - it never changes. Currently, the actual data is held in a lrage number of forms, and because I have established a simple numeric relationship between the forms and buttons / menu items, I have virtually no actual code (a simple event handler and ID converter is all that is required). The app behaves perfectly and executes nice and quickly and is perfectly presentable and useable. However, I was wondering wether I should go to the trouble of holding this data in a database (thus reducing significantly the number of forms I have), and use code to extract / sort & layout the data….does anybody have any thoughts on this? Is there likely to be a significant reduction in executable size - or would I be adding complexity with no significant payback? Any thoughts?

By **Kris Johnson (Kdj)** on Wednesday, May 9, 2001 - 01:58 pm: Edit

I doubt there would be much reduction in size. Whether the text is in form resources or in a database, it's still just ASCII text, right?

How many forms are we talking about here? I'm sure there is some amount of overhead per form, but I don't know how much it is.

If the data is likely to change, or if you want to write a generic layout & display engine, then using a database would make sense. But if what you have works, I don't see a reason to change it.

-- Kris

By **John Newell** on Monday, May 14, 2001 - 08:06 am: Edit

Mark,
I do archery in the UK - member of Dunstable Bowmen. I am currently writing an Archery suite in Quartus Forth which supports round definition, round scoring, and the display of previous round histories. Are you an archer yourself?

John

By **Mark Wickens (Markwickens)** on Tuesday, May 15, 2001 - 04:14 am: Edit

..sure am! I shoot at Windsor (Windsor Forest Bowmen), although I only started at the begining of the year. I had an idea to do the same - guess I won't be making a million dollars! The Palm platform is ideal for capturing scores at the target, and tuning data. It would also be dang handy in competitions! Right now, I am using a bunch of Quicksheet spreadsheets to do my scoring - sure beats all that arithmetic, but I am well aware the principle could / should be expanded. Be happy to discuss some ideas I have for the suite, and / or be a beta tester for you.

By **John Newell** on Tuesday, May 15, 2001 - 07:30 am: Edit

Thanks Mark.
I'm having a couple of problems polishing it off. I developed it on my Palm Vx, OS3.5. One beta tester suggested that it should work on earlier rev OS's such as those used on the cheaper Palms. I agreed but am getting odd effects. Also, I used database Unique ID's, only to discover that they don't persist when a database is copied from one Palm to another. Once I get them sorted out I would be pleased if you could look at the suite.

Regards
John

By **Trevor Steele** on Wednesday, May 16, 2001 - 03:21 am: Edit

Hi John

I have developed a scorebook for recording Target rifle shots and scores. I don't know if this sort of thing would be useful or could be adapted for archery. I've had some interest from a few archers. At the minute I'm in the middle of a major re-write for American Highpower target support.

The trial version can be found at Scorebook Let me know what you think.

Trevor

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Testers needed for _fp_round workaround!

By **Chapman Flack** on Tuesday, May 8, 2001 - 12:15 am: Edit

Hi,

A couple of weeks ago I asked for testers to see how many versions of Palm OS have a certain bug in floating point support.

I now have workaround code that also wants testing. It's on the wiki, with details of the bug, at
http://sleepless-night.com/cgi-bin/twiki/view/Main/_fp_roundBug

The workaround has to access an undocumented memory address, so I need to find out how many different versions of Palm OS have that word at different addresses.

You don't have to be a floating point user to pitch in--please help to complete the table of tested versions on the wiki.

Thanks!
-Chap

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DmHdrAttrHidden value?

By **Wade Carlson** on Monday, May 7, 2001 - 11:45 pm: Edit

Anybody know what the numeric value is for dmHdrAttrHidden? (for use with DmSetDatabaseInfo) It should be in the DataMgr.h file, but it wasn't added until OS 3.2, and the free version of code warrior only includes version 3.1 header files. Thanks in advance.

By **Chapman Flack** on Tuesday, May 8, 2001 - 12:07 am: Edit

0x100. You can download the SDK header files for free from http://www.palmos.com/dev/

-Chap

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How to move the z" string" from main program to resource file

By **Harry Chou** on Monday, May 7, 2001 - 11:26 pm: Edit

Hi,

I have a program which display a label in this way,

....
z" Initializing "
drop >abs 1005 ChangeLabel
....
(ChangeLabel is a forth word to place a label)

I like to move the z" ..." from main program to the resource file, and in this way we can edit only the resource to change the text and keep the program code not changed.

Any body could give me a hint!

regards
harry

By **Chapman Flack** on Monday, May 7, 2001 - 11:59 pm: Edit

Assuming your string is in the "tSTR 42" resource:

```
needs ids

: dmcheck ( h. -- h. )
  2DUP OR 0= IF DmGetLastErr THROW THEN
;

: test
  42 [id] tSTR dmGetResource dmcheck
  2DUP MemHandleLock
  1005 ChangeLabel
  2DUP MemHandleUnlock THROW
  DmReleaseResource THROW
;
```

Typed without testing....

There is also a SysCopyStringResource that will get the resource, copy it into a string buffer you provide, and release the resource. Sounds convenient. BUT, there is no way to tell it how big a string buffer you have allocated. (AFTER ALL THESE YEARS OF BUFFER OVERRUN FAILURES, SOMEBODY STILL WROTE A FUNCTION LIKE THAT!) So I really can't recommend it. At all.

-Chap

By **Chapman Flack** on Tuesday, May 8, 2001 - 12:03 am: Edit

Mind, you might have to wait to unlock and release the resource in the above code until PalmOS is no longer doing anything with that label. I haven't done much UI yet so I'm not sure if that's an issue.

That could be an argument for copying the resource into your own buffer--but I'm not sure. And if you do, humor me and write a routine that takes the buffer length as a parameter! 🙂

By **Chapman Flack** on Tuesday, May 8, 2001 - 12:04 am: Edit

StrNCopy would fit the bill nicely. -Chap

By **Harry Chou** on Wednesday, May 9, 2001 - 07:55 am: Edit

Thanks chap, it works!

Add a Message

Username:

Password:

E-mail:

name into the "Username" box and leave the "Password" box empty. Your e-mail address is optional.

Create New Conversation button in Forum

By **Wolfgang Allinger (Wall)** on Monday, May 7, 2001 - 06:00 am: Edit

still missing a 'Create New Conversation' button in a quickly reachable part of the forum.

This QuartusForth forum has some hundreds of entries and need a real long time to load and to show this button at the end. So please put additional buttons at places where to reach them better.

bye from Germany
Wolfgang

By **Norman "Buz" Stewart (Buz)** on Monday, May 7, 2001 - 10:37 pm: Edit

That button really is out of the way, even hard to find if you're not used to starting new conversations. The first time I went looking for it, I was wondering if perhaps I had registered myself incorrectly on the forum. The second time -- not remembering where I had found it the first time -- I started to wonder if you guys had locked me out already! J

By **Neal Bridges (Nbridges)** on Tuesday, May 8, 2001 - 02:40 pm: Edit

Button moved. Hope that helps!

Neal

By **Wolfgang Allinger (Wall)** on Thursday, May 10, 2001 - 10:38 am: Edit

Yes, THX Wolfgang

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Need (Memopad) write protection

By **Wolfgang Allinger (Wall)** on Monday, May 7, 2001 - 05:53 am: Edit

found a nasty way to destroy files with memopad. Using search ... the found word is marked. Any entry will now replace the marked word and only a sharp eye will see that. It's especially dangerous to work in POSE and somebody (me or my cat) hits the space-bar. Entering some other keys will result (hopefully) in a 'undefined' error in quartus, but a word replaced by a space will not.

Is there any way to have write protected files in Palm?

bye from germany
Wolfgang

By **John Newell** on Wednesday, May 9, 2001 - 08:38 am: Edit

Hi Wolfgang.
I agree with you. I use pedit on my Palm Vx and occasionally accidentally overwrite Forth libraries which I have accessed for reference purposes only. I have been trying to get Paul Nevai to change pedit so that memos can be declared as read-only. One suggestion was read-only categories. See:
http://www.quartus.net/discus/messages/23/1148.html?

John

By **Tammy Cravit (Tammycravit)** on Wednesday, May 9, 2001 - 01:27 pm: Edit

The latest version of pedit includes read-only memo support on a per-memo basis. The way it works is that any memo containing the string **$READ_ONLY$** in the first 255 characters of the memo will be treated as read-only by pedit.

I made my Forth library memos read-only in about 5 minutes by adding the comment

```
\ $READ_ONLY$
```

on the line following the header of each library. Unless Neal decides to incorporate this into the Quartus distribution, I'll have to redo the change

every time the Forth libraries are replaced, but that's not a big deal for me.

The beta of pedit (including this feature) can be downloaded from the following URL:

http://www.math.ohio-state.edu/~nevai/x/pedit_beta.zip

Tammy

I have tried the beta and have replied thus:

Hi Paul,
Thanks for that. It does have a "read-only thingy" but a little clumsy to use I feel. There are 63 memo's in the Forth library and you have to \
$READ_ONLY$ all of them. I have a total of 319 memo's on my Palm Vx in 14 categories. I could make 8 of those categories read-only.
What about a single memo containing e.g. $CATEGORY_READ_ONLY$ which would make all memos in the same category read only?

Tammy, if you have a different suggestion perhaps you could contact Paul about it.

John

I have heard from Paul as follows:

Hi John:

Clumsy? For individual memos it's the best I can think of [in the pedit spirit]. For a "batch" job? I agree. You suggestion about $CATEGORY_READ_ONLY$ is not practical at all [I could elaborate on the phone]. BUT, what if a category name starts with "!" then it is readOnly?
Best regards, Paul

I replied thus:
--
A quick reply. I think the ! idea should work nicely thank you.
Regards
John

I want !readonlycategories desperately :-)
That's a good solution. So what version of pedit will handle this?

bye from germany
Wolfgang

Wall,
The current pedit beta handles the $READ_ONLY$ switch. Paul is usually pretty quick at doing these things. If you aren't on his mailing list I will let you know when I hear from him about the !Cat (BangCat?) version.

John

I just sent this to Paul (he said quakingly):

Hi Paul,
I'm afraid I have been thinking some more. [Puts on metal helmet] Could there be a way of updating a !Cat (bangcat) memo. i.e. even though it is in a !Cat category, I want to override that and do an update. I might even then make ALL my categories !Cat's, except for the one I am currently concentrating on.

Regards
John

John

I received this reply from my last e-mail to Paul.

Yep. That's how I planned it. "!cat" locked but each file can be temporaily unlocked individually, Best regards, Paul
----

John

Yeah that !cat sounds very good.
Can't really wait :-)

bye from germany
Wolfgang

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Read-only in pedit

By **John Newell** on Monday, April 9, 2001 - 08:19 am: Edit

I have been trying to get Paul to give pedit the facility to make memos read-only (because I keep accidentally, and without realising it, altering the Forth library files when I look at them for reference.

I have received an e-mail from him as follows:

Hi Guys:

I couple of you asked me to make it possible to make a memo read-only. I can
do that easily. The problem is that I don't see how to make that property sticky with a memo. You see I refuse to give up MemoPad compatibility so that I don't keep any info on specific memos outside the memo.

The only exception to this rule is that the properties of the last 32 visited memos are kept BUT they are only used if the memo is visited via the switcher.

So do you have any idea how to do it?

I have one idea: if, say, a memo starts with a magic word such as "!RO" then
it is declared to be read only. I am not sure this is a preferred approach.

Best regards, Paul

I replied thus,
=================
Hi Paul,
I guess I'm one of those "couple".
I know you consider the WP aspects of pedit more important than then source editing aspects but that is what I use pedit extensively for.
The main situation I had in mind was when there is a library of memos, some of which would be included into source code. These libraries should be read-only because I look at the for reference and, on the Palm, it is easy to change memos without realising you have done so. However, because they are existing libraries, changing them is not really possible. Also, the library loader looks for a sequence of characters in line 1 of the memo.

1) I did float the idea to you about read-only memo categories. Thinking more about it I like this idea which would work for me because I keep my libraries in seperate memo categories. Shouldn't be to much work to implement either.
2) When selecting a memo, how about you touch the memo name on the left for read-only mode and on the right for update mode. That should work. You could remember this in swither.
3) Rather than a read-only option, I also like the idea of a save option so that the memo changes do NOT occur immediately but only saved to the database when specifically ordered by the user (ala vi).

John
===============

If anybody has other ideas, can you let him know. Paul Nevai [nevai@math.ohio-state.edu]

John

| | By **krokodil** on Thursday, April 12, 2001 - 07:23 pm: Edit |

What about marking whole categories as readonly?
I keep all quartus lib files in separate category
and making it readonly could help.

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Not seeing popSelectEvents

By **David Slay** on Sunday, May 6, 2001 - 04:30 pm: Edit

I need to catch the event when a user changes the selection in a popup list. I have read other areas of this forum where people have said they get popSelectEvents when an item in a popuplist is changed. I am getting a ctlEnterEvent when the popup list pops up on the screen, then a ctlSelectEvent when a item in the list is selected. I can easily make this work in the program, I was just worried that I might run into problem with other palm devices down the road. (Might a different Palm device actually report it as a popSelectEvent, causing that section of my application not to work?) I am using Quartus 1.2.6 on a Palm Vx. Any thoughts?

David Slay

By **Neal Bridges (Nbridges)** on Sunday, May 6, 2001 - 04:33 pm: Edit

You'll be fine; you'll always get the ctlSelectEvent. Query the list directly for which item was selected.

Neal

Add a Message

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Password:

E-mail:

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Docs correction: EncDigestMD4 and EncDigestMD5

By **Chapman Flack** on Saturday, May 5, 2001 - 10:44 pm: Edit

Hi there,

I don't know if this has been reported before, but the Words Specific to Quartus Forth docs are slightly off wrt the stack effects of EncDigestMD4 and EncDigestMD5.

&digestP. is just the address of the start of a block of 16 bytes allocated to hold the 128-bit digest result. There's nothing [>byte] about it.

In the C header it's declared using array notation instead of pointer notation, and maybe that confused whatever tool produced all the QF stack diagrams.

-Chap

By **Neal Bridges (Nbridges)** on Sunday, May 6, 2001 - 04:38 pm: Edit

You're right, Chap -- an artifact of the process. There's a whole new list in the works.

Neal

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This is a public posting area. If you do not have an account, enter your full

Username:

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name into the "Username" box and leave the "Password" box empty. Your e-mail address is optional.

Is there any sort of NOTFOUND concept implemented, or

By **Chapman Flack** on Saturday, May 5, 2001 - 01:53 am: Edit

a way to extend the dictionary lookup in sort of the same way the PalmOS API names get "found"?

-Chap

By **Neal Bridges (Nbridges)** on Saturday, May 5, 2001 - 01:57 am: Edit

No, not at present.

Neal

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Password:

E-mail:

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If I use the Quartus word NewRsrc, how best do I find

By **Chapman Flack** on Thursday, May 3, 2001 - 05:10 pm: Edit

the new resource I just allocated, so I can DmWrite to it?

-Chap

By **Neal Bridges (Nbridges)** on Thursday, May 3, 2001 - 05:20 pm: Edit

You have to expressly locate it by type and ID.

Neal

By **Chapman Flack** on Thursday, May 3, 2001 - 06:03 pm: Edit

Aha. Is there a way to positively identify it in case I have other resource databases open that also contain a resource with that type and id?

Is it guaranteed to be the one I find because the target PRC is the most recently opened resource db?

Thanks,
-Chap

By **Neal Bridges (Nbridges)** on Thursday, May 3, 2001 - 07:08 pm: Edit

Yes, the search begins from the most-recently-opened, backward.

Neal

Add a Message

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Password:

E-mail:

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What are the 'secret' numbers for field properties?

By **Wolfgang Allinger (Wall)** on Wednesday, May 2, 2001 - 04:09 pm:
Edit

I couldn't find the numbers for the attributes of fields in resources.

How to switch 'usable' 'editable' 'underline' etc. attributes of a field/label/button etc?

bye from germany
Wolfgang

By **Chapman Flack** on Wednesday, May 2, 2001 - 06:10 pm: Edit

Hmm, I guess they aren't defined in a library memo; of course you can find them in Incs/Core/UI/Field.h in the PalmOS SDK download.

-Chap

By **Wolfgang Allinger (Wall)** on Friday, May 4, 2001 - 02:56 am: Edit

Found Field.h but can't decode that, because I'm no C-freak. Also some formatting got lost because {…}

```
typedef struct {
 UInt16 usable  :1; // Set if part of ui
 UInt16 visible :1; // Set if drawn, used internally
 UInt16 editable :1; // Set if editable
 UInt16 singleLine :1; // Set if only a single line is displayed
 UInt16 hasFocus :1; // Set if the field has the focus
 UInt16 dynamicSize :1; // Set if height expands as text is entered
 UInt16 insPtVisible :1; // Set if the ins pt is scolled into view
 UInt16 dirty  :1; // Set if user modified
 UInt16 underlined :2; // text underlined mode
 UInt16 justification :2; // text alignment
 UInt16 autoShift :1; // Set if auto case shift
 UInt16 hasScrollBar :1; // Set if the field has a scroll bar
 UInt16 numeric :1; // Set if numeric, digits and secimal separator only
```

FieldAttrType;

typedef FieldAttrType *FieldAttrPtr;

}

How get the magic numbers?
How to switch the numeric property?
How to get/switch justification?

What are the :1; and :2; in these definitions?

THX from germany
Wolfgang

The FieldAttrType is declared as bitfields. usable is a one-bit field, visible is a one-bit field … underlined is a two-bit field, usw.

For porting to Forth, you would define a bunch of bit masks for a 16-bit integer. The only question is whether the C compiler assigns the bit fields beginning with the MSB or the LSB. If I'm not
mistaken, the C standard leaves that to be defined by the implementation, so the SDK header has an environmental dependency on certain C compilers. 🙁

Probably the easiest way for you to determine which compiler behavior they were assuming is to look at some existing field attribute values and see which way they make sense. (Maybe someone else on this board just knows the answer 🙂 Then it will be straightforward to form your bit masks.

-Chap

Add a Message

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E-mail:

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More "]" questions

By **Wolfgang Allinger (Wall)** on Wednesday, May 2, 2001 - 03:03 pm:
Edit

I've seen the "]" Usage thread of 19dec2000, however I need some way to define a table mixed with xt and other parameter...
e.g.

CREATE &table
]
word1 1000
word2 2000
....
[

with the select... construct I understand, that I can only define tables of xt's, but no numbers etc.

bye from germany
Wolfgang

By **Chapman Flack** on Wednesday, May 2, 2001 - 03:58 pm: Edit

Hi,

The trouble is if you have xt's stored in some table in dataspace, they will be overlooked during relocation into a standalone app, and they will be bogus when the app tries to use them.

What you -could- do is store all your xt's in a select table, and your mixed table can have the other parameters and indices into the select table.

-Chap

By **Wolfgang Allinger (Wall)** on Wednesday, May 2, 2001 - 04:19 pm:
Edit

THX, is there any documentation of the different memory areas of quartus, as where are the body head etc of a :-def, where is a code-def, where are dictionaries etc.

Are there are some pictures availible?

bye from germany
Wolfgang

I don't know if there's a lot of documentation besides what you see in the QF manuals, but here's what I've been able to figure out.

You have a data-space, which is allocated from the PalmOS dynamic heap (an area that is normally readable and writable). The dataspace register points to the beginning of this space. Dataspace addresses used with @ and ! are relative to that pointer. During compilation, ALLOT can make the data space grow. When it grows, it can also move. This is not a problem as long as dataspace addresses are all kept relative to the DS register.

You have a stack-space, also allocated in read-write memory. It is discontiguous with the data space.

You have a code-space, allocated in a PalmOS storage heap. The codespace register points about in the middle of this space (so you have nearly 64kB of codespace addressability using negative and positive offsets from CS). Special operators cs@ cs! cs, cshere csunused access this space relative to the CS register. Writing is normally inhibited to storage heap memory. Operators like cs! contain magic allowing them to write.

An xt is simply the CS-relative address of the first executable instruction of a word in codespace. If the word's dictionary header and name have not been stripped, they are also in code space, immediately preceding the word's first instruction. If the word's name is n characters, the header occupies n + 3 + 0|1 bytes, where the 0|1 is determined by alignment. Given an xt, xt>name will give you the address and length of the name in codespace (if the word HAS a header) and you can fetch the characters with cs@

I wish headers were in a separate space. It would leave more room in codespace. They are stripped during production of a standalone app anyway, but the practical limit on applications you can build is reached when your codespace fills up at compile time.

Using a 32-bit absolute address and words like @a and !a you can refer to memory anywhere in the device, whether it belongs to you or not, though not all such references are guaranteed to work. You can get the absolute form of an address in dataspace with >abs but that address will become invalid if the data space moves. You can sometimes get a dataspace address from an absolute address with >rel but this is only sensible if the absolute address really refers to the dataspace. You may by luck use >rel on an absolute address to some other memory area within 32k of the DS

register, but your resulting value will be invalid if the dataspace moves.

You can get an absolute address from a codespace address with xt>abs and you can use @a to read from such addresses, but attempting to write them with !a will generate a bus error because a storage heap is normally write-inhibited. cs! with a relative address will write into the codespace.

A : def and a CODE def are stored in just the same way--executable native code in the codespace.

I've already covered where the names of words are stored, but how name lookups are done is more complicated. The documentation says a hash table is maintained to speed lookups, but no details are given.

Did that help?

-Chap

This would be a good thing to put into the wiki. Neal's commentary would be helpful as well.

-- Kris

Hi Chap, THX for your exploration
-- Wolfgang

I don't generally expound on the internals precisely because they are such -- internals, and subject to change. Application development never requires knowledge of, for instance, the hashing mechanism used to speed dictionary searches.

Neal

I wasn't complaining … I just mentioned that I don't know much about the dictionary searching because he asked for details.

On the other hand, some of the stuff I did expound on, like the discontiguous data spaces, possibility of things moving and obsoleting references, etc., can be reasonable things for application developers to care about, IMO.

-Chap

Quite right. Always wise to keep track of your data. 🙂

Neal

Chap's suggestion works well:

```
create mytable
\ Each entry: xtindex , value ,
0 , 1000 ,
1 , 2000 ,

: myxts ( n -- xt )
  select
    xt word1 \ this is xt 0
    xt word2 \ this is xt 1
  end-select ;

: getpair ( n -- xt value )
  2 cells *  mytable +  2@
  myxts swap ;
```

Neal

Amending that -- I have no idea why I did the final 'swap' in 'getpair'. It would obviously be more useful to have the stack in (-- value xt) order.

Neal

Another approach, that you couldn't use until today 🙂, is the :relo flavor of MultipleDataSpaces (see on the wiki)--addresses also the problem of creating a vector of default xts that can also be modified at run time without interfering with rom/flash/ability.

-Chap

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[DOCIF] [DOCELSE] [DOCTHEN]

By **Jim Hendricks (Jimh)** on Tuesday, May 1, 2001 - 06:05 pm: Edit

OK, I've finally got to the point where I have made the necessary changes to the docinc module so that I can create a DOCREFILL word to satisfy the needs for conditional compile, but I hit another road block. In the refill, how do I change the address & size of the input buffer? With the docinc module, the input buffer is a string provided through evaluate. With my DOC REFILL, the address doesn't change, but the length does. I guess I will also have to reset >IN to zero, but that looks easy to do. Let me know what you think.

Jim

By **Neal Bridges (Nbridges)** on Tuesday, May 1, 2001 - 06:07 pm: Edit

I'd need to see what you've done to guide you. EVALUATE will care of all the pointers, resetting >IN, etc. You don't have to do anything.

Neal

By **Jim Hendricks (Jimh)** on Tuesday, May 1, 2001 - 08:44 pm: Edit

yes, evaluate will, but I have used your conditional compile words with different names, the only word I am supplying is the refill for doc. Since the conditional compile words are parsing the input itself, I can't call evaluate from refill, but since the parsing is using word, the pointers must be reset for word to work.

By **Neal Bridges (Nbridges)** on Tuesday, May 1, 2001 - 09:19 pm: Edit

I think I understand. You'll have to parse out the individual words yourself; there's no easy way to plug a new input buffer into the interpreter as it presently stands. Write your own WORD equivalent; it's not complex.

Neal

By **Chapman Flack** on Tuesday, May 1, 2001 - 10:04 pm: Edit

May I chime in with a question? How much work do you think would be entailed in somehow handling memos, docs, and (I just mentioned ztxts in the wordsmith thread) as different domains accessible through the FILE wordset? And then get [if] and company to work on top of that?

It just seems crufty to have include, and docinclude, and [if], and [docif], and maybe one day ztxtinclude and [ztxtif], and if you ever copy your source from one form to another you have to go in and change the words it uses to include itself ....

I think if it were me and I had x hours to spend on something to do with including non-memo sources, that de-balkanization would be where I'd focus.

$0.02?

-Chap

To approach it from that angle is to simply move the effort to another -- potentially more complex -- layer.

Modifying [IF] and friends is not an enormous effort; it comes down to a new REFILL and a new WORD, which I believe can be encapsulated in a wordlist before compiling, so that the same sources for [IF]/[ELSE]/[THEN] can be used unchanged.

Neal

Well Neal, don't think it's as simple as a new REFILL and a new WORD. Been working on that front and conceptually ran into a problem. Here goes.

Under normal operation docinc process the doc db populating a buffer with a line of text which is then executed via evaluate. During evaluate, the [DOCIF] is encountered which then begins to parse the remaining part of the existing line, then subsequent lines until the matching [DOCTHEN] is encountered. At this point, the docinc module can have all the proper pointers set to know where to pick up execution, except that all this was started from within evaluate. Once I have parsed over all the stuff blocked off, the evaluate will resume, positionally from my line buffer (which now has the last line worked on rather than the line the [DOCIF] was encountered in) from the character position immediately after the [DOCIF] from the origional line. This is because the normal [IF]… words use WORD and REFILL which properly update all the internal pointers that evaluate will need to know the proper place to pick up from since it is no longer the same place as where it left off.

Why can't the internals to the parser be exposed so that parsing other sources (like DOC) can be processed identical to the built in memo? Seems to me all that needs to be exposed is the ability to change the address to the current line, the size of the current line, and use >IN to change the position within the current line. Would probably also need to vector REFILL so that it could be redirected based on the file that is currently being processed.

Neal, don't take this as complaining, just trying to figure out the best way to incorporate a feature that I miss since I started using DOC files rather than memo. Just another thought, could the input stuff be exposed through save & restore input? I beleive the spec indicates that the stack effects are implementation defined, which would mean that if these words were implemented, and the stack info were defined, then restore-input could be used to temp divert the input.

Jim

You're right, there are two cases -- one in which [IF] and [THEN] are on the same

line, and one in which they are on different lines. Hmm.

SAVE-INPUT and RESTORE-INPUT are there already, but I'm reticent to have an external module depend on the details of those calls. Let me think about what best to expose in the kernel.

Neal

By **Jim Hendricks (Jimh)** on Saturday, May 5, 2001 - 01:42 pm: Edit

Thanks, will keep my eyes open for your response, and will keep my mind engaged if I can think of a work around.

By **Jim Hendricks (Jimh)** on Sunday, May 6, 2001 - 07:46 am: Edit

I may have a work around for my specific problem if exposing the input buffer is too much of a problem.

I was thinking if on the initial parsing, I use WORD which if the [DOCIF] and [DOCTHEN] were on the same line would cause no problem. Once the line is fully parsed with WORD, then use my DOCREFILL which would set a flag to indicate I am no longer on the first line. This flag would then indicate to the conditional compile to use my parsing instead of WORD. Once the conditional compile completes, I keep track of where I was within the line I was last parsing. Control will go back to the EVALUATE which started the whole process, because WORD was used to exhaust the input buffer, EVALUATE will terminate without need to look at the now invalid input buffer. The process of the next line will be completed by the docinc module which contains the necessary information to know if my final line I processed was a complete line, or if there is more. If there is more, pass the address not of the beginning of the string that is my input buffer, but the address of where I left off, and an adjusted line length.

In theory this sounds as if it will work, I will have to experiment with it to see if it does. I know it is a cludge, but if it simplifies things on Quartus's end, then I will pursue this.

By **Chapman Flack** on Tuesday, May 8, 2001 - 07:04 pm: Edit

I cast my support behind Jim's Saturday 12:44 message--adding support for a new flavor of input source seems to involve a degree of complexity and duplication of effort that wouldn't be expected by someone who has done the same sorts of integration tasks in other environments.

Is the crux of the problem just that "there's no easy way to plug a new input buffer into the
interpreter as it presently stands?" That ability appears to be required if there is to be any hope of implementing either of the standard flavors of REFILL besides the basic one from CORE EXT. 7.6.2.2125 REFILL and 11.6.2.2125 REFILL both have execution semantics that involve making some new block of memory the input buffer. And it seems to me that once a reasonably straightforward interface is provided for doing that, and supporting source-specific flavors of SAVE-INPUT and RESTORE-INPUT, the rest becomes pretty easy.

Btw, the existing save-input and restore-input do not seem to be the ANS words, but two other words that happen to be spelled the same. The ANS words have a count of stack cells as the top stack item; the Quartus versions seem to have a magic cookie there. A minor point, but it suggests that any time that might have to be spent on save- and restore-input could also be partially defended on ANS grounds.

ANS does not require that save- & restore- be usable for switching input sources, only that they allow repositioning _within_ an input source. (ANS does not say that they _can't_ also be a mechanism for switching sources, but a Standard Program can't rely on it.) The implication, espcially in the appendix, is pretty clear that the stack values for save- & restore- can have different interpretations _per source_; that is, the kernel might process a save-input by putting any of its own, source-independent state on the stack and then vectoring to a source-specific word that adds the source-specific state. It seems to me that the job of implementing input source Y ought to reduce to implementing Y-REFILL, Y-SAVE, and Y-RESTORE and getting these words into kernel vectors for those functions.

Again, I'm not _complaining_ and I understand how ugly a prospect it might be to revise EVALUATE if it was originally designed without attention to that issue. It just seems to me that the effort would be very well spent. I also have a couple of input sources I'd like to implement, and I can't shake the feeling that I would wind up beating my head on the same walls Jim is, coming up with equally incomprehensible workarounds, and that in the end we will both have put significant effort into implementing something in a way that doesn't advance the long-term interest of QF.

Nothing I've just said should be construed as impatience or as an expectation that you drop any other, no doubt valuable, enhancement you may be working on. Because I don't know what the other ToDo's are, I can't venture an opinion on how important the input interface is relative to any of the others. I can only say it seems to merit attention.

Hmm, that was probably more (or less) than $0.02.

-Chap

That's at least 2000 cents, Chap. 🙂 Anyway, I think I can serve existing needs by adding TIB and #TIB to the kernel.

Neal

BTW-- here's how to make save-input and restore-input compliant, though I daresay nobody's every used them before:

```
: save-input
  depth >r
  save-input depth r> - ;

: restore-input
```

```
drop restore-input ;
```

Neal

Hmmm. I understand that #TIB and SOURCE NIP differ by one level of indirection (SOURCE NIP being apparently equivalent to #TIB @) and that therefore adding #TIB might give user code the ability to revise the size of the buffer (assuming everything in the kernel coded so such a thing would have a predictable and useful effect).

But wouldn't TIB be equivalent to SOURCE DROP ? I think I'm missing something.

Btw, I'm not using save-input and restore-input for anything myself at the moment, just happened to notice the non-ANS behavior the other day and mentioned it as a possible further reason to put "revisit input architecture" on the to do list somewhere. I'm sure there's a marketing advantage to having "ISO/ANSI Standard Forth" on the web page, so I doubt you could mean as anything more than a temporary measure to say, well, here's how you can redefine certain words to have the ANS behavior. ;)

-Chap

Chap -- I'll provide a way to change the input-buffer address.

In truth I never realized the save-input and restore-input were non-Standard, however slightly -- thanks for that.

Neal

Neal,

I've been thinking about the idea of just adding &TIB and #TIB and it seems to me you could really do better with very little work--that is to say, for all I knew the interpreter might be so messy that changing TIB #TIB would case all sorts of problems, but you seem to be confident that exposing them would work, and The Right Thing would happen. Now if that's the case, then nothing in this attached proposal should cause a problem either--because at bottom it is only a more controlled way of modifying the same things. Don't be fooled by the length of this message--in lines of CODE, I don't think it would take more than 20 or 30, many of which you ought to be able to paste from this message and have them basically work. I say this with very little idea what your code looks like (and believe me, I have an excellent imagination for how hard mods can sometimes be), but what you have already said leads me to believe this mod would be straightforward.

I suggest it because I'm sure if you spend any time now accomodating requests to expose some of the input machinery, you aren't gonna want to go back and revisit it right away, so for myself (I'm not sure how Jim feels) I'd rather wait the extra 45 minutes it might take you to do a less ad hoc solution (like, say for example, the one here). ☺

I've been looking back over the forum and see that Jim and I are not the first to feel the pain of the existing input architecture, but that Kris Johnson and John Newell have also felt the impact of their heads on the same wall. I think that really quite simple changes on your part could change that wall into a thoroughfare. I hope you will seriously consider this proposal.

Benefits:

a. Avoid further cluttering the namespace by re-introducing obsolete words like TIB and #TIB. Expose fewer kernel globals by name.

b. Do common processing in one place, and reduce duplication of code and effort to accomodate any new flavor of input source. A developer must write only four simple functions specific to a new source flavor (at most--some might be usable for multiple flavors). Whereupon INCLUDE-FILE Just Works, [IF]/[THEN] Just Works, etc.

c. Provide a solid base on which any competent developer could erect the whole FILE ACCESS word set pretty much without pestering you for anything.

Elements:

1. Provide a way to alter the value that SOURCE-ID fetches and returns. I think the canonical way to do that would be to provide the word INCLUDE-FILE which takes a new value for SOURCE-ID off the stack, does SAVE-INPUT and saves SOURCE-ID, puts the new value in SOURCE-ID, does a REFILL-INTERPRET loop until no more, calls a close xt on this SOURCE-ID value, restores the old one, does RESTORE-INPUT, and returns.

You could provide some other, nonstandard word that just sets SOURCE-ID, but if you go ahead and provide INCLUDE-FILE (which doesn't sound very long), a) you don't have to expose the interpreter directly, and b) developers don't have to reimplement it for each flavor of input.

We'll add to the possible values of SOURCE-ID in a way that is not inconsistent with dpANS 11. So now SOURCE-ID can return
-1 or
0 or
a-addr
If it returns an a-addr, call it f, the kernel may count on being able to fetch a single cell at that address to obtain another a-addr, call it v. The kernel may also count on being able to fetch valid xts from v, v+2, v+4, and v+6. The kernel does not care what lies at or beyond f+2 or at or beyond v+8 (though a particular input source

implementation may).

Less legalistically, the value f returned by SOURCE-ID would have to be called a fileid (to be not inconsistent with ANS 11) and it is the address of a block of per-source information, about which the kernel cares not at all except for the first word, which is the address v of another block, which you could call per-flavor-of-source information. The kernel cares nothing for what is in this block except for the first 4 cells: they contain xts. (Relocation is not an issue--no standalone app will be interpreting Forth text, and even if it could, anybody implementing a new input source flavor will have to provide an open function--which you don't need to care about--and that function could easily set its vectors from ['].)

The first xt provides the underlying REFILL function for this flavor of input source. Its stack diagram is different from the user-visible REFILL: (fid -- cadr u -1 | 0) It will be called by the kernel REFILL with the current SOURCE-ID value f on the stack and return a buffer address and size (which may be the same as before the call, or different) if successful, and a success flag.

The second xt is an internal SAVE-INPUT function with the stack diagram: (fid -- x1 .. xn n)

The third xt is an internal RESTORE-INPUT function with stack diagram (x1 .. xn n -- cadr u 0 | -1)

The fourth xt is an internal close/cleanup word: (fid -- Err)
(The kernel would not have to care about this if you just left closing up to the application, but if you provide INCLUDE-FILE as the "right" way of getting a value into SOURCE-ID, then to get the semantics right INCLUDE-FILE must be able to call this word.)

2. REFILL is modified as follows:

```
   SOURCE-ID CASE
-1 OF FALSE EXIT ENDOF
 0 OF whateveritdoesnow ENDOF
 ( default )
 DUP @ @ EXECUTE IF
  ibuflen ! ibufaddr ! TRUE
 ELSE FALSE THEN
   DUP ENDCASE
```

Note you don't have to expose your internal buflen and bufaddr; only flavor-refill words get to update them, and only by returning you the values.

3. SAVE-INPUT modified as follows:

```
   SOURCE-ID CASE
```

```
        0or-1 OF whateveritdoesnow ncells ENDOF
        ( default ) DROP whatever-common-kernel-state-there-is ncells >R
        SOURCE-ID DUP @ CELL+ @ EXECUTE R> +
    DUP ENDCASE
```

4. RESTORE-INPUT modified as follows:

```
    SOURCE-ID CASE
        0or-1 OF check-ncells whateveritdoesnow ENDOF
        (default) my-ncells -
        SOURCE-ID @ CELL+ CELL+ @ EXECUTE IF
          drop-my-ncells TRUE
        ELSE
          ibuflen ! ibufaddr ! whateveritdoesnow
        THEN
    DUP ENDCASE
```

This design follows dpANS in that SOURCE-ID isn't INCLUDED in the save
data, but must be saved IN ADDITION TO the saved data, and must be
replaced before RESTORE-INPUT; RESTORE-INPUT is allowed to bomb if the
SOURCE-ID isn't the same as when SAVE-INPUT was called. (cf A.6.2.2182 and
11.6.1.1717 "save … including the current value of SOURCE-ID …").
I don't think I would have designed it that way myself but, hey, I can
follow instructions.

Neal, if you can get this basic functionality in place, the developer
community should be able to build a great deal on it very easily, and
without a lot of additional demands on your time.

Use in good health …

-Chap

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Databases, Pointers and Handles

By **Barry Ekstrand (Ekstrandbb)** on Tuesday, May 1, 2001 - 01:33 pm:
Edit

For my next app, I will need to create a database that will save event values and analyze groups of them. I've started to study past conversations about creating databases here in the forum, along with the db-example.txt code. I see in the discussion and code examples references to pointers and handles.

I need to understand better usage of pointers and handles. Do I have it right that a pointer is an address of some type of data and that a handle is a pointer to a pointer (or… the address of a pointer??) I feel like I'm not fully understanding the reasons for having both pointers and handles and, as a result, how they are properly used. Can anyone point (ouch… no pun intended!) me to a source that can help me understand the whole pointer / handle topic better?

Thanks,

Barry Ekstrand

By **Chapman Flack** on Tuesday, May 1, 2001 - 01:46 pm: Edit

A handle is how you refer to a chunk or memory without having to know where it is.

A pointer actually points to the chunk, so when you have a pointer you _do_ know where the chunk is.

Whenever you are actively reading or writing data in a chunk, the chunk needs to be locked in one place so you can have a pointer to it.

But during those times when you need to keep the chunk around (to refer to it again later) but you aren't actively reading or writing it at the moment, you can ditch the pointer and just hang on to the handle.

Using handles helps the memory manager handle fragmentation. Suppose you come along and request a new 50-byte chunk. Maybe there aren't 50 free bytes together anywhere, but there's a 30 byte and a 20 byte free chunk with one of your allocated chunks in between. If you are using a pointer to refer to that chunk, it can't be moved, and you're out of luck. But if you just have a handle to it, the memory manager can shove it to one

side and satisfy your 50 byte allocation.

If you have a handle, you get a pointer to the chunk by passing the handle to MemHandleLock. You get back a pointer, and now the chunk can't be moved.

When you don't need it locked anymore, you can pass the _handle_ (_not_ the pointer) to MemHandleUnlock, and now the chunk is free to move again. Be sure to discard whatever pointer you had and don't use it any more, because after unlocking there's no guarantee the chunk is still at that address.

If you just have a pointer to the beginning of a chunk, you can get the chunk handle from the pointer with MemPtrRecoverHandle. I sort of wish that would work given a pointer anywhere into the chunk, but it won't. You have to pass a pointer to the very beginning of the chunk, or you'll panic the device.

Pointers to reference material: memory management chapter in the Palm OS Companion; if you're still curious, the memory manager white paper (there are links to it in the InvalidMemoryAddresswiki topic).

HTH,
-Chap

By **Barry Ekstrand (Ekstrandbb)** on Tuesday, May 1, 2001 - 02:21 pm:
Edit

Chap,

Thanks much for the explanation, it helps a lot. I'll track down the white paper as well, but you answered a key question for me.

Barry

By **Trevor Steele** on Wednesday, May 2, 2001 - 03:25 am: Edit

Chap

Lovely explanation. Many thanks.

Trevor

By **Chapman Flack** on Wednesday, May 2, 2001 - 11:56 am: Edit

Thank you! -Chap

By **David Shenk (Dshenk)** on Saturday, May 5, 2001 - 12:32 am: Edit

Where can I find db-example.txt code? I too am looking to get into a db app next and can't find it?

Can someone direct me? Thanks.

By **Barry Ekstrand (Ekstrandbb)** on Saturday, May 5, 2001 - 04:33 pm: Edit

In the files section of this forum. The link is:

http://www.quartus.net/files/PalmOS/Forth/Library/db-example.txt

Barry

By **David Shenk (Dshenk)** on Sunday, May 6, 2001 - 01:34 am: Edit

Thanks, Barry ...

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Anyone ever use Wordsmith??

By **Chris Bucsko** on Monday, April 30, 2001 - 04:39 pm: Edit

I'm thinking of getting a Doc editor for writing my Forth programs in. I know Erwin recommends Smartdoc, but I was wondering if anyone has ever tried Wordsmith. I've been looking at their manual, and it keeps talking about Wordsmith Docs, but not the standard Palm Doc format, is there a difference? Since it also has an MS Word converter, Wordsmith could come in handy for other things, as well. Is there a test I could try to see if Wordsmith docs are compatible with QF?

By **Gary Wiese** on Monday, April 30, 2001 - 06:46 pm: Edit

I have, but I cannot indose it now. The version I had wouldn't let me copy and paste from one memo to another and for the money it cost, I think it should. However, it does have both doc and memo modes, but the documents load very slow. Where as, isilo documents load very fast and you can convert most text documents to isilo formatt. I have all my Quartus document files in isilo formatt.

By **Chapman Flack** on Monday, April 30, 2001 - 07:53 pm: Edit

Hmm. I keep hearing about iSilo. Is the format specification open?

-Chap

By **Kris Johnson (Kdj)** on Monday, April 30, 2001 - 08:48 pm: Edit

I'm not sure if the format specification is published anywhere, but free converters exist for several operating systems.

See http://www.isilo.com/download.htm

Note that iSilo does not provide editing capabilities. You have to have an HTML document, and the converter will create a PDB for installation on the handheld.

For for online docs, especially those created from existing web sites, it's a lot better than Doc format. (BTW, iSilo can read and display Doc files.)

-- Kris

By **Barry Ekstrand (Ekstrandbb)** on Tuesday, May 1, 2001 - 08:53 am:
Edit

I thought I'd chime in with my 2 cents worth. I looked at Wordsmith briefly, but there wasn't enough there to make me want to move from peditPro (which can export to Palm Doc format). My normal programming routine is to use peditPro, export to Doc format when I am ready to compile, then jump to Quartus (peditPro has a link to call Quartus) and then compile the Doc-formatted file.

FWIW, peditPro fits my vision of what a robust onboard Palm programmer's editor should look like. It has a bazillion features - if I have any criticism it's that there are far more features than I'll ever use (but then again, I doubt that I'll ever be left wanting). The developer, Paul Nevai, provides good support via an e-groups pedit forum (although I've found the documentation to be a bit long winded and "preachy"), and he churns out updates like he never sleeps.

I also use isilo some as well, having found it to work pretty well for converting HTML documents.

Barry

By **Jim Hendricks (Jimh)** on Tuesday, May 1, 2001 - 11:55 am: Edit

I've been using QED for my source files. This allows me to put all my related code into 1 file rather than split when hit the memo size limit, as well as compress the source.

For static documents, I've been converting from DOC to isilo. Aside from better formatting than all the Doc readers/editors, it also has better compression than DOC.

I would love to find out if the isilo format was documented somewhere, then it would be possible to read isilo from Quartus.

Jim

By **Chris Bucsko** on Tuesday, May 1, 2001 - 02:26 pm: Edit

I think I will get the trial version of Wordsmith, and try it out, and see if it's compatible. I know that iSilo is a better compression, but I'm a big fan of the standard Palm Doc format. I have 4 different freeware Doc readers on my Palm, and all the PalmOS SDK, and Forth specs, Forth systraps, etc. in Doc format. It would be nice to be MS Word compatible, as well as QF compatible. I'll post my results when I find out.

I've been using WordSmith for several months and I love it. The initial version I tried had a few bugs, and would occasionally crash during cut and paste operations, but the current 1.12 release seems rock solid. I used WordSmith to write the forty or so source memos for my first Palm app.

If you have a Stowaway keyboard, WordSmith makes one very sweet little word processor and syncs nicely with Word. I've done a lot of writing with this arrangement, and it works well. One thing I need to have a closer look at is how to get that kind of keyboard interaction in my own apps... Palm menus and lists don't "automatically" work with the Stowaway, it seems that some additional event processing is required.

Anybody using GutenPalm? (As a reader--I don't think there's an on-board editor for it yet).
http://gutenpalm.sourceforge.net/

I've not tried it yet, but it looks like an attractive way to steer clear of closed formats like iSilo. And it is based on zlib compression, which is already _established_, _documented_, _open_, _respected_, and _efficient_!

There is also a palmzlib shared library:
http://palmzlib.sourceforge.net/
so making QF read ztxt files should require very little Forth coding, just interfacing to the lib.
And other neat things could be done given a really good on-board compression library.

But I think we ought to think of some way to integrate the different includes, so there isn't
include and docinclude and ztxtinclude and [if] and [docif] and [ztxtif] ... yecch ...

-Chap

Just a comment on file formats I came across this the other day - I've not tried it so I can't comment on if it works or not - but it converts lots of palm formats into other formats - very useful.

http://www.gnu-designs.com/palmliography

apologies if everyone has seen this before,

Richard

By **Neal Bridges (Nbridges)** on Sunday, May 6, 2001 - 08:43 pm: Edit

I'll be damned if I can get that site to convert anything to anything else. Anybody else having any luck?

Neal

By **Barry Ekstrand (Ekstrandbb)** on Monday, May 7, 2001 - 08:57 am: Edit

It didn't work for me. Looking at the HTML source, shouldn't you be able to see where a Java (or other) program is called to do the conversion? I'm not an expert in either HTML or Java, but I don't see anything that tells me something should occur when you hit the convert button. Am I lost??

Barry

By **Richard Chamberlain (Rac)** on Monday, May 7, 2001 - 11:11 am: Edit

No it doesn't seem to work - should have tried it before putting the link up, sorry! It does point to a perl script - the front end appears to be there but the actual conversion doesn't.

Shame would have been real nice.

By **Chris Bucsko** on Thursday, May 17, 2001 - 04:24 pm: Edit

I wanted to get back and 'tie up' this thread before I forget. I tried Wordsmith, and wound up buying it for a couple of reasons: it supports standard PalmDoc format (QF compatible using the docinc memo from the library) and it does a pretty good job with MS Word files. I need the latter for other non-programming tasks, and, it might come in handy if I ever need to enter a lot of code. The memo portion of Wordsmith isn't all that useful to me, except for doing a lot of cutting and pasting. But it lets you save your memos in Doc format, which is handy for archiving. All in all, a useful compromise between PalmDoc viewing and editing, memo pad editing and MS Word viewing and editing.

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Unloop Exit trouble

By **Jim Hendricks (Jimh)** on Monday, April 30, 2001 - 03:31 pm: Edit

been having problems with Fatals using unloop and exit, narrowed it down to that by controlling the loop condition off the top of stack so that my exit condition only needs to set a false to exit. Here's some test code that leads to the problem, although it doesn't actually cause the fatal.

```
variable incnt 0 incnt !
: innerloop ( -- )
begin incnt @ 3 < while
  ." innerloop" cr
  1 incnt +!
  incnt @ 1 > if
    unloop exit
  then
repeat ;

variable outcnt 0 outcnt !

: outloop ( -- )
begin outcnt @ 3 < while
  ." outerloop" cr
  innerloop
  1 outcnt +!
repeat ;
```

Execute outloop and you will get a single outerloop followed by 2 innerloops. Based on my interpretation, I should get 1 outerloop, 2 innerloops, 1 outerloop, 2 innerloops, 1 outerloop, 2 innerloops.

So, what's up, is my interpretation of how unloop exit incorrect, or is there a bug in unloop that is causing it to eliminate all loop control, and not just the loop control to the current word?

As I said, in my real code (much more complex than this example), the unlooping behaviour is actually leading to a fatal exception.

By **Neal Bridges (Nbridges)** on Monday, April 30, 2001 - 03:34 pm: Edit

Hi Jim. UNLOOP is only for use in DO..LOOP or DO..+LOOP constructs. Your code should work if you simply remove the UNLOOP -- it's not required for exiting a BEGIN/WHILE/REPEAT structure.

Neal

Ahh,

That fixed the test code I posted here, although I got a different result than expected because my test code is not resetting incnt in the outloop.

I will rework my real code to use the begin/while/repeat structure again so I can test it there.

Jim

I think UNLOOP is only used with the loop flavors that place a loop-sys on the return stack at run time--that would be the DO... flavor of loop, not the BEGIN sort. there I think you would only want to clean your control params off the data stack before exiting. Off the top of my head though.

-chap

Sorry--postings crossed in the mail again. -Chap

OK, just made the changes to the real code, and the fatals went away. Helps if you understand how a word should be used! Strange that I haven't hit this one before, but I guess I have never had to leave a BEGIN... loop before it's proper time.

Jim

Normally WHILE is the exit-point for a BEGIN/WHILE/REPEAT loop. There are crafty ways to add additional exit points; the simplest is to factor and use EXIT, as you've done.

Neal

By [Ron Doerfler](#) on Monday, April 30, 2001 - 05:11 pm:

>Strange that I haven't hit this one before

You have probably had to leave a loop before, but not exit out of the whole word. LEAVE will jump out of a loop itself, and it doesn't require the UNLOOP as it automatically discards the loop parameters.

Ron

By [Kris Johnson (Kdj)](#) on Monday, April 30, 2001 - 05:15 pm:

LEAVE only works for a DO...LOOP (or DO...+LOOP). I don't think there is a standard way to break out of a BEGIN...AGAIN, BEGIN...UNTIL, or BEGIN...WHILE...REPEAT loop (other than EXIT or the WHILE/UNTIL test condition, of course).

-- Kris

By [Kris Johnson (Kdj)](#) on Monday, April 30, 2001 - 06:02 pm:

Well, I stand corrected (I guess). Neal's MultipleExitPoints topic in the wiki shows how to do it:
http://sleepless-night.com/cgi-bin/twiki/view/Main/MultipleExitPoints

However, there is no simple equivalent to C's "break;" statement.

-- Kris

By [Neal Bridges (Nbridges)](#) on Monday, April 30, 2001 - 06:28 pm:

Hmm. Something along these lines, perhaps (untested):

```
needs core-ext

variable #breaks

: BEGIN  0 #breaks !  postpone begin ; immediate

: break  1 #breaks +!  postpone false  postpone while ; IMMEDIATE

: REPEAT
  postpone repeat
  #breaks @ 0 ?do  postpone then  loop ; immediate
```

Neal

Thinking about this -- I can't see the use of it. You'd never want 'break' by itself without a conditional of some sort; WHILE backed by THEN (as shown in the Wiki) fits the bill perfectly.

Neal

I agree. Something that automatically keeps track of the number of THENs required for multiple exit points might be useful. Something analogous to COND…THENS.

But factoring and use of EXIT seems like the best way to handle the multiple-exit-point problem.

-- Kris

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Combining text and integer for a control label

By **Norman "Buz" Stewart (Buz)** on Monday, April 30, 2001 - 12:19 am: Edit

I'm using the following snippet from this forum to place an integer as the label of a control, and it works perfectly.

```
: num>ctl ( u controlid -- )
  >r
  0 <# 0 hold #s #> drop >abs
  r> SetLabel ;
```

However, while I can get my control to say **350**, I'd really like it to say **with 350**. Is there an easy way to incorporate the additional text into this definition, or should I just create two zstrings, and concatenate them with StrCat before calling SetLabel (which doesn't sound all that easy to me -- all of this string stuff is a little hairy-looking from my particular newbie perspective)?

By **Neal Bridges (Nbridges)** on Monday, April 30, 2001 - 12:23 am: Edit

Here's a brute-force solution:

```
: num>ctl ( u controlid -- )
   >r
   0 <# 0 hold #s
   bl hold
   [char] h hold
   [char] t hold
   [char] i hold
   [char] w hold
   #> drop >abs
   r> SetLabel ;
```

Neal

By **Norman "Buz" Stewart (Buz)** on Monday, April 30, 2001 - 12:30 am: Edit

Thanks, Neal! That serves my current need perfectly!

By **Mark Browne (Markbrowne)** on Monday, April 30, 2001 - 05:30 am: Edit

Hi Neal,

Just a comment on the mailing list software, rather than this thread. The two examples above both looked exactly the same when they were emailed to me, both with bits missing. I imagine that the various brackets cause things to be skipped, which may be OK for normal text, but for program stuff it doesn't work well.

Any ideas?

Mark

By **Kris Johnson (Kdj)** on Monday, April 30, 2001 - 11:45 am: Edit

A good general method for assembling strings is to use the APPEND word from the toolkit module to put things into a buffer, like this:

```
needs toolkit
create buf 128 chars allot
: test-append
  buf 0
  s" First String " append
  s" Second String " append
  123. <# #s #> append
  \ ... etc. ...
  type
;
```

You can also use PAD or HERE instead of your own buffer, depending upon your needs. And don't forget to null-terminate the string and then use >ABS if you're using it with a Palm OS API.

-- Kris

By **Neal Bridges (Nbridges)** on Monday, April 30, 2001 - 12:05 pm: Edit

Kris -- that's one for the Wiki. 🙂

Mark -- yes, I noticed the mail lost a few salient characters in this case. I'll send a note to the Discus software developer, see if there's a fix.

Neal

By **Chapman Flack** on Monday, April 30, 2001 - 01:32 pm: Edit

And for various fancy formatting jobs, if you will be running on PalmOS 2.0 or later, don't forget StrPrintf.

```
needs zstrings
create buf 128 chars allot

: num>ctl ( u controlid -- )

  >R
  z" with %d" DROP >abs buf >abs StrPrintf
  0 128 WITHIN 0= ABORT" buffer stomped!"
  DROP buf >abs R> SetLabel
;
```

Notes:

1. I checked to make sure I hadn't overrun the buffer. This is an issue also with the APPEND and <# ... HOLD #> approaches (especially the latter because the #> buffer is relatively short). Of course you can often analyze what you're putting in and prove you won't overrun the buffer so you don't have to check, but at least don't forget to be careful about it.

2. StrPrintf only consumes its &formatStr. and &s. arguments; the rest remain on the stack; its diagram should perhaps be:

(i*x &formatStr. &s. -- i*x n)

just to make it clearer. The DROP following the buffer stomp test is to get rid of the number u which is still there.

3. To format a double-cell integer, use the l (long) form of the format code, e.g. %ld.

4. Of course they left out all the floating point conversions--the only stuff that's REALLY HARD to do

right on your own. Oh well.

-Chap

Here's a link to a table showing all the format specifiers that StrPrintF allows on the Palm:
http://www.cogs.susx.ac.uk/users/andyh/sde/palmos_dev_documentation/StringManager.html#926028

Neal

I'll experiment with all these methods. Thanks, gentlemen!

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Changing label

By **Eli** on Sunday, April 29, 2001 - 05:56 pm: Edit

does someone know a way to change the text on a label.

By **Neal Bridges (Nbridges)** on Sunday, April 29, 2001 - 06:42 pm: Edit

You can find a discussion of that here:
http://www.quartus.net/discus/messages/23/784.html?#POST4888

Neal

By **Eli** on Monday, April 30, 2001 - 02:43 am: Edit

Thank you.

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Newbie question on event handlers

By **Gary Wiese** on Friday, April 27, 2001 - 07:58 pm: Edit

I have been trying to define an input word to ask the user to input a number, how do I do this? I know that it must have an event handler to make it work, but I am having trouble under standing what an event handler does. Could someone explain this and maybe post something that will get me started?

Thanks
Gary

By **Neal Bridges (Nbridges)** on Friday, April 27, 2001 - 08:43 pm: Edit

Is this for a 'real' app, Gary? Something to be released generally? If so, you'll want to create a resource -- a form, with a field on it. Then you just wait for the user to fill in the field, and read the data right from the field itself.

If there's not something suitable on the Wiki, Carl Jacobsen's PhoneDecode app (available at PalmGear) is a good starting-point for study.

Neal

By **Gary Wiese** on Friday, April 27, 2001 - 09:00 pm: Edit

No, its just me trying to learn the different parts of the code. I understand how it works in a real app. I just was playing around with quartus and needed a way for the user to input a number so I can get some practice using loops, if thens and comparing, basicly just trying new things out. When I get something to work I build from there. I haven't had alot of time to learn this so when ever I get some time I try to put it to use.

Gary

By **Neal Bridges (Nbridges)** on Friday, April 27, 2001 - 09:35 pm: Edit

Easiest: use stringtofloat.txt:
http://quartus.net/files/PalmOS/Forth/Contrib/stringtofloat.txt

Grab the input string with ACCEPT, and then translate it to a float using the above library; convert the float to a double-cell integer (or single-cell integer) as required.

Let me know if you need the actual code.

Neal

Thanks I will give it a try. I'll let you know if I can't get it to work.

Gary

Bear in mind that a float has 24-bit precision, so if you need to input a 32-bit double cell integer, there will be values of the integer it's impossible to input that way.

-Chap

True. I imagine for Gary's purposes, a single-cell will suffice.

Neal

Neal, I got this far, but I am unable to figure out what is going wrong so far.

```
\ ex
needs string>float
create number 40 allot
fvariable number

: input

." Enter a number between 1 & 10 " dup string>float
number dup ! accept type ;
: compare 10 > 0 = if
        ." To high" cr
        then
        1 < 0 = if cr
        ." To low" cr
        else
        ." OK"
        then
```

;

: go input compare ;

include ex <cr> ok
go <cr> Enter a number between 1 & 10

It is locked up after that where I have reset to restore.

Gary

There are a number of problems there. You have CREATEd 'number', and then gone on to declare it as an FVARIABLE; you're using 'string>float' in advance of having a string to convert.

Here's a snippet that should lead you in the right direction:

```
needs string>float

10 constant inputlen
create inputbuf inputlen allot

: go
  MainForm
  ." Enter a number: "
  inputbuf dup inputlen accept cr
  string>float f>d drop
  ." You entered: " . ;
```

Neal

Thank Neal, but let me try to get some things straight.

10 constant inputlen \ does this give inputlen a 10 character limit?

create inputbuf inputlen allot \ allot creates space for inputbuf inputlen, why do I need inputbuf?

: go
MainForm \ is this always needed and what exactly does this do.
." Enter a number: "
inputbuf dup inputlen accept cr \what I type goes into inputbuf and inputlen and makes a copy. accept waits till I enter something correct?

string>float f>d drop \ string>float turns it into a float and f>d turns it into double cell # and then drops the copy?
." You entered: " . ;\ this prints out the message and what is left on the stack?

Gary

```
10 constant inputlen
```

This just defines 'inputlen' as a constant value of 10.

```
create inputbuf inputlen allot
```

This defines 'inputbuf' as an area of memory 10 characters long.

'MainForm' sets up a basic blank screen to work in. You don't need it as such when strictly working from the console, but you do in a stand-alone app, so it's good practice.

```
: go
   MainForm
   ." Enter a number: "
   inputbuf dup inputlen accept cr
   string>float f>d drop
   ." You entered: " . ;
```

If you'll look up 'ACCEPT' in the Standard, you'll see it takes an address, and a maximum length. In this case, we're passing it 'inputbuf' as the address, and 'inputlen' as the maximum length. We do a 'DUP' after 'inputbuf' for convenience, as we need the address again just after 'ACCEPT'.

'ACCEPT' waits for you to enter text. That text is stored at the address, in our case, 'inputbuf'.

After the 'ACCEPT', we're left with the address (due to the DUP), and the length of the entered string; the characters you typed are in the 'inputbuf' area of memory.

'string>float' converts this string to a value on the floating-point stack. 'F>D' converts that float value to a double-cell value -- two cells on the data stack. We only want the lower one, so we do a 'DROP' to abandon the higher one.

Neal

Thanks Neal, thats a great help. I have it working and I am trying to compare 2 numbers and print the correct answer, but I can't find where I am going wrong. Here is what I have now.

```
\ inpt

needs string>float

10 constant inputlen
create inputbuf inputlen allot

: input ." Enter a number between 5 & 10: "
    inputbuf dup inputlen accept
    cr string>float f>d drop ;


: compare dup
    10 > -1 = if ." To high" then drop dup cr
    5 < -1 = if ." To low" then drop dup cr ;


: go MainForm begin input compare again ;
go

include inpt

Enter a number between 5 & 10: 13
To high
To low
Enter a number between 5 & 10: 4

To Low
Enter a number between 5 & 10: 7

To Low
```

I don't understand why its acting in this way.
In the console, when I enter 5 10 > I get 0 which I understand is false and 10 5 > I get -1 which I understand is true.

In the program any number less than 10 is to low?
Any number greater than 10 prints both messages?

Break it down in steps. I've taken out '-1 =' -- it's redundant.

```
: compare
    dup
    10 > if ." Too high" then
    \ so far, so good.  But next --
    drop dup
    \ you're throwing away the top value, and
    \ DUPing the one under it?  Not what you intend, I think.
    cr
    \ And now who knows what is on the stack?
    5 < if ." Too low" then drop dup cr ;
```

Try this:

```
: compare ( n -- )
  dup 10 > if ." Too high" then
  5 < if ." Too low" then
  cr ;
```

Neal

Part of your confusion might be 'THEN'. THEN ends the IF structure; only the stuff between IF and THEN is executed when the top of stack is true (non-zero).

Neal

Neal, I found where I went wrong.

```
    : compare dup
    10 > -1 = if ." To high" then dup cr
    5 < -1 = if ." To low" then dup cr ;
```

When I removed the **drop**s after the **then** it works ok. In the console I couldn't see what the **if** statement did so I assummed that it left the flag on the stack.

Now how do I make it compare two numbers. In C, I would write something like this

```
if ( 5 < and 10 > )
." Right in the middle"
then ;
```

You still don't need the '-1 ='. Completely redundant. IF checks for non-zero already.

Here's your in-the-middle, also showing the use of ELSE to avoid unnecessary comparisons:

```
: compare ( n -- )
  dup 10 > if ." Too high" else
    dup 5 < if ." Too low" else
      ." Right in the middle" drop
    then
  then ;
```

Neal

Thanks Neal, Iam getting there, I tried **else** but kept getting fatal errors. I think is was the **drop**s I had in.

Gary

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Forth newbie alert - How do I...

By **Jamie Cairns (Jamie)** on Friday, April 27, 2001 - 03:44 pm: Edit

(playing with Quartus off and on for a couple months now, wish I had more time....)

...How do I find out whether a file has records in it or not. Actually it would be preferable to be able to determine the number of actual records, and then the resulting code snippet might be useful for more than just determining whether a file had been used yet...
I have the code to open, or create the file (if not present), but now need to determine whether any records have been written to the file as yet - any suggestions ?
Thanks
Jamie

By **Dave Ruske** on Friday, April 27, 2001 - 03:47 pm: Edit

I think DmNumRecords is the function you're looking for...

By **Jamie Cairns (Jamie)** on Friday, April 27, 2001 - 10:44 pm: Edit

Thanks Dave (he says sheepishly, wishing he'd taken the time to look in the manual...)
Jamie

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Now I can play ... some things I learned:

By **Chapman Flack** on Thursday, April 26, 2001 - 03:04 pm: Edit

(Just so I'm not only posting unanswered questions and problems...)

1. At the console, ABORT has the semantics from the EXCEPTION word set: it is based on -1 THROW, and it can be caught. Standalone, it has the CORE semantics and cannot be caught. Substituting -1 THROW in the app has the desired effect. I haven't checeked ABORT".

2. There is a thread on the wiki http://www.sleepless-night.com/cgi-bin/twiki/view/Main/StandaloneVsQuartus about how ALLOT doesn't work standalone. It's easy to make it work though:

```
needs memory
: go  0 rel>Handle 184 2!  .... ;
```

where the 184 may change in other QF versions. Details in the wiki thread.

3. Figuring out (2) puts yet another nail in the coffin of ALLOCATE. ALLOCATE, when it even works, grabs J Random memory chunk and makes the address relative to a5. But any subsequent call to ALLOT can resize the dataspace, which may move it and change a5. Allocated chunks are not moved at the same time, so their relative addresses would then be bogus. (ALLOCATE) or Kris' heap module are safer ways to go.

-Chap

By **Neal Bridges (Nbridges)** on Thursday, April 26, 2001 - 03:10 pm: Edit

Thanks for the pointer about ABORT -- I've never known it to be used in production code, so it has never come up. I'll have a look at it. Your fix is a quick & easy one in the meantime.

Re ALLOT -- your solution may have negative ramifications. I can't sanction it at this point, and have to stay with the recommendation that you use ALLOT at compile-time, for static data, and ALLOCATE or (ALLOCATE) as required at run-time for dynamic data.

Neal

Works for me, though it might be educational to know what the negative ramifications might be (besides using the undocumented address--that is, what would the negative ramifications be if Quartus itself actually initialized the handle at app startup).

-Chap

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Now I can play ... Question #2: patching confuses MakePRC?

By **Chapman Flack** on Thursday, April 26, 2001 - 02:50 pm: Edit

So in making a standalone app that includes my inifini module, MakePRC spits out umpty-ump rows of dots followed by a fatal exception--the same behavior as in Question #1.

The key element seems to be the very last cs! in inifini.txt, the one that patches (bye) by storing the address of a word that will call do-fini.

If that cs! is omitted, leaving everything else in inifini, all the xtliterals and xtvalues and other fancy stuff, all is well--and the ini and fini vector stuff all works fine, except that do-fini won't be called automagically.

On the other hand, when the cs! is done, the behavior of MakePRC appears to be a pseudorandom function of the entire program. That is, if MakePRC barfs, changing or commenting out something in the program--anything--may make it not barf next time ... but with no apparent sense or pattern to what changes have that effect. MakePRC will do the same thing (barf or not-barf) repeatedly as long as no change is made to the program, but the effect of any single change is (to me) unpredictable.

In summary, two cases:

1. all of inifini but no cs! into (bye): MakePRC is reliable.

2. all of inifini including cs! into (bye): MakePRC shows pseudorandom dependence on structure of entire program.

Any ideas what could be going on? My assumption is that MakePRC copies words from the Workspace, so it should be copying the patched versions; that should not be a problem, the jumps all have the usual form and relocation should be nothing new.

One wild speculation: Because words are compiled after the words they depend on, all inter-word jmp's and jsr's probably wind up being to lower addresses. Only a patch could produce a word that jsr's to a higher address. Could there be something in MakePRC that depends on an assumption of referring only to lower addresses? If so, is it something inescapably

fundamental to the algorithm, or is it just that higher addresses didn't get tested before?

I've been playing with patches mostly so I can do concept proofs of interesting ideas without having to ask Neal to implement each one--but if the very act of patching a word is going to make MakePRC blow up, I might have to beg Neal to take a look at that one issue.

-Chap

And look at it closely is what I'll need to do, Chap. I'll have to find out just what you're changing, and just what the ramifications are.

I did warn you that directly patching the kernel would be a hairy bit of work. 🙂

Neal

My preference would be that Neal would spend very little of his time figuring out how to copy code patches into standalone apps. There are more important features to get into version 1.2.8/1.3/2.0/whatever.

In a standalone app, you have complete control over everything once execution gets to your startup word, so there's no need to have anything automagically happen. Just have your application-exit code do whatever it needs to do.

Maybe important parts of the kernel should have vectors that people can use to intercept things. So "patching" the kernel would mean storing your own xt into one of those vectors.

-- Kris

I agree, Kris -- sorting out how to accomodate direct kernel hacks isn't the first item on my list. It's interesting stuff, mind you.

Sorting out how to best manage vectors is indeed on my list; these two things may well intersect at some juncture.

Neal

I agree that to have vectors in the important parts of the kernel would be far preferable to patching. It's just difficult for Neal to predict what the important spots are until a useful purpose emerges to show why one is important. The ability to patch means new ideas can be developed and their utility demonstrated without having to talk Neal into adding another vector in advance and being dead in the water until he does so.

It sort of boils down to whether "to copy code patches into standalone apps" is something intrinsically new and difficult that Neal needs to figure out how to do, or something rather well defined so we only need to figure out why MakePRC stumbles over it. If the latter, then I think Neal and the community both benefit from addressing it, because the ability to patch as an interim measure reduces real-time dependence on Neal. Instead of "Neal, I can't develop this XYZ idea until you add ____ to the kernel," one can say "here's a working XYZ; if people find it useful, it can later be made more robust by adding ____ to the kernel as you have the time to do it."

Re: the more important features to get in: would it be helpful to maintain somewhere a list of what's on Neal's radar and planned and requested for future versions? Of course most of the content would have to come from Neal.

-Chap

Getting down to brass tacks: any idea exactly how this memo sends MakePRC into space?

```
\ unfuni

: foo 0 THROW ;

\ patch: (bye) begins with FplFree
\ (2 words 4e4f a0e0)-verify that's
\ what's there, then replace with a
\ jsr to this noname (2 words,
\ 4eaa <xt>). The noname just calls
\ foo, then does FplFree (the original
\ action overwritten by the patch).
:NONAME
        foo
        FplFree \ patched out of (bye)
;
```

```
' (bye)
DUP cs@ (hex) 4E4F = OVER
CELL+ cs@ (hex) A0E0 = AND
:NONAME
        IF
                (hex) 4EAA OVER cs!
                CELL+ cs!
        ELSE
                ABORT" can't patch (bye)"
        THEN
;
EXECUTE

: bar 0 THROW ;

' bar (hex) 63686170.  MakePRC chap
```

By **Neal Bridges (Nbridges)** on Thursday, April 26, 2001 - 08:29 pm:
Edit

Not what you expected, I'm sure -- but your code works fine for me. I don't know what your 'foo' does, mind you.

Neal

By **Kris Johnson (Kdj)** on Thursday, April 26, 2001 - 08:40 pm: Edit

The ability to patch means new ideas can be developed and their utility demonstrated without having to talk Neal into adding another vector in advance and being dead in the water until he does so.

I agree, but like I said, this should be low priority. The stuff you're doing is really cool, and I'm learning a lot about the internals of Quartus. But I don't think this is needed by too many Quartus developers.

Can you provide an example of a patch you'd like to put in to a standalone app that can't be worked around easily? It seems to me that the following strategies would let you do anything you want in a standalone app:

- Define your own versions of "standard" words before using them.

- Do whatever you need to do to shut down cleanly before allowing a switch to another application.

The only type of patch you can't achieve this way would be a patch to the Quartus startup code that runs before your startup word is called. And I don't think there's much in there that would need patching.

-- Kris

Neal,

If the code worked for you then the whole issue of whether patching is important or not was a red herring, and we have the simpler question of why QF 1.2.5r is flaking out on my Visor.

I just did another _cold_ reset, after which I reinstalled via HotSync _only_ the following:

Unsaved Preferences (for my HotSync ID)
startup.quartus (for my registration)
unfuni (for the test)
q4th125r.prc (a clean copy, from the .zip)
RsrcEdit.prc (just for looking around)

Visor Deluxe, 3.1H2 without the soft update, 3.1H3 with it (tried both ways).

And including unfuni gives me rows and rows of dots followed by a fatal exception.

What gives? What configuration were you using?
What should the checksum of q4th125r.prc be? Any other ideas?

(The foo word, to answer your unasked question, is just all that's left after paring down one of the words from inifini to the minimum that still makes MakePRC crash. For some reason if the THROW is removed, MakePRC doesn't crash. I was trying to find the minimum of my code that caused the problem--but it starts to seem that the problem isn't my code.)

Thanks,
-Chap

Give it a try with the 1.2.7 beta I sent you the other day, Chap. Let me know.

Neal

Have to change the patch test match from 4E4F A0E0 to 4E4F A1A1, and change the noname from

foo FplFree

to

foo FrmCloseAllForms

but then it does the same thing (dots and a fatal exception).

Thanks,
-Chap

I'm not experiencing those results, Chap. Is there strange -- anything besides the registration in your startup.quartus?

Neal

Nope.

Something did occur to me last night as a contributing factor, and removing it does make everything work:

I had noticed, and thought it odd, that both foo and bar had to contain THROW in order for the problem to appear. At the time that just struck me as bizarre, but of course the key is the handling of -257 THROW. I had been thinking that got done at some top-level CATCH, but it's actually built into THROW; that is, THROW contains a reference to (bye).

The bar word has to contain THROW, because its reference to (bye) is the only thing to pull (bye) into the app in the first place. Once pulled in, (bye) pulls in the :noname patch, which pulls in foo, which contains a THROW, which refers to … (bye). So there is a cycle, which is something not commonly created in the usual course of compiling Forth.

If I remove all THROWs from finalization code, and document that no finalizer can contain THROW or anything else that might reference (bye), then my problems go away (and everything I recently put on the wiki really does work after all)phew( ).

The one thing that really puzzles me is why it does work for you. Hmm. Also, it seems obvious that MakePRC has to contain code to avoid copying

any given word more than once, and depending on how that is done cycles would not be a problem. Perhaps it is as simple a difference as marking the word as copied when _starting_ to copy it instead of when _done_ copying it. But I don't really know how you're keeping track. And I still don't get why it does one thing for you and something else for me.

Bottom line: there's a workaround that appears to work and is not unreasonable (it should not be too
much trouble to write finalizers that avoid THROW) so I don't mind documenting it. The basic mechanism of patching works entirely as one would expect and there is no need for you to spend any time on "how to copy patches into apps". You might, as time permits, see about tweaking the seen-this-word-already logic in MakePRC so it does the right thing with cycles--it is by no means critical that you do that, as the workaround is ok, but if you did it could save folks unpleasant surprises if they happen to write finalizers that call some word that, unbeknownst to them, contain calls to something that calls something that calls throw.

And I'd be _really_ interested if you find out why it works one way for you and one for me, but that's just basic curiosity.

Thanks,
-Chap

By **Chapman Flack** on Friday, April 27, 2001 - 03:19 pm: Edit

In fact, the workaround is even more benign; I only needed to remove the THROWs from my own (bye)-patch code. The finalizer vector doesn't get populated until run time (it's only the init vector that has to survive MakePRC), so even if user finalization words do contain THROW, MakePRC will never see them and never complain.

So there isn't even that much reason for you to do anything to MakePRC, Neal, unless now that you know it's funny about cycles you just can't stop thinking about it. ;) Otherwise, looks like you're off the hook.

Of course I'm _still_ curious why it worked for you....

Thanks for the time you spent,
-Chap

By **Neal Bridges (Nbridges)** on Friday, April 27, 2001 - 03:23 pm: Edit

Glad to hear it, Chap. Things are never as bad as they seem. 🙂

I daresay it worked for me because I used your code as posted above -- my 'foo' is just an empty subroutine. From what you're saying, it sounds like

yours had THROW in it somewhere.

Neal

But .. but .. but .. but .. I just dragged my scrollbar up and looked at the posting again, and .. and .. and .. foo is defined right under the \ unfuni line as : foo 0 THROW ;

At least that' how it shows up in my browser....

Sheesh, now I'm really confused ... :-[

-Chap

Oops. My foo was THROW-less.

Neal

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Now I can play with MakePRC: Question #1: minimal app?

By **Chapman Flack** on Thursday, April 26, 2001 - 02:20 pm: Edit

What is the _minimal_ standalone app to verify MakePRC is working:

I tried ' EXIT (id) chap MakePRC chap (1.2.5R)

and MakePRC produced umpty-ump rows of dots and a fatal exception. (On a clean system--I did a cold reset and installed Quartus).

On the other hand,
needs music
' c# (id) chap MakePRC chap

works ok, producing an app that plays a c#.

' bye and ' (bye) also make working minimal apps (the first makes a keyclick sound, the second doesn't). But ' EXIT confuses MakePRC.

$64 question: Why? What's going on when MakePRC does that?

This question may or may not be related to the next topic, Now I can play ... Question #2.

-Chap

By **Neal Bridges (Nbridges)** on Thursday, April 26, 2001 - 02:24 pm: Edit

EXIT isn't a suitable target for MakePRC. It's not a target function; it's an IMMEDIATE word that takes action at compile-time.

A suitable minimal app:

: go MainForm key drop ;

Neal

By **Neal Bridges (Nbridges)** on Thursday, April 26, 2001 - 02:30 pm: Edit

Even more minimal:

: go ;

Follow the MakePRC with appropriate DelRsrc commands to delete the built-in forms. That's the minimal app -- does nothing whatsoever.

Neal

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POSE 3.10 trouble

By **Wolfgang Allinger (Wall)** on Thursday, April 26, 2001 - 04:56 am:
Edit

updating to POSE 3.10 brings illegal memory access messages… (forgot the right text).
Continue helps with ParensLite,
Quartus hangs initializing (no message),
some other programms are also blamed by POSE.
So I got back to 3.0a8 and everything is as before. However w/ 3.0a8 internal nethotsync via TCP/IP sometimes hangs for 30..60seconds or more. That happens since several month.

Anybody else with same trouble? Any comments?

bye from germany
Wolfgang

By **Neal Bridges (Nbridges)** on Thursday, April 26, 2001 - 02:34 pm:
Edit

Wolfgang, have you tried turning off some of the debug settings under POSE 3.10? What appears to be a hang can sometimes just be the new emulator working with <u>amazing</u> slowness, due to some overly-aggressive debug settings.

Neal

By **Wolfgang Allinger (Wall)** on Monday, April 30, 2001 - 03:10 am:
Edit

I didn't try turning off (which?)debug settings.
I got back to 3.0a8.
Is 3.10 worth to fight?

THX from germany
Wolfgang

By **Neal Bridges (Nbridges)** on Monday, April 30, 2001 - 02:27 pm: Edit

3.10 allows cut&paste from Windows through to the MemoPad; that's a handy feature.

Neal

By **Wolfgang Allinger (Wall)** on Wednesday, May 2, 2001 - 07:03 am:
Edit

enabling UIMgr Data Access Debug option hangs Quartus in POSE 3.10

All other options did no harm

However UIMgr is enabled as default with my POSE 3.10

bye from germany
Wolfgang

By **Neal Bridges (Nbridges)** on Wednesday, May 2, 2001 - 10:56 am:
Edit

It doesn't actually hang, Wolfgang. That debug option just makes it operate SLOOOOOOWLY.

Neal

By **Wolfgang Allinger (Wall)** on Wednesday, May 2, 2001 - 02:40 pm:
Edit

Grrrrrrrr. I hate those bloody features of POSE

Wolfgang

By **Neal Bridges (Nbridges)** on Wednesday, May 2, 2001 - 02:52 pm:
Edit

Fortunately they can be disabled.

Neal

By **Wolfgang Allinger (Wall)** on Thursday, May 3, 2001 - 10:20 am: Edit

Yes, I didn't mention that I disabled it now :-)

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One float bug fixed and one not, on the wiki

By **Chapman Flack** on Wednesday, April 25, 2001 - 03:02 pm: Edit

Hi,

There's a new version of floatlib on the wiki:
http://www.sleepless-night.com/cgi-bin/twiki/view/Main/FloatLib

(Sorry, Neal, I see you just put the _last_ one in Contrib!) Only two changes: 1) I had an incorrect prototype for the MthLfmod function, 2) it's now less lazy about really unlikely things that can go wrong in loading the library.

Another topic: I've discovered what appears to be a bug in PalmOS in the _fp_round function. I have written a Quartus memo that tests for the bug. I hope anyone with a few of minutes to spare will check out:
http://www.sleepless-night.com/cgi-bin/twiki/view/Main/_fp_roundBug

and run it in whatever versions of PalmOS are handy (that are not already listed as tested) and report back which versions have the bug. The information might help the PalmOS folks track down the problem and understand its extent.

The test memo is self-contained, no need to download anything else (as long as you have tester from the library).

Thanks,
-Chap

By **Neal Bridges (Nbridges)** on Wednesday, April 25, 2001 - 03:12 pm: Edit

I updated the floatlib.zip and the dfdot.txt in Contrib. Thanks, Chap!

Neal

By **Barry Ekstrand (Ekstrandbb)** on Wednesday, April 25, 2001 - 06:46 pm: Edit

Chap,

I ran your test for the rounding bug on my Vx with OS 3.3 and all tests failed. I wanted to post a followup to your report to Palm, but I must

confess I don't see a way to do a reply to that forum - what is the secret, just an e-mail??

Barry

By **Chapman Flack** on Wednesday, April 25, 2001 - 09:06 pm: Edit

Barry,

If you are registered (it's free) on palm-dev-forum then you can either use a newsreader for reading and posting, or email. You would send email to palm-dev-forum@news.palmos.com but it will be bounced if you are not registered.

If you use a newsreader to post a followup, it should be added to the proper thread without any effort on your part. If I use email to send a followup to a posting, I add

References: <messageID>

in the header of my email, where <messageID> is found in the header of the posting I am responding to. But in some mail programs it may not be easy to add lines into the header of your message…

-Chap

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How does Quartus scroll the screen?

By **Michael Park (Mpark)** on Tuesday, April 24, 2001 - 02:42 pm: Edit

I guess my real question is: Does the OS provide a bitblt? Or maybe my really real question is: Can apps write to screen memory?

By **Neal Bridges (Nbridges)** on Tuesday, April 24, 2001 - 02:48 pm: Edit

The Palm OS provides a function for scrolling a rectangle, and other operations for copying and writing rectangles of screen data. Writing directly to screen memory is not recommended by Palm, and the debug ROMs will get annoyed with you if you try.

What do you need to do that might require direct writes?

Neal

By **Michael Park (Mpark)** on Tuesday, April 24, 2001 - 05:48 pm: Edit

Thanks Neal.
I probably don't actually need direct writes. Just old habits resurfacing. I hope to do some games and I want to know what my options are. Hopefully the OS functions will suffice.

By **Kris Johnson (Kdj)** on Wednesday, April 25, 2001 - 12:14 am: Edit

Writing directly to screen memory is a no-no, but you can do bitblts and use offscreen memory buffers in safe ways. Check out the documentation for WinCopyRectangle, WinCreateOffscreenWindow, etc.

-- Kris

By **Trevor Foucher** on Wednesday, April 25, 2001 - 12:23 am: Edit

You might want to check out the Palm KB article, "Graphics, Animation, and Games," at:

http://oasis.palm.com/dev/kb/papers/1148.cfm

Trevor

By **Michael Park (Mpark)** on Wednesday, April 25, 2001 - 03:08 pm: Edit

Thanks for the reference! Got any more? In a couple of days I'll be traveling for two weeks with no computer other than my m100. I'm taking printouts of portions of the Palm OS Reference (like the Win* functions), the KB article above, a bunch of Quartus discussion threads, and anything else people might want to recommend. Hopefully I'll have enough information to get something started.

By **Trevor Foucher** on Wednesday, April 25, 2001 - 03:43 pm: Edit

There's also this slide show I found, entitled "Creating Games for the Palm OS."

http://oasis.palm.com/dev/kb/present/2469.cfm

Trevor

By **Kris Johnson (Kdj)** on Friday, April 27, 2001 - 05:22 pm: Edit

I converted the Palm OS docs to iSilo format so that I can carry them on my Visor. I don't know how much memory the m100 has, but I'd recommend doing this if you want a completely portable development environment.

-- Kris

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Text alignment with string2anyfield?

By **Martin Dicks** on Sunday, April 22, 2001 - 11:51 pm: Edit

I am using text2anyfield and I can only get right or left alignment in the field. In RsrcEdit there is an attribute, in the Field resource, for alignment that offers right, left, or center. When I select center I get left alignment, left and right work as expected. Can a string be center aligned in a field? Palm's online SDK refers to a checkbox for field alignment that only offers right or left.
I am showing a variable length string and there are no labels or visual anchors on either side of the field so I would like it to be centered on the screen if possible.

Thanks,
Martin

By **Neal Bridges (Nbridges)** on Sunday, April 22, 2001 - 11:53 pm: Edit

As I recall it, no. A field cannot be centered. A label can be.

You might, instead of using a field, just display the text centered on-screen using type.center from the textalign library.

Neal

By **John Newell** on Monday, April 23, 2001 - 12:28 pm: Edit

Martin,
If you are just displaying variable length text which is to be centered I find it easiest to define a Button control with no frame, usable but not enabled. Use CtlSetLable to put any length of text into the button. It is automatically centered.

(I don't use a Label control because it's not centered and the text cannot be larger than that used in the original definition of the label.)

John

By **Martin Dicks** on Monday, April 23, 2001 - 10:43 pm: Edit

Thanks Neal and John. I will try those ideas and see how it looks.

Martin

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Autoincrement Words

By **Kris Johnson (Kdj)** on Sunday, April 22, 2001 - 03:23 pm: Edit

In various Forth-related web pages, I've found references to words called "@+" and "!+" that are intended to take advantage of auto-increment features of the CPU.

I'd like to implement words like these for Quartus, using M68K instructions. However, I can't find any descriptions of the semantics of these words. And I can't find a web search engine that will give decent results for the literal strings "@+" or "!+".

If I'm going to define them, I'd like them to match the common usage.

So, here's my guess at the semantics:

```
: @+ ( a-addr -- a-addr+onecell x )
  dup cell+ swap @ ;

: c@+ ( c-addr -- c-addr+1 c )
  dup char+ swap c@ ;

: !+ ( a-addr x -- a-addr+onecell )
  over ! cell+ ;

: c!+ ( c-addr c -- c-addr+1 )
  over c! char+ ;
```

Is that how they are commonly defined? My thinking is that they could be used in definitions like this:

```
\ Fill array with given value
: fill-array ( x a-addr u -- )
  for over !+ next
  2drop ;

\ Print contents of array
: .array ( a-addr u -- )
  for @+ . next
  drop ;
```

Thanks,
-- Kris

By **Neal Bridges (Nbridges)** on Sunday, April 22, 2001 - 04:34 pm: Edit

Leo Wong's "Comus" page has those functions defined, along with others:
http://www.albany.net/~hello/comus.htm

Neal

By **Kris Johnson (Kdj)** on Sunday, April 22, 2001 - 04:53 pm: Edit

Thanks, Neal! Looks like I guessed correctly.

-- Kris

By **Kris Johnson (Kdj)** on Sunday, April 22, 2001 - 05:43 pm: Edit

A related question: Which CPU registers are safe for assembly code to use? The asm68K manual says that A2, A4, A5, A7, and D7 are used by Quartus Forth. Are the other registers fair game, or does PalmOS impose any rules on their usage?

-- Kris

By **Neal Bridges (Nbridges)** on Sunday, April 22, 2001 - 05:46 pm: Edit

D0, D1, D2, A0, and A1 are trashed by Palm OS systraps.

Neal

By **Kris Johnson (Kdj)** on Monday, April 23, 2001 - 12:18 am: Edit

OK, I assume it's okay for me to use those registers as long as I don't use any systraps, and I don't need to initialize them in any way or restore them for the benefit of Palm OS or Quartus.

And what is the status of A3, A6, and D3-D6? Am I guaranteed that nothing except my application will mess with them, or should I assume that they may be randomly trashed at any time?

-- Kris

By **Neal Bridges (Nbridges)** on Monday, April 23, 2001 - 12:20 am: Edit

They won't change while your function is running, at any rate. Don't expect them to be the same between invocations of your function, though.

Neal

Since you've already defined these, would you really save much time/memory by coding in assembly? I've already copied these to an 'Arraytools' memo in my memo pad, so they're ready to go when I need them. (much obliged!) It's how I get a lot of code. A related question I have is about a word I defined which I find very useful for counters, etc,:

```
: sum@ ( n  c-addr -- val+n  )
   dup rot swap +! @ ;
```

Did I re-invent the wheel here?

I think I could shave a little bit of size/time off of those words by recoding them in assembly, but I've decided it's not going to be worth the effort until I actually need them for something.

If you have really huge arrays, then the savings might be worthwhile. But I agree that it's perfectly acceptable to use them as they are.

-- Kris

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Debugging update!

By **Tim** on Friday, April 20, 2001 - 09:52 am: Edit

Hi all,

Just wanted to let you know that Chapman was kind enough to send me an email of his Quithooks program which he has now posted to the Wiki. Although he states he has only tested on QF 1.2.1u I can attest to fact that it also runs on QF 1.2.5r on both POSE 3.08 with a Visor rom v.3.1h2 and on my Visor itself. This little "ditty" as he calls it was exactly what I was looking for to help me climb this very steep learning curve.

I recommend it to all Newbies.

Chapman - I'm sending you a screen shot as proof, Thanks again.

Tim

By **Chapman Flack** on Friday, April 20, 2001 - 02:36 pm: Edit

Thanks! I'm glad to hear it. -Chap

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Inversion and Rectangle Example

By **buz** on Thursday, April 19, 2001 - 03:22 pm: Edit

This is just a "teeny app" that I thought might be helpful to other newbies. If it should be somewhere else, please let me know. I'll probably put it out on the Wiki, too, maybe in an area designed just for teeny apps.

It took me a while to figure out how to detect a penDownEvent inside a rectangle, and I also wanted the pen tap to invert the rectangle. This code may be overly simplistic and lacking some desired robustness, but it seems to be functional. I assure you that any good code below was gleaned from other discussions in this forum, or from source code provided with applications not my own. All glaring mistakes or omissions are mine.

Please criticize this code, expand on it, point out any ways that I might be misinforming or misleading my fellow newbies...

```
\ inversion and rectangle example

\ tap inside a rectangle,
\ causing it to invert

needs graphics
needs events

\ notice that the "create"
\ word for a rectangle should be
\ followed by the name of the
\ rectangle, then x , y , width , height ,

create a1rect 35 , 104 , 21 , 41 ,

\ was the pen tap inside the rectangle?
: a1rect? ( -- 1 | 0 )
  a1rect >abs coords@ RctPtInRectangle 255 and ;

\ tapping on the rectangle causes it to invert.
\ this is where the inversion takes place...
: invert-rect ( diam rect -- )
  >abs WinInvertRectangle ;

: go ( -- )
  MainForm
  \ the following numbers for drawing a
  \ rounded frame are listed in reverse
  \ when compared to the "create" above.
  \ (hex) 0401 is the rounded-rectangle type
  41 21 104 35 (hex) 0401 frame  \ h w y x type
  begin
  ekey
    dup penDownEvent = if
      a1rect? 1 = if
        5 a1rect invert-rect
```

```
      then
    then drop
  again ;
```

Very neat and clean, Buz.

Neal

There's a code snippet in the wiki that is similar to this. But it makes a button flash rather than checking whether a region is tapped.

http://64.21.136.85/cgi-bin/twiki/view/Main/MakingAButtonFlash

You might want to add your snippet alongside it.

-- Kris

Couple of things:
1. RctPtInRectangle is documented as returning a Boolean, so is "255 and" really necessary (in a1rect?)? Maybe "0= 0=" would be better -- a1rect? would then return a Forth true or false.
2. Instead of "a1rect? 1 = if", couldn't you just say "a1rect? if"?

--fellow newbie

Thanks, guys.

Michael,

1. Would "0= 0=" be better? I don't know. I was guided by the discussion entitled "RctPtInRectangle," in which Neal said,

```
"...different versions of the ROM return 'dirty' Boolean values. To be safe, do

  255 and

to clean them up."
```


2. I guess that does look better! Thanks!

Kris, I like that button-flashing snippet! I was trying to pick it out of your JacksOrBetter code, but there's so much code! I hope you don't mind if the dice in my game flash just like the cards in yours! I can always do the "Portions Copyright Kris…" thing.

By **Kris Johnson (Kdj)** on Thursday, April 19, 2001 - 09:36 pm: Edit

Feel free to snag whatever you want from JacksOrBetter. It started as a "simple tutorial", but grew out of control...

I have a simpler game that might work out better. If I can just get it to stop crashing, I'll write up a tutorial regarding it.

-- Kris

By **Ron Doerfler** on Thursday, April 19, 2001 - 11:43 pm: Edit

I have found that "255 =" is necessary in FrmGetControlGroupSelection, which returns a boolian but sets the high byte to random garbage, so 0= won't always work. Took me awhile to find those intermittent errors.

Ron

By **Ron Doerfler** on Thursday, April 19, 2001 - 11:44 pm: Edit

boolian?? Where did I get that from? Meant to say Boolean.

Ron

By **Neal Bridges (Nbridges)** on Friday, April 20, 2001 - 12:42 am: Edit

I think the Enterprise battled the Boolians at one point. 🙂

Neal

By **Ron Doerfler** on Friday, April 20, 2001 - 01:20 am: Edit

8^) And as a further demonstration of my lack of alertness, I meant to say "255 and" instead of "255 =". Good night.

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New Quartus App

By **Barry Ekstrand (Ekstrandbb)** on Thursday, April 19, 2001 - 08:42 am: Edit

I have just released EduCalc v1.00, a program that calculates the future cost of a college education and also the required monthly savings amount in order to afford it. EduCalc was written using double precision floats.

Barry Ekstrand

By **Neal Bridges (Nbridges)** on Thursday, April 19, 2001 - 01:06 pm: Edit

Congratulations on the new product, Barry!

Neal

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What's the difference? PRECISION/SET-PRECISION vs. PLACES/SET-PLACES

Quartus Handheld Software: Discussion Forum: **Quartus Forth (PalmOS version)**: What's the difference? PRECISION/SET-PRECISION vs. PLACES/SET-PLACES

By **Chapman Flack** on Thursday, April 19, 2001 - 12:58 am: _Edit_

The kernel seems to contain the words PRECISION and SET-PRECISION, which the standard provides for. The latest float-ext module in the library provides PLACES and SET-PLACES, which are not in the standard. Why both? When to use one and when the other?

-Chap

By **Neal Bridges (Nbridges)** on Thursday, April 19, 2001 - 01:25 pm: Edit

PLACES and SET-PLACES control the number of digits past the decimal point displayed by F.

PRECISION and SET-PRECISION control the number of significant digits displayed.

Neal

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E-mail:

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Lambda Functions Anyone

By **Shawn** on Wednesday, April 18, 2001 - 08:19 am: Edit

My current undertaking would be greatly factored if I could write a decent lambda function.

Simple example: sum an array. Assume the array is stored in 'array'. The first value in the array is the size of the array.

```
: lambda ( i*x c-addr xt -- j*x ) ... ;
```

Any xt would expect stack behavior (i*x n -- j*x). That is it would expect the array value on top of the stack, and it could modify anything beneath that on the stack. The following would sum the array:

```
0 array ['] + lambda
```

The zero would be the seed value on the stack, then the array address, followed by the xt of '+' and then execution of the lambda function.

Anyone out there done anything like this? If not I'll be working on it anyway and post an answer later.

Shawn Garbett

By **Kris Johnson (Kdj)** on Wednesday, April 18, 2001 - 09:33 am: Edit

I haven't tested this, but here's my off-of-the-top-of-my-head attempt:

```
: lambda ( i*x c-addr xt -- j*x )
  >r dup cell+ swap @  ( i*x &array[1] size ) ( R: xt )
  for
    dup @ swap  ( i*x array[i] array )
    r@ swap >r  ( i*x array[i] xt ) ( R: xt array )
    execute     ( j*x )
    r> cell+    ( j*x array+cell ) ( R: xt )
  next
  drop r> drop
;
```

-- Kris

Never mind--the above won't work because FOR..NEXT is going to trash my XT being held on the return stack.

Here's a correction:

```
: lambda ( i*x c-addr xt -- j*x )
  >r dup cell+ swap @ r> swap ( i*x &array[1] xt size )
  for
    >r dup @ swap  ( i*x array[i] array ) ( R: xt )
    r@ swap >r     ( i*x array[i] xt ) ( R: xt array )
    execute        ( j*x )
    r> cell+ r>    ( j*x array+cell xt ) ( R: )
  next
  drop drop
;
```

-- Kris

Using DO..LOOP is better, I think:

```
\ Return upper limit and address of first element
\ of array, where number of elements is in the
\ zeroth element of the array.
: narraybounds ( a-addr -- &lim &low )
  dup cell+ swap     ( &low c-addr )
  dup @ 1+ cells +   ( &low &lim )
  swap
;

: lambda ( i*x a-addr xt -- j*x )
  swap narraybounds ( i*x xt arraylim arraylow )
  do  ( i*x xt )
    i @ swap dup >r ( i*x array[i] xt ) ( R: xt )
    execute         ( j*x )             ( R: xt )
    r>              ( j*x xt )          ( R: )
  loop
  drop
;
```

Maybe I'm off by one in NARRAYBOUNDS--my head started to hurt when I wrote it.

Note that my solutions are assuming an array of cells. If you actually want a solution for an array of characters/bytes (as evidenced by the c-addr stack comment), you can eliminate my uses of CELLS and replace CELL+ with +.

-- Kris

By **Chapman Flack** on Wednesday, April 18, 2001 - 02:57 pm: <u>Edit</u>

I think it might be more usual to call this word MAP (as in, map the provided function onto all elements of this array). You could think of the xt you are _passing in_ as a lambda function ... sort of ... depending on how you model the bindings ... I've never tried yet to think about how Forth would be described in a lambda calculus, and it's a nice day today so I don't think I will. 🙂

-Chap

By **Kris Johnson (Kdj)** on Wednesday, April 18, 2001 - 04:57 pm: <u>Edit</u>

I'm not sure MAP is really right, as it also affects what's beneath on the stack in addition to the "parameter list". But it's probably better than LAMBDA.

This could be used effectively with :NONAME, for example:

```
0 array :noname + ; lambda
```

(If you replace "+" with something more complicated, then it makes more sense.)

But it is different than how you'd do lambda-ish things in a Lisp/Scheme-like language, due to the presence of the stack.

-- Kris

By **WilliamTanksley** on Wednesday, April 18, 2001 - 05:58 pm: <u>Edit</u>

Okay, I think I have an answer -- but first I have to point out what I think is a SERIOUS error in your question which caused me serious confusion. You're asking for 'lambda', but what you're describing is 'reduce'. That is, you want a function which applies another function to successive elements

of an array in order to reduce it to a single element.

Here's an implementation:

```
\ next-element should get the current element and
\ move the array pointer to the next one.
\ I use COUNT, usually OK for char arrays.
: next-element COUNT ;
\ APPLY executes a token, but doesn't destroy
\ the token.
: apply DUP >R execute R> ;
: reduce ( initial xt array count -- final )
0 do
next-element 2SWAP apply -ROT
loop ;
```

So:

CREATE myArray 30 C, 3 C, 20 C,
0 ' + myArray 3 reduce

or:

: sum (array count -- sum) 0 ['] + 2SWAP reduce ;

-Billy

By **Kris Johnson (Kdj)** on Wednesday, April 18, 2001 - 06:51 pm: Edit

I agree that calling it LAMBDA is confusing. In this case, it is a REDUCE, but I think the more general question is "How do I apply a function to all elements of an array, and to the stack". (A weird question, maybe.)

The + operator takes two arguments and produces one result, so this example will reduce to one element. But if the operator took one argument and produced one argument (say, NEGATE), then you'd have a MAP-like function that produced one stack element per input element. And if your operation produced more results than it consumed, then you'd have something else.

What makes it hard to classify this is that this operation takes an array and other stack elements as input, and produces stack elements as output. It would be more mathematically pure to go from stack to stack or array to array.

-- Kris

Okay, so maybe I'm abusing the term lambda, then again maybe not. I searched the web for a definition of a Lambda function (boy it wasn't easy with LISP code scattered everywhere). This is what I found:

```
(Lambda(x)(x+1)) is a function that takes in an evaluated
argument, binds it with x, and then computes the body of the
lambda form with the understanding that any occurrence of
parameter x in the body will refer to the value of x bound by
the lambda form.
```

Now think about the argument in terms of a stack, the Lambda(stack)(stack+1), in Forth terms, (Lambda (i*x) (j*x)). So the function [xt] is actually the stack lambda function (as are all [xt] if you think about it!), and the function in the original message I referred to as lambda, is applying the lambda to an array. You can use this lambda function to do a reduce, but it's more than that. If were to be a complete generic lambda function, instead of provided array values on the stack, it would have to have the array address itself.

```
: narraybounds ( c-addr -- c-addr2 c-addr1 )
    dup cell+ swap
    dup @ 1+ cells + swap ;


: apply-lambda ( i*x c-addr xt -- j*x )
    swap narraybounds
    do ( i*x xt )
        i swap dup >r
        execute
        r>

    1 cells +loop drop ;
```

Where xt is a function that with (i*x c-addr -- j*x) behavior.

(Thanks Kris 🙂 This is going really factor my code down!!!)

Using this you could apply a function to every cell in an array of cells (that has it's size as the first element). It could modify the cell or the stack as

desired. Very powerful little function.

Maybe a bit off-topic, but if you're into lambda stuff, check this out:

http://www.eleves.ens.fr:8080/home/madore/programs/unlambda/

You'll be begging for BASIC after looking at this!

-- Kris

Please don't call your function lambda, unless you want to confuse EVERYONE. That's NOT the lambda form!

lambda is a theoretical way to mathematically model function definition. A "lambda expression" consists of a set of variable names, together with an algebraic expression which uses those variable names. A lambda expression evaluates to a function, which can then be called.

The most powerful thing about Forth is that it doesn't need lambda expressions. This is because Forth is based on "concatenative theory" rather than "applicative theory"; in short, Forth doesn't need variables. Because it doesn't need variables, it doesn't need lambda (whose only purpose is to create variables.

For more information, look up "lambda expansion beta reduction" on Google. Actually, this won't give you MUCH information, but it should prove to you that lambda is a VERY well-defined and well-used term, and you're not using it right.

Your definition is indeed very useful. Its formal name is "each". Note that the parameter "i*x" is never used in your definition; I recommend getting rid of it (although the xt is quite free to use it, or indeed anything else -- in fact, the purpose of the xt might be to dump the entire array onto the stack).

Consider the following, assuming an appropriate ARRAY word and noting that I call your "apply-lambda" "each":

```
20 ARRAY x
: clear 0 SWAP ! ;
x ' clear each ( zero the array)
x ' ? each ( print the array)
: set OVER SWAP ! ;
```

```
55 x ' set each
x ' ? each ( print again)
: dump @ ;
x ' dump each .S ( the stack is now a mess)
: drops 0 DO DROP LOOP ;
x @ drops ( the stack is now clean)
```

Note that:

- none of these use lambdas.
- only one of these actually uses the "i*x" parameter.
- one of these (dump) really trashes the "i*x" parameter.

Here's your product function:

```
1 x ' * each
```

And the sum:

```
0 x ' + each
```

Minimum and maximum look similar.

It's a beautiful function, and you've implemented it well, MUCH better than I did and in a general way that allows it to be used as a reducer or a mapper. But please change the name.

Another name, if you don't like each, might be "over-array".

-Billy

By **Kris Johnson (Kdj)** on Thursday, April 19, 2001 - 10:54 pm: Edit

I think i*x and j*x do belong in the stack comment for APPLY-LAMBDA/EACH/whatever, for the same reason that they are in the stack comments for EXECUTE and EVALUATE: The xt to be executed by the word may do whatever it wants with the stack. That's very different from saying that the word has no effect on the stack.

-- Kris

By **William Tanksley** on Friday, April 20, 2001 - 07:57 pm: Edit

Oh, is THAT what those meant? Please comment that type of thing! I spent several minutes trying to figure out what on earth they could possibly mean.

Again, I like the functionality of your words -- that's cool how they use the full power of the stack. It's amazing how obsolete MAP and REDUCE seem :-).

-Billy

i*x and j*x are pretty standard notations for "0 or more elements". The DPANS document uses them for EXECUTE, EVALUATE and all the other words that cause arbitrary code to be executed.

-- Kris

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More uploads. Oh nooooo!

By **Chapman Flack** on Wednesday, April 18, 2001 - 03:14 am: Edit

Yes, I've been in /incoming again. Here are:

0418exc: the exc memo is best explained with an illustration:

needs exc ok

1 0 /
/? division by zero

13 @
@? address alignment

(hex) beefface. @a
@a? invalid memory address

Without exc, any of those three common situations will result in a fatal alert and reset. With exc, you can CATCH them by the standard Forth exception codes.

At the console, exc works as soon as you include the memo with needs. If you make a standalone app that wants to CATCH those exceptions, you also need to add

do-ini

where it will execute when the app starts up (typically early in go).

do-ini comes from the inifini memo (named 0418inifini in /incoming). I needed a way not so
much to automate the initialization of exc (though that's handy) but to be *sure* its effects are UNdone when the app exits. inifini handles both, and can be used by other library modules too.

inifini builds on xts (called 0418xts in /incoming), which provides the words xtliteral,
xtvalue, xtto allowing xt's to be stored at compile time and still be good after relocation. xtliteral is essentially ['] with the ' removed, in fact it's currently implemented as a jump to ['] ['] 4 +. A more elegant implementation of course would put the guts in xtliteral and define ['] in

terms of it.

Having xts and inifini made it easy to do yet another update of the floatlib (0418floatlib.zip).
I would feel bad if Neal had already moved over the last version I uploaded, but he hasn't, so I don't. 🙂 (Neal, just make sure to grab the 0418 version.) In this version the words MathLibInit and MathLibDone are gone. At the console you can use MathLib words right after needs mathlib. Again, the standalone app just needs to call do-ini. And the responsibility of closing the library before exit is handled by inifini.

The behavior is just the same on a device that does not have MathLib installed, except any word that really requires MathLib will -21 THROW (unsupported operation). Recovery requires only CATCH, not a paper clip.

Total code size for NewFloatMgr and MathLib is now about 11.8 kB, about 2.5 kB _smaller_ than the version currently downloadable in Contrib, and the figure includes bringing in inifini.

Last and sort of least is a bugfixed version of quithooks (0418quithooks). Somehow when I first wrote qh.s I was thinking the stack could be reached with ds-relative addresses. I was just lucky that day. It now uses absolute addresses.

Good night,
-Chap

By **Wolfgang Allinger** on Wednesday, April 18, 2001 - 03:53 am: Edit

Oh yeeeees! very interesting, but where is \incoming ?

bye from germany
Wolfgang

By **Neal Bridges (Nbridges)** on Wednesday, April 18, 2001 - 10:54 am: Edit

/incoming is the upload site where nothing becomes visible until I move it into the File Area. Sorry for the delays -- bit of a backlog here.

Neal

By **Kris Johnson (Kdj)** on Wednesday, April 18, 2001 - 11:29 am: Edit

To avoid the backlog, files can also be uploaded to the wiki. If they don't need to be officially blessed by Neal, please consider putting them there:

The current wiki URL is

http://64.21.136.85/wiki

"sleepless-night.com" will work again in a few days.

-- Kris

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A suggestion for PalmOS error returns

By **Chapman Flack** on Wednesday, April 18, 2001 - 01:17 am: Edit

Hi,

There was a recent thread about saving to memos, and I wasn't any help in finding the specific problem, but it did get me to look at newmemo.txt and I saw something that makes me want to make a general suggestion.

A lot of the words in this library file look something like : …
SomePalmOSCall drop … ;
What they're dropping is the completion code returned by PalmOS. I generally cringe when a library file does that, because it means apps that use the file will not know whether their operations were successful or not. I notice not all of the newmemo words drop errors--some return them. The ones that drop are probably the ones you'd assume "can't ever go wrong." But that's almost the worst kind! I looked in the PalmOS docs and those calls really do have documented, possible error returns. A calling program that doesn't know something went wrong will just continue along on faulty assumptions, often until once again somebody has to hunt for a paper clip.

All right, enough soapbox, here's the suggestion.

I notice Dmitry's DragonForth library files use the idiom : …
SomePalmOSCall THROW … ;

It's a great idea, and it turns out to be practical in QF also. PalmOS errNone is zero, which meshes perfectly with the defined behavior of Forth THROW. PalmOS native error codes are positive; PalmOS reserves 0x8000 and up for application-defined codes. The ANS Forth exception codes fit neatly into the application-defined space, reserving from -4095 to -1 (or F001 to FFFF if you prefer), leaving a Forth application to freely assign 28,673 codes from 8000 to F000 (or -32768 to -4096) for its own purposes.

If those ranges are adhered to, and Forth code--especially Forth _library_ code--is diligent about putting THROW after a PalmOS call if it isn't going to do any other error checking, then we will know when things we don't expect to happen, happen. It isn't any harder to say THROW than DROP, and takes up no more code space.

With zero extra coding effort, you can at least expect to see "Exception Report - Exception 514 raised. [Hmm]" instead of some mystery failure,

and you can look up PalmOS error 514 to see that you gave the DM an out of range index. With a couple more lines of code you can catch it and do something about it, or pass it to SysErrString and get a readable description. It's nice that dragonForth is able to use the official symbols (like dmErrIndexOutOfRange) which of course could be provided in a resource if anybody wanted to blow the space, but even without them I think it would still be a big improvement to use THROW instead of DROP for a PalmOS error.

Ideally, a library interface to the Data Manager would also check the result of any of the 17 dm calls that indicate errors in some other way than returning a code, and if they indicate an error, call dmGetLastErr and throw that. This is to my mind exactly the kind of work that ought to go into library files, so they make it as easy as possible for the apps that use them to do The Right Thing.

Anyway, there's my two cents US. Anyone want to chime in?

-Chap

By **Neal Bridges (Nbridges)** on Wednesday, April 18, 2001 - 01:22 am:
Edit

Hi Chap. The convention of using THROW is by no means a new one. If you look back over the various bits of Quartus Forth code, you'll see that THROW has always been the common convention for dealing with OS error code returns.

There may be the odd bit of code here and there that DROPs an error code instead. Some are lazy coding, but in some cases, when those routines fail, they don't return an error, but instead just generate a Fatal Exception, so if you get a return-code at all, it's success.

Neal

By **Chapman Flack** on Wednesday, April 18, 2001 - 02:34 am: Edit

Neal,

I didn't mean to suggest it was a brand new idea, it's just that I'd been looking most recently at newmemo.txt and the number of drops in it just made me want to emphasize the idea again.

My understanding about some of the OS calls that panic instead of returning a diagnostic is that some versions of the OS got released with some test/debug code in place (I think there was a palm-dev or knowledge base thread on "PalmOS beats me to the punch" or something)--that the

behavior is unintended and future versions are expected to return the documented code. In any case, might as well still use THROW. You can only do your best; if the OS insists on a panic instead of returning the code, the THROW will never throw anything, but if a diagnostic is ever returned, it won't be ignored.

-Chap

By **Neal Bridges (Nbridges)** on Wednesday, April 18, 2001 - 10:57 am:
Edit

I'm not sure what the true rationale was behind making the Palm OS do what it does; they may be caling it a mistake, now, but at different times I've had the Palm developers tell me -- face to face -- that the behaviour was intended. You decide. 🙂

At any rate, using THROW is a good idea, and I'm definitely a proponent of it.

Neal

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Palm OS Emulator 3.1

By **Neal Bridges (Nbridges)** on Tuesday, April 17, 2001 - 08:34 pm: Edit

The new version of the Palm OS Emulator is available for download; it has a few new and interesting features. Check it out -- available at http://www.palmos.com/dev/tech/tools/emulator.

Neal

By **Steve Bohrer (Skb)** on Wednesday, April 18, 2001 - 04:12 am: Edit

Does this new POSE help with Quartus apps under OS3.5 DEBUG ROMs? Or, do they still die on returning from alerts or poped-up forms? Swatch (and many others) serve as a test case for this behavior.

By **Neal Bridges (Nbridges)** on Wednesday, April 18, 2001 - 10:47 am: Edit

Not yet tested, Steve. Give it a try.

Neal

By **Dave Ruske** on Wednesday, April 18, 2001 - 11:19 am: Edit

POSE 3.1 reports a different problem as previously noted here.

Note that in debug options you may wish to shut off "UIMgr Data Access" or the emulator will run much, much slower...

By **Neal Bridges (Nbridges)** on Wednesday, April 18, 2001 - 11:21 am: Edit

Thanks Dave; I'd forgotten that that test had occurred already.

Yes -- took me a couple of minutes to find the culprit debug option. It's astonishing how slowly it runs with that switched on!

Neal

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FrmReturnToForm and POSE

By **Dave Ruske** on Monday, March 26, 2001 - 10:10 pm: Edit

I thought I'd try letting some gremlins loose on my app, so I fired up a copy in POSE (3.0a8, with ROM image palmos35-en-ezdbg.rom... Palm Vx/8M). Even though everything seems to work fine on a real Vx, I somehow wasn't shocked that it quickly died. Using debuffer's bt command, it seemed that FrmReturnToForm was the program's last rational act.

Well, after some thirty memos worth of source code developed on the Vx, it seemed only fair that something would be screwy. So I made a tiny app to see if I could reproduce the problem. Here that is, in its entirety:

```
\ crashtest

needs ids
needs resources
needs events
needs forms

decimal
(id) bOOm (id) rsrc use-resources

: do-popup-event  ( ekey -- flag )
    ctlSelectEvent =
    event >abs itemid
    1000 =  and ;      \ quit on btn 1000

: show-popup  ( -- )
    2000 PopupForm
    begin
        ekey do-popup-event
    until
    0 FrmReturnToForm ;

: do-event  ( ekey -- )
    penDownEvent = if
        show-popup
    then ;

: (go)  ( -- )
```

```
    TitledFormId ShowForm
    begin
        ekey do-event
    again ;


: go  ( -- )
    begin
    ['] (go) catch
    -257 = if
        (bye)
    then
    again ;


true generate-symbols
' go (id) bOOm makeprc CrashTest

2000 (id) tFRM copyrsrc
```

The resource database for the app contains a single form at ID 2000, and that form has a single button at ID 1000. Tap in the main form, and the dialog pops up. Tap the button, and the dialog should go away… but that's where POSE pukes. It gives me the following two error messages in what appears to be an endless loop (at least as far as my patience goes):

"CrashTest" 1 has just read directly from an unallocated chunk of memory.

"CrashTest" 1 has just performed an illegal operation. It performed a "line 1111 instruction". If this is the latest version of "CrashTest", please report this to the application author.

Upon reporting the line 1111 error to myself, however, I had to respond that I had no clue what POSE was talking about.

Running the same test with the ROM image for the IIIc (palmos35-en-color.rom) seemed to fare better, only complaining once each time the dialog was dismissed that the app was reading from an unallocated chunk.

I tried building the test under 1.2.5R and 1.2.7R, which seemed to have no effect on the problem.

I'd appreciate it if someone could tell me if (1) I've got a very silly and obvious bug, or (2) if I'm wasting my time on some silly POSE complaint that will never cause trouble on a real device, or (3) gee, that is pretty dang peculiar and worth looking into.

Run it on the non-debug ROM; see if the Gremlins fail there.

Neal

Seems to work fine with the non-debug ROM (palmos35-en-ez.rom); POSE doesn't complain and the gremlins happily go about flipping switches and tweaking my dialogs with nary a gripe. I guess my concern is whether they're truly happy or whether they're doing something sneaky and getting away with it... for now...

The debug ROMs do certain things that, as far as I know, never occur on the real device. One of these is not recognizing the 'save behind' flag on forms; the forms 'underneath' are destroyed. That might be why you're having trouble.

Neal

The OS3.5 Top Issues page (http://www.palmos.com/dev/tech/docs/palmos35/topissues.html) mentions the following:

> **Quote:**
>
> Problem Symptom:
> Application crashes while drawing, particularly either right on startup or when switching to a new form
>
> Problem Cause:
> If there isn't yet a valid window created or designated as active, drawing routines on a debug rom will generate a bus error. This is to help developers find situations in which they are drawing in the wrong context, or unnecessarily.
>
> Solution:
> Don't draw to a form until FrmDrawForm has been called to draw the form's background and establish it as the active form.
>
> Additional Info:

> On a release rom, if there is no active window, drawing will draw right on the main (root) window. This will often have the intended result, but not necessarily. Fixing the application to target the drawing properly is usually the right thing to do.

Since this is listed as a debug ROM only issue, I wonder if it is related to the symptom mentioned here.

I think the debug ROMs are a valuable tool, if it is reasonably possible to make Quartus work with them. I know that the OS 3.5 debug ROMs are much more difficult to work with than the previous versions, but I feel that it is worth the effort to have Quartus work as cleanly as possible with the OS.

By **Neal Bridges (Nbridges)** on Tuesday, March 27, 2001 - 12:58 am: Edit

Quartus Forth does play well with the OS as it stands -- of course, it's always possible to do things that irritate the debug ROMs in any sufficiently flexible language.

Neal

By **Steve Bohrer (Skb)** on Tuesday, March 27, 2001 - 01:06 am: Edit

Um, can you make **popupForm** ... **frmReturnToForm** work on the OS3.5 debug ROM? I've had trouble with this before, and it seemed to die within ekey calls. (But, I did not delve into this deeply, as it was a debug ROM only problem.)

By **Neal Bridges (Nbridges)** on Tuesday, March 27, 2001 - 01:26 am: Edit

Never tried it, Steve. Quartus Forth doesn't do anything fancy surrounding those calls -- if there's a trick to keeping the debug ROMs happy, it's a universally applicable technique external to Quartus Forth.

Neal

By **Neal Bridges (Nbridges)** on Tuesday, March 27, 2001 - 01:30 am: Edit

Re the bug report for OS3.5 above -- if you use ShowForm to display a form, control isn't returned until the form is completely drawn, so there's no way to make that particular bug bite.

Neal

By **Steve Bohrer (Skb)** on Tuesday, March 27, 2001 - 02:26 am: Edit

You are correct: ShowForm works well. With OS3.5 Debug, I can switch amoung the three forms of my app to my heart's content. BUT, any form or dialog overlaid on any of my forms causes trouble when the overlaid form is closed. I have trouble with "popupForm...FrmReturnToForm", and with "AlrtID FrmAlert drop" and even with "formID FrmHelp".

Your Swatch shows these same effects. The app runs fine (minor warning about zero size item) but, if you choose "Help" or "About...", it dies when you close the new window.

If you bring up Swatch's About dialog, and hit the little (i) button, you get the tips screen, and then die when you close the tips to go back to the About dialog.

What stream of events is generated (and handled internally by ekey) by a FrmHelp window closing?

By **Neal Bridges (Nbridges)** on Tuesday, March 27, 2001 - 10:25 am:
Edit

This is only occurring when you test under the debug ROM, right Steve?

Neal

By **Dave Ruske** on Tuesday, March 27, 2001 - 11:10 am: Edit

Chiming in for Steve, I can confirm that the errors reported in the initial message of this thread do occur with FrmHelp or FrmAlert as well... but you're right, Neal, this only occurs under the debug ROM. It's very peculiar that hitting the "i" button on an alert and exiting the Tips dialog also causes this to happen.

Weirder still, I can go to the Preferences dialog in the memopad application, hit the "i" button, return from Tips, and the debugger doesn't so much as hiccup.

I could understand some obscure problem with traps, but does Quartus have anything at all to do with Tips being displayed from the "i" button of an alert? (One of the drawbacks/advantages to Quartus is that I'm programming with less knowledge of the underlying OS than I might have with raw C or assembler...)

By **Neal Bridges (Nbridges)** on Tuesday, March 27, 2001 - 11:13 am:
Edit

Dave -- Quartus Forth has nothing to do with the internal workings of FrmHelp; once you make that call, it's entirely in the hands of the OS until

you exit the "Tips" form.

Neal

These are indeed only debug ROM problems. As I noted above, I just wish I could use the debug ROMs to "torture test" Quartus apps, but the OS 3.5 ROMs seem too fussy. The tips during alert is certainly very puzzling, as the Swatch source makes it clear that Quartus is not involved with any of that.

I wonder if perhaps the debug OS is doing some funky stack checks when a base form is restored from a pop up, and Quartus' swapped stack causes trouble. Hard to guess what else makes Quartus code different from C during an OS trap.

I've convinced myself that it's something along those lines. Oh well.

By the way, Steve, long as I've got you here… thanks for posting the A4/callback fix code and your notes on dynamic lists. That's going to come in reeeal handy over the next few days…

One thing I'm curious about: will a future version of QF build the A4 fix into the callback handling? (I presume that 1.2.7R still requires it, though I haven't put it to the test.)

Debug ROM crash with "mainFormID ShowForm" but not with "mainForm".

This may be a red-herring, as I assumed that "MainForm" was exactly

```
: MainForm
MainFormID ShowForm ;
```

but, the following simple test runs fine on POSE OS3.5 DEBUG if it has "MainForm". But, if the line is "MainFormID ShowForm" the program crashes when the alert box is closed. (Of course, it runs fine on a real device or non-debug ROM)

Is this a clue, or just random?

Program shows the Quartus About box on pen down. Otherwise, you get a null event every half second. No additional resource file is needed. The crashing version dies either within Quartus or stand-alone.

```
\ testDbRom 01.03.29 SKB
```

```
needs events
needs resources

: go
\   this line works:
\  mainForm
\  but crash with:
   mainFormID showForm
   begin
      Ekey dup .
      penDownEvent = if
         1000 FrmAlert drop
      then
   again ;

   '  go 12345. makeprc test

   1000 (ID) Talt CopyRsrc
```

To test both ways, comment out one or the other mainForm lines.

By **Steve Bohrer (Skb)** on Tuesday, April 3, 2001 - 02:33 am: Edit

Neal,

The OS3.5 Debug ROM crash seems related to the form's event handler callback, which I think is different with MainForm and ShowForm. In the above small sample, I tried installing a dummy event handler (which only clears D0) for the case with "MainFormID ShowForm". This makes this simple test work on the debug ROM.

I tried this on my real program too, and it works on some forms, but still crashes on others when closing an overlaid form.

I hope this event handler crash is merely due to some extra testing the debug ROM does, rather than being a problem with the bits behind the overlaid form not being saved and restored. If caused by the later, this could perhaps crop up in a real program on a real device, under low memory conditions.

By **Neal Bridges (Nbridges)** on Tuesday, April 3, 2001 - 10:38 am: Edit

What you suggest is certainly not impossible, Steve. I'll dig into it.

As for the low-memory conditions causing this on a real device -- I think it's extremely unlikely. An app so written as to use even the last few K of memory would trip over its own stacks; the lack of a screen buffer would be

the least of its worries. Any successful Palm app has to take a bit more care with its dynamic memory management.

Neal

More clues here, perhaps?

Upgrading POSE to 3.1 gives a somewhat different error message. In my app, I can bring up the About box, tap the "i" button, and when "Tips" is dismissed (which presumably should have nothing to do with QF), POSE reports "**TinyELF (0.81B) just executed an illegal or unknown machine language instruction. The opcode executed was 0xF200.**"

Here's the output of debuffer:

```
ok> pc @ 10 dis
00031b8c:  f200
00031b8e:  0000 5555                    or.b        #$55, d0
00031b92:  5555                         sub.w       #$2, (a5)
00031b94:  5555                         sub.w       #$2, (a5)
00031b96:  5555                         sub.w       #$2, (a5)
00031b98:  5555                         sub.w       #$2, (a5)
00031b9a:  5555                         sub.w       #$2, (a5)
00031b9c:  5555                         sub.w       #$2, (a5)
00031b9e:  5555                         sub.w       #$2, (a5)
00031ba0:  5555                         sub.w       #$2, (a5)
ok> bt
  + $31b8c
 PrvRedrawDisplay + $70629f60
 FrmEraseForm + $c65ca45c
 FrmHelp + $e031cfc0
 PrvHelpHandleEvent + $e044bc0c
 FrmHandleEvent + $3e1ce516
 FrmDoDialog + $9833cd28
 FrmCustomAlert + $4c34cc32
 FrmAlert + $d239c640
  + $25fc
ok>
```

Duco does the same thing, only ends up complaining about opcode F000 instead of F200, at address $35b94 instead of $31b8c. Just going to Help in Duco or TinyELF ends up doing the same thing, dying in the same place after the call to PrvRedrawDisplay, though the backtrace is different (FrmDispatchEvent, FrmHelp, FrmEraseForm, PrvRedrawDisplay, then death by illegal opcode).

Returning from a Popup using FrmReturnToForm also dies in the same place (backtrace shows FrmReturnToForm, FrmEraseForm, PrvRedrawDisplay, and the illegal opcode).

None of the built-in apps seems to give POSE this sort of indigestion.

I'm still perfectly willing to believe that this is just POSE being confused about some perfectly legitimate QF practice, but I thought I'd provide some more information in case anyone would care to investigate further.

By **Dave Ruske** on Wednesday, April 4, 2001 - 11:22 am: Edit

Oops, a clarification to that last message: "just going to Help" doesn't cause problems, it's the return from help that kills it. That's obvious from the backtrace, of course.

By **Neal Bridges (Nbridges)** on Wednesday, April 4, 2001 - 11:37 am: Edit

Thanks for the additional info, Dave.

I knew there was a tiny elf in there somewhere. ☺

Neal

Add a Message

FldCopy, ClipboardAddItem ... What's up?

By **David Shenk (Dshenk)** on Tuesday, April 17, 2001 - 07:25 pm: Edit

I am nearly finished with my first Quartus app and am stuck on one last detail ...

I have a numerical string result field (uneditable) that I want to give the user the capability, using a Menu option, to Copy this result to the Clipboard and Paste into other applications, such as calculators, memos, etc.

I have searched the Discussion databases and found two examples of both FldCopy and ClipboardAddItem, but they do not seem to work for my needs (many resets). I have a feeling it has something to do with the field being uneditable and I'm missing some parameter that the API is expecting.

Anybody's help would be greatly appreciated.

By **Neal Bridges (Nbridges)** on Tuesday, April 17, 2001 - 08:30 pm: Edit

Can't see your code from here, but I suggest you copy the string out of the field to a buffer in dataspace, and then put it into the clipboard.

Neal

By **David Shenk (Dshenk)** on Wednesday, April 18, 2001 - 12:38 am: Edit

Thanks, Neal. I had an inkling that is what you were going to say. I just thought there was some other way to do it.

For anyone interested, here is what I did to get it to the Clipboard ...

```
20 constant ResFieldLen
...
CREATE resultbuf ResFieldLen CELLS ALLOT
...
(in my Control Loop)
: do-event
...
ELSE DUP CopyResMenuItem = IF
resultbuf
ResFieldID Field>string
resultbuf >abs 0 >byte
```

ClipboardAddItem
...
;

Thanks to Jim Purdy for showing me the way in his ClipboardAddItem contribution.

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Learning?

By **Tim H.** on Tuesday, April 17, 2001 - 02:36 pm: Edit

Hi, all

Could someone explain the following (I'm newbie).

At the console:
10 (binary) . -> 1010 ok \correct

If however I write a new word:
: conv (binary) . ;
then, 10 conv -> 10 ok \incorrect

in other words my new word does not convert the input properly.

What is the correct usage. Manual states that the next word in the input stream is parsed and evaluated but doesn't explain how to use it. I understand that (binary) only swithes to base 2 temporarily, but not why it doesn't work within a colondef.

Also, is "binary" (like "decimal" and "hex") defined somewhere in a library file. I have done a search but only turned up definitions within specific library functions. It doesn't appear in the built-in words either.

Neal: These are some of the things us "forth for dummies" types are having trouble finding answers too without resorting to asking questions on the forum. I have spent several hours this morning experimenting and reading the manual and looking thru the library files and can not come to a answer on my own. I know this is real basic for you guys, but Forth is my first attempt at really learning a serious programming language, making me a real rank beginner.

Would a question of this nature be answered in "Forth Programmers Handbook"? if so it would be worth the $50.00 price tag since I haven't been able to find "starting Forth" at any of my local public or college Libraries. Back to the "forth for dummies" concept for a moment. Understanding some of the specifics of Quartus (I looked in dpans94 also - just got more confused) is what seems to be what's holding me back and most of the books out there are outdated and don't apply to QF without enough prior knowledge of forth to be able to convert the information. As an aside, I have "win32forth" installed on my workstation at my office

(using it to help me learn forth) and was able to sit down and write a conversion word to display hex and binary numbers from decimal input the first time out. I thought I was doing preety good till I tried to used the same code to create the definition in QF, without success.

Feeling frustrated!
TIA for the help

(**binary**) is a parsing word, so it isn't what you need at run-time. Here's a **BINARY** that works just like **HEX** and friends:

```
: BINARY  2 BASE ! ;
```

That should straighten you out; let me know.

The Forth Programmer's Handbook might help with such things, it's hard to say. It's not really an introductory text.

Neal

Neal,

<: BINARY 2 BASE ! ;>

Already had that one under my belt as it were. (picked it up in one of my searches thru the library files). The exercise was intended to try to gain an understanding of the specific usage of (binary), (hex) etc. and to try to relate what I'm able to figure out from using Win32Forth (which does not have (binary) etc. built-in)to learn the language and apply it to QF.
I guess then my question now should be, where can you direct me to gain an understanding of and the implementation of a parsing word, given my lack of books as reference.

Tim

Ah, ok. Understood. Perhaps I can explain them here for you.

(binary) and friends are easily thrown together if you want them in Win32Forth also --

```
: (radix) ( base -- )
```

```
  base @ >r
  base !
  parse-word evaluate
  r> base ! ;

: (binary) ( "..." -- )
  2 (radix) ; immediate
```

(hex) and (octal) and (decimal) follow the same blueprint.

What happens is simple -- the base is temporarily set to another value, the next word is read from the input-buffer and evaulated while the base is temporarily changed. Then the base is set back.

(binary) and friends are tools for use during compilation, to allow you to quickly and easily specify binary (and hex and decimal) numbers, no matter what the current base is. They are IMMEDIATE words, so they do what they do during compilation, and not at run-time.

You can also do quick tricks with them:

123 (binary) . -> 1111011 ok

but that's not their primary intended function.

Neal

By **Tim H.** on Tuesday, April 17, 2001 - 04:01 pm: Edit

Neal,

That's the ticket. That explains it for me. As you can see from my original post, I have the tricks figured out. Just having trouble getting from tricks to serious stuff after learning tricks, if you know what I mean.

Thanks for the help,
Tim

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Dragging away from a button

By **Norman "Buz" Stewart (Buz)** on Monday, April 16, 2001 - 06:27 pm: Edit

OK, I figure it's easier to embarrass myself and get answers quickly, than to try to find all of the answers through my personal research efforts...

In other apps with buttons, if you press your stylus down on a button, but then drag away from the button before lifting the stylus, nothing happens. But when I use the following code, the drag-away procedure causes the code associated with the button (2 or 3 beeps) to execute twice! Why is this?

Since I don't really know what I'm doing, any insights into the cond-thens construct would be very helpful. Specifically, I have the drop after the FrmAlert, and the 2drop after "thens" simply because the stack display (in the "go" definition) seems to demand it. I don't really know if I'm dropping in the right places, or even why I'm dropping. Thanks in advance!

```
\ buztest
needs ids
needs resources
needs Events
needs graphics
needs condthens
needs core-ext

(ID) BuzR (ID) rsrc use-resources
3000 constant BeepForm
2001 constant AboutMenuItem
3100 constant AboutBox
3001 constant 2BeepsButton
3002 constant 3BeepsButton

\ beeps, by Ron Doerfler
: beeps ( u -- )
  500 ms 0 ?do 250 ms beep loop
  500 ms ;

: do-event ( event -- )
  event >abs itemid
```

```
  cond
    dup 2BeepsButton = if
        2 beeps
    else dup 3BeepsButton = if
        3 beeps
    else dup AboutMenuItem = if
        AboutBox FrmAlert drop
    thens
    2drop ;

: go
BeepForm ShowForm
begin
105 0 at .s  \ stack display
ekey do-event again ;
```

By **Norman "Buz" Stewart (Buz)** on Monday, April 16, 2001 - 06:39 pm: Edit

Oops, I meant to give a short description of the sample app. It's just a form with two buttons (clicking on one causes 2 beeps, and clicking on the other causes 3 beeps), an Option menu with an About menu item (and corresponding alert form), and a little stack display.

By **Kris Johnson (Kdj)** on Monday, April 16, 2001 - 06:57 pm: Edit

In addition to checking the itemid, you should also check the event type.

If you only want to do something when the button is "clicked", check that the type is ctlSelectEvent. I think (not sure) that what is happening is that you are getting a ctlEnterEvent when you press, and then a ctlExitEvent when you drag away. So, two beeps.

Look at the EventType enumeration in the Events module.

-- Kris

By **Norman "Buz" Stewart (Buz)** on Monday, April 16, 2001 - 11:00 pm: Edit

Thanks, Kris! It seems so obvious once it's pointed out. I'm sure you can tell I'm not really a programmer -- I've only dabbled a little in this and that. I have high hopes for Quartus Forth as a long-term hobby, though. It's like a big, wonderful puzzle. Thanks for being patient.

I've broken do-event into 3 words, and I've added a variable (using your pointing me in the right direction and Tammy Cravit's DieRoller code to help me).

```
variable ihold

: do-buttons
  cond
    ihold @ 2BeepsButton = if
        2 beeps
    else ihold @ 3BeepsButton = if
        3 beeps
  thens ;

: do-menu
  cond
    ihold @ AboutMenuItem = if
        AboutBox FrmAlert
  thens drop ;

: do-event ( event -- )
  event >abs itemid
  ihold !
  cond
    dup ctlSelectEvent = if
        do-buttons
    else dup menuEvent = if
        do-menu
  thens drop ;
```

I know I don't need the cond-thens in do-menu right now. Obviously, I'm planning to add more menu items.

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Removing duplicates

By **Ian Perrin** on Monday, April 16, 2001 - 01:14 pm: Edit

In teaching myself Quartus I'm attempting to build a simple app that displays 6 random numbers chosen from 49 balls for a lottery ticket.

Using the following code, I've been able to create the random numbers.

```
\ pickRandomNumbers
\ Based on Tammy Cravit's Die Roller

\ libraries
needs random

\ Variables
variable kk
variable mm

\ Definitions
49 constant nBalls
6 constant nPicks
create picks nPicks cells allot

\ Generate random numbers
: rnd-ball ( nBalls -- 1..nBalls )
    1 mm !  0 kk !
      begin
        begin
            mm @ over < while
                mm @ 2* mm !
              kk @ 2*
              rand 1 and or
              kk !
                repeat
            dup kk @ - 1- 0< if
                dup negate dup
                mm +!  kk +!
            else
                drop kk @ exit
            then
        again
        1+
```

```
    ;

\ take nPicks from nBalls
: pick-balls ( nBalls -- )
    nPicks 0 do
        nBalls rnd-ball 1 +
        picks i cells + !
    loop
    ;

\  used to display cells in quartus
: picks? ( -- )
    nPicks 0 do
        picks i cells + @
    loop
    .s
        ;
```

My problem is that I don't want to allow duplicate selections. How could the pick-balls word be altered to ensure duplicate numbers are not added to the 'picks' memory stack?

Thanks

A simple way not too slow except in pathological cases: pick another random number if you pick a used ball.

A way that's deterministic O(1) per ball: swap the ball you just picked with the one at the end, and make your next pick out of n-1 balls. (Where do you swap the next one?)

Just my personal favorites.

I have a question about md-ball: I don't think I've ever seen a pseudorandom generator used that way. I have a feeling it's doing something devilishly clever that I'll wish I'd thought of. What's the trick?

-Chap

The rnd-ball word came from Neal's assistance to me when I was writing DieRoller. I don't understand how it works, either, but I used it because Neal suggested it would be more random than the following:

```
: rnd-ball ( x -- 1..x ) random swap mod 1 + ;
```

Neal, how **does** that word work? :-)

Tammy

By **Neal Bridges (Nbridges)** on Monday, April 16, 2001 - 03:47 pm: Edit

Not more random (it's based on the same random engine), but rather more unbiased. That is a highly-sophisticated bit of code that will extract unbiased random numbers from a stream of bits. The typical method of

rand 6 mod 1+

leaves a very slight bias in the numbers. If you ran enough random numbers into 6 buckets using MOD, you'd find a perceptible bias over time; the first bucket would be slightly overfilled.

My code eliminates that bias.

Neal

By **Tel Monks (Tel)** on Monday, April 16, 2001 - 04:20 pm: Edit

Another way to avoid reusing is often used in simulating shuffling cards. Set up an array of 6 bytes in your case (52 for a deck of cards.) Fill with the values (1-6) then random jumble the array.

The simple way to jumble randomly is to generate two addresses of items in the array and swap them. Do this, say, 50 times and you will have a good jumble. Then pull out the values in sequence.

By **Neal Bridges (Nbridges)** on Monday, April 16, 2001 - 04:25 pm: Edit

I think in this case, you'd want an array of 49 cells, filled with the values 1..49. Shuffle those 49 times.

Canonical shuffling takes the top card, picks a random card from beneath it in the deck, and swaps them; then the next card down, and so on. By the time you're at the bottom, you have a deck as well-shuffled as the entropy in your random-number generator.

In your case, you'd shuffle your 49-card deck, and then read off the top six cards.

Neal

Come to think of it, you could just shuffle the top six cards against the entire deck and then read off the top six. Much faster, with an identical result in this case.

Neal

One additional point, lest I lead someone astray -- picking a card from 'below' the current card is zero-indexed, so there's a chance you won't swap a given card (or rather, that you'll swap it with itself). If it were a one-indexed pick, then your resulting shuffled deck would be guaranteed to have no card in its original position -- an oddly shuffled deck indeed.

Neal

Sorry guys but with all this talk poker speak I'm going to have to play the newbie alert card!. Careful while I slam the brakes on hard.

I can see what you're saying about creating a randomly sorted array using the numbers 1…49 then taking the top 6. But where do I start.

If I was to say that I'd like the selection to be sorted in ascending order, would that affect the approach (ie filling the array and deleting duplicates or the 'cards from a deck')

Anyone willing to give me a jump start with the code?

BTW thanks for the rapid responses all….

This should get the ball rolling, so to speak. This is untested code:

```
needs toolkit

49 constant #cards
#cards array cards

\ Fill the deck with the numbers 1..#cards:
```

```
: init-cards
  #cards 0 do
     i 1+  i cards !
  loop ;

\ Shuffling (using rnd-ball from above):
: shuffle-deck ( depth -- )
  0 do
     \ Current card:
     i cards @
     \ Random card at or below:
     #cards i -  rnd-ball 1-  i +
     cards dup @ >r
     \ Swap the two:
     !
     r> i cards !
  loop ;
```

Sorting the resulting cards I leave as an exercise for the student.

Neal

Here is my 2 cents worth - showing how I shuffle a deck of cards. Untested, but copied from a working program.
NOTE: all values are one-byte only.

```
needs file
needs random

create deck 52 allot

\ put the values 0-51 in there
: init ( --- ) 52 0 do i i deck + c! Loop ;

\ give me a number between 0 and 51
: rc ( --- v ) rand 52 mod ;

\ generate 2 addresses in the array
: swap2 ( --- ) deck dup rc + swap rc + ;

\ generate 500 pairs and swap them
: shuffle ( --- ) 500 0 do swap2 dup c@ rot dup c@ rot rot c! swap c! loop ;
```

It may be spoiling the fun, but here is a sort for the first n items (again,

one-byte values)at a given address.

```
: sort ( addr n --- ) bounds swap dup rot
do dup i 1+ ?do j c@ i c@ 2dup >
if j c! i c! else 2drop then loop loop drop ;
```

By **Mark Beckman (Mbeckman)** on Tuesday, April 17, 2001 - 04:11 pm: Edit

Tel,
Neal's algorithm of:
"… takes the top card, picks a random card from beneath it in the deck, and swaps them; then the next card down, and so on"
will give better (unbiased) results because it avoids shuffling cards that have already been shuffled. And it does it quicker because you only have to do 51 (N-1) swaps.

By **Tel Monks (Tel)** on Tuesday, April 17, 2001 - 04:29 pm: Edit

Please do not think I was criticizing Neal's solution, merely showing how I did it.

But I am curious. There is only one chance of the first card being shuffled with Neal's method, then you look at the second card, etc. Cards once passed can never be reshuffled. Mine might perform a swap with the first card more often, and so (I think) is closer to what happens when people actually shuffle cards.

I should be very happy if anyone can point out my error in this way of thinking.

Tel

By **Tel Monks (Tel)** on Tuesday, April 17, 2001 - 04:40 pm: Edit

Consider that the array has only 6 values - 1 through 6. That should give 6! different shuffles, or 720. Of these 720, 120 have 1 as the first value. But Neal's method guarantees that there cannot be a one in the first position. Thus 120 of the possible outcomes may not be generated by that method.

Or am I crazy?

Tel

By **Neal Bridges (Nbridges)** on Tuesday, April 17, 2001 - 04:42 pm: Edit

Tel -- you're right, a kind of haphazard mixing is what people normally call 'shuffling'. It's not the most efficient or effective method of producing a

random deck, though.

What you want is a 1 in 52 chance of any given card being at any given position in the final shuffled deck; the swap-each-card-once method achieves this optimally and provably.

Neal

By **Neal Bridges (Nbridges)** on Tuesday, April 17, 2001 - 04:43 pm: Edit

Your second point -- that there's no possibility of a 1 in the first position -- is not true. I tried to correct that in my 'lest I lead anyone astray' post; the index into the rest of the deck is zero-based, so there's a 1 in 52 chance that the first card will not be moved, and will be a 1.

Neal

By **Tel Monks (Tel)** on Tuesday, April 17, 2001 - 04:46 pm: Edit

That will teach me to read all the posts better.

Thanks Neal.

By **Neal Bridges (Nbridges)** on Tuesday, April 17, 2001 - 04:48 pm: Edit

To illustrate, consider a deck with two cards, A and B:

Unshuffled: A B

To shuffle this deck, we flip a coin -- generate one bit of information -- to decide whether to swap the two cards, or not, giving two possible shuffled decks: A B and B A.

With three cards, unshuffled: A B C

To shuffle the first card, we generate a random value from 0 to 2 inclusive, and make a swap; then to shuffle the second card, we generate a value from 0 to 1 inclusive (one bit), and make that swap. Then the deck is shuffled fully.

Note that we never explicity shuffle the last card; there's no need.

Neal

By **Neal Bridges (Nbridges)** on Tuesday, April 17, 2001 - 04:52 pm: Edit

Tel, no problem-- I should have been more careful in my initial description of the algorithm.

Neal

The rnd-ball code posted above isn't correct. I get a stack underflow when compiling it. One problem is that "begin" occurs twice and "again" only once.

I'd repair it myself, but I'm not sure what the code is doing :-\

Could someone post the corrected code, please?

TIA

BTW, I tried just taking out the first "begin", but no luck.

There's no missing AGAIN -- the other BEGIN is matched by WHILE and REPEAT. However, I haven't tested the code as posted; it may have other problems.

Here's my original:

```
variable k
variable m

: roll-die ( sides -- value )
  1 m !  0 k !
  begin
    begin
    m @ over < while
      m @ 2* m !
      k @ 2*  rand 1 and  or  k !
    repeat
    dup k @ - 1- 0< if
      dup  negate  dup m +!  k +!
    else  drop  k @ exit  then
  again
  1+ ;
```

Hopefully I didn't make any typing errors; let me know. 😊

Neal

Ah, my bad. I had left off the "then" after "exit" :-)

Now I'll dive in and see if I can figure out how it works!

Thanks again

Lest it gets lost in the shuffle(s), Ted posted an impressively terse sort, suitable for small numbers of cards.

I thought the most significant bits of a random number had the best randomness so I use the following:

`: Choose ( u1 -- u2 )  Rand Um* Nip ;`

I don't know if this affects the bias also...

Ronny

That's true of certain extremely poor pseudo-random generators, Ronny. If you're really worried about the performance of the generator, the best bet is to switch to a better one.

Neal

As far as I can see, the best possible solution is still the one given by Chapman. It requires only a couple operations every time a number is needed. Neal's latest solution is essentially identical, except that it starts from the front of the array rather than the back. I'd rather start from the back, since I have to keep count of the size of the array.

Here's an attempted implementation. I haven't defined get-random-number; let it get a random number in the range "[0, n)". I'm using chars.

`: incrementing 0 DO I C, LOOP ;`

```
: count-then-shrink dup C@ 2DUP 1- SWAP ! ;
: get DUP C@ SWAP ;
: indices-to-addresses DUP ROT + -ROT + ;

: swap-indices ( i1 i2 array -- )
indices-to-addresses
get ROT get SWAP ROT ! ! ;

: remove-random-ball ( collection -- ball# )
count-then-shrink 2DUP
get-random-number DUP >R
SWAP 1+ swap-indices
R> + C@ ;

: collection CREATE DUP C, incrementing
DOES> remove-random-ball ;

49 collection lottery
lottery . lottery . lottery .
lottery . lottery . lottery .

\ don't call any collection more times than it
\ has elements!!!!
```

As always, this is untested. If I'd had any brains I would have written the tests first; let this be a moral to all of you.

-Billy

 By **Norman "Buz" Stewart (Buz)** on Saturday, May 5, 2001 - 06:26 pm: Edit

```
: roll-die ( sides -- value )
  1 m !  0 k !
  begin
    ...
    else  drop  k @ exit  then
  again
  1+ ;
```

Is the `1+` just before the `;` ever executed? Would it be acceptable to place it just before the `exit` word, so the number left on the stack would be 1..sides instead of 0..sides-1 ?

 By **Neal Bridges (Nbridges)** on Saturday, May 5, 2001 - 06:48 pm: Edit

Quite right. I must have mis-transcribed it. Good eye!

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Vaguely related questions about POSTPONE and the munging of xt's

By **Chapman Flack** on Monday, April 16, 2001 - 12:27 am: Edit

I've been sort of avoiding POSTPONE because the description in the standard seems so simple that when I see what QF really does with it, I get the feeling I must not be understanding something.

I think of it as a way to get an immediate word into a word I'm defining, instead of having it go off in the definition itself. But for what I'm doing [' foo COMPILE,] seems to do the trick, and it's so much shorter than compiling two literals and a call off to some long and murky subroutine. I'm sure POSTPONE is doing something smart, but what, exactly?

I see the xt of the word being POSTPONEd is made into a literal operand of a move.w, unlike in ['] which goes to some effort to store it as a jsr target. In the form of a move operand, will it be recognized as an xt and relocated by MakePRC? Or will words that contain POSTPONEd things not work in a standalone app?

That might not be a problem--words with postponed things probably have to do with compilation, and maybe never get used when an app runs, but it would be good to know.

The second literal appears to encode something about the context when the word was postponed. Question--how many possibilities are there? Would it make any sense to shorten the sequence generated and shave some run time by factoring the routine that gets called, and just have POSTPONE store the xt and record the context by which routine gets called?

More about the way xt's get relocated--if MakePRC and friends decide what words to recursively include by looking for targets of jsr's, is there some risk in a long CODE word that some literal or string of bytes that happens to look like jsr foo from the right angle might get mistakenly "relocated"? If so, is there any way to explicitly prevent it? (I've been mostly making CODE words with cs, to avoid bringing in the whole assembler.)

Just wondering,
-Chap

By **Neal Bridges (Nbridges)** on Monday, April 16, 2001 - 12:39 am: Edit

Hmm. As usual, much on the plate, Chap. I never know where to start. 😊

Ok. The only reason to flag a definition **IMMEDIATE** is if you wish to use it during compilation, so your question as to whether **POSTPONE**d **IMMEDIATE** words work at run-time is not a real question -- compilation doesn't occur at run-time.

POSTPONE is defined in the Standard to operate on all definitions, not just those flagged **IMMEDIATE**, and

[' FOO COMPILE,]

is by no means the same as **POSTPONE FOO** when dealing with non-**IMMEDIATE** definitions.

Having said all that -- looking at your comments and the kernel code for **POSTPONE**, I can see where I can shave a few bytes off of some special cases. I'll work on that. Thanks!

As to a random sequence of bytes confusing MakePRC, it would have to be a severely pathological case where the jsr actually mapped out to a real definition that ended in a conventional way. Not impossible, but highly improbable, and not something that'd happen easily.

Neal

Ahhhh. So what this all means is I don't really understand POSTPONE yet. Is there any easy way for me to get a copy of the JR Hayes "Postpone" paper from the 1989 Rochester Forth Conference proceedings, mentioned in DPANS94 appendix A? We only seem to have the '83 proceedings in the library here.

Thanks,
-Chap

I'd ask on comp.lang.forth for that paper.

POSTPONE is not too complex. It will cause the following definition not to be compiled NOW, but rather to be compiled when the current definition is executed. Its compile-time action will be postponed -- hence the name.

So:

```
: FOO  postpone page ; immediate
: BAR  FOO ;
```

This will result in definition BAR performing PAGE.

If you postpone an IMMEDIATE definition, then it also defers its compile-time action -- it will not execute now, but will execute when the current definition runs.

```
: Hi ." Hello!" cr ; immediate
: FOO  postpone Hi ; immediate
: BAR  FOO  ." Done" cr ;
```

This is a silly example, but here we are postponing Hi, so that it will not display "Hello!" until during the definition of BAR.

Neal

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Two bugs squished in disasm

By **Chapman Flack** on Saturday, April 14, 2001 - 01:46 am: <u>Edit</u>

Hi,

I handcoded a CMPA.L #12345678, A2 instruction and disasm called it a CMPA.B followed by some junk. That aroused my suspicion because CMPA doesn't even come in a byte flavor.

To fix, find this text in disasm.part4

```
: nib11
  op>>9 6 2 op-bits 3 =
  if ." cmpa" 8? 1+ to dism-size .size
    .source ,areg 6 +cycles
```

and change to

```
: nib11
  op>>9 6 2 op-bits 3 =
  if ." cmpa" 8? 1 and 1+ to dism-size .size
    .source ,areg 6 +cycles
```

The trouble was 8? returns a proper flag and the author assumed it would return 1. One can at the
same time change 6 2 op-bits 3 = into the single word 6&7? which seems to be defined for just that purpose and then not used.

Second bug, long immediate operands are displayed wordswapped. If I say 2F3C cs, 1234 cs, 5678 cs, disasm will show it as MOVE.L #$56781234,-(A7) but that disagrees with both the RsrcEdit disassembler and with my trusty DragonBall. The problem is in the first memo, disasm, at the definition:

`: l@ ( a -- x. ) dup cs@ swap cell+ cs@ ;`

It should be

: l@ (a -- x.) dup cell+ cs@ swap cs@ ;

Now that makes some things a little less puzzling...
-Chap

And also in disasm.part4

if ." adda" 8? 1+ to dism-size

should be

if ." adda" 8? 1 and 1+ to dism-size

You are the proverbial fine-tooth comb, Chap. Thanks!

Neal

Can you post the revised parts for inclusion in the file area? (I know you gave very clear fix-it instructions, but I'm really lazy...)

Well, the thing of it is, is, I've made a bunch of other mods to my copy of disasm, so it might be easier for somebody who has the unmodified source handy to just change 3 lines and post it ... I'd wind up unchanging a bunch of stuff.

-Chap

... also I only fixed problems with instructions I was actually trying to use at the time, I didn't keep looking through the source to see if similar things happen other places ...

That disassembler was ported from some fairly old sources -- not that I'm dodging the bullet; my port, my responsibility for the bugs. I caught most

of the dependencies, but the original target Forth system did have a TRUE flag equal to 1, and code that depends on it is sometimes hard to catch.

That, and it's difficult to exhaustively test a disassembler, for the obvious reason.

You've got a good eye, Chap!

Neal

By **Steve Bohrer (Skb)** on Sunday, April 15, 2001 - 02:32 pm: <u>Edit</u>

Chap, Anything that might be of general interest in your changes? Seems you are actually using the disasm tool quite a bit, so perhaps your stuff is more tuned to the Palm than Neal's general port. (Or, is it just tuned to digging into the hairy internals of deep floating point stuff?)

In any case, thanks for the clear fixes for the existing version.

By **Kris Johnson (Kdj)** on Monday, April 16, 2001 - 12:59 am: <u>Edit</u>

I've tuned my own version of disasm, but the only thing I've done is to disable the translation of assembly into simple instructions like DUP, DROP, etc. This is all in the word FORTH? defined in disasm.part4. I've just redefined FORTH? as "FALSE EXIT";

This is not something everyone would like to do, but if you really want to look under the hood and see how things work, it's invaluable.

-- Kris

By **Bob Ryan** on Thursday, April 26, 2001 - 01:20 am: <u>Edit</u>

I changed my virgin copy like this:

: >flag (bool -- flag) 0= 0= negate ;

The negate fixes the problem with 3? 5? 7? 6? 8?

Or am I missing something?

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A renegade PalmOS error class?

By **Chapman Flack** on Friday, April 13, 2001 - 03:11 pm: Edit

Neal,

In the "Palm OS Errors" doc file, what was the source for the values of the dialErr… codes?

They are based at 0x8000 which is the base for application-defined error codes (per ErrorBase.h). That makes me really sort of wish they weren't there, and maybe my wish is coming true: I can't find them with fgrep anywhere in the 3.5 SDK include tree, and SysErrString on my Visor (3.1H3) doesn't know anything about them.

Are they holdovers from an earlier day when the dialer was just being developed using application-specific error numbers, and they just happened to make it into an early release without being caught?

-Chap

By **Neal Bridges (Nbridges)** on Friday, April 13, 2001 - 03:15 pm: Edit

It looks like they were a transient thing, yes -- if they're not in the new SDK, they're likely no longer in use.

Neal

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Saving To Memo

By **Barry Ekstrand (Ekstrandbb)** on Friday, April 13, 2001 - 02:24 am:
Edit

I am nearly finished with my latest project, but have gotten stuck at the unlikeliest of places: a problem with my code to save to memo, which was ported directly over from my other (working fine there!) apps. Specifically, my attempt to put a linefeed or space into the memo results in a question mark character and capital N character instead. I am using the newmemo.txt library. Here is a snippet of code that shows how I approach it:

```
dfvariable val1
variable ret
variable sp

1e3 val1 df!df
10 ret c!
32 sp c!
: string1 z" Title"
: string2 z" Test2"

: savetest
2 set-places
OpenMemoDB 0
string1 WriteNewMemoInCategory
ret 1 appendcurrentmemo
ret 1 appendcurrentmemo
string2 1 appendcurrentmemo
sp 1 appendcurrentmemo
val1 df@df (df.) appendcurrentmemo
ret 1 appendcurrentmemo
```

What I expect to see in the saved memo is:

```
Title

Test2 1000.00
```

but what I get is:

```
Title??Test2N1000.00?
```

I must be missing something obvious, but I can't see it. I have double-checked the other apps verify the code works there and it does, and I can't find any differences in the code between the apps except, of course, for the values of the strings and variables themselves.

Any ideas?

Barry

By **Ron Doerfler** on Friday, April 13, 2001 - 03:01 am: <u>Edit</u>

Assuming you actually have semi-colons at the ends of your definitions 8^), I would guess that when you do a c! you are writing not the first byte but the second byte of the variable address, so whenever you emit a single character from the variable address you end up with the other junk character.

So since ret and sp are full two-byte variables, try changing the corresponding lines to:

```
10 >byte ret c!
32 >byte sp c!
```

to push the characters to the upper byte, and see if that works.

Ron

By **Ron Doerfler** on Friday, April 13, 2001 - 03:05 am: <u>Edit</u>

OK, try that again. I meant to say:

```
10 >byte ret !
32 >byte sp !
```

or maybe:

```
10 ret !
32 sp !
```

One of these has to work!

Ron

I just tested your code, and it works correctly with

```
10 >byte ret !
32 >byte sp !
```

Also, I imagine it's just a typo, but the line

```
string2 1 appendcurrentmemo
```

should not have the 1 in it.

Ron

The typos show I was ready for some sleep - the actual code did have the semicolon and didn't have the unneeded 1.

I tried changing my definition to

```
10 >byte ret !
32 >byte sp !
```

but the results are the same. It is as if ret and sp are being redefined somewhere, but I can't find where it is happening. Ah, the joys of debugging.....

Barry

Hmm, I did have a couple of strange characters that disappeared when I went to the >byte approach. I'll look at it again. I had also eliminated the df stuff.

Ron

Where does appendcurrentmemo come from?

It's in http://www.quartus.net/files/PalmOS/Forth/Library/newmemo.txt -- found it with the search engine.

Neal

Okay, mystery solved after some decent sleep and a day at the beach with the family. There is a definite lesson learned for me, and maybe it can help other novices avoid the same mistake.

My program has a dfvariable in it for the return on investment, which I named Ret for short. I worked on the calculation engine first, getting all the kinks worked out of it. Once that was done, I started to fill out the rest of the program - menus, buttons to jump between screens, etc., etc. - and lastly, I went to add the code to do the save to memo. For these last efforts, I went to my other programs to re-use existing code, which includes the save to memo routines.

Now, as noted in the beginning of this topic, my save to memo routine has a variable for the carriage return, which was also named Ret. By the time I got to the save to memo cut and paste job, I had forgotten about the one dfvariable with the same name. So, the problem initially was that Ret was indeed being redefined by the dfvariable definition. In fact, I have my variables being saved in preferences, so at program start-up the last value of dfvariable Ret took over.

So, the solution was to rename my carriage return variable - Linefeed sounds okay, right? 🙂 I also went back to my original type of definitions:

```
10 Linefeed c!
32 sp c!
```

Once these things were done, all works fine. As an aside, the sp variable wasn't working right either until I changed the name of the other variable to Linefeed. I'm guessing that the dfvariable Ret had remnants on the stack that messed up sp as well, but the problem went away with the Ret situation.

Anyway, the lesson is a simple but important one: if you cut and paste code from another project, make sure there is no conflict with variable names.

Barry

That's terrific, Barry, and good advice.

The http://www.quartus.net/files/PalmOS/Forth/Library/redefine.txt library file might help spot that sort of thing in the future.

Neal

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Debugging

By **Tim H.** on Thursday, April 12, 2001 - 05:09 pm: <u>Edit</u>

Hi Everyone,

Along the lines of "Forth for Dummies" topic, perhaps someone could put together a short essay on debugging techniques. I remember seeing some talk about it a while back, but can't seem to find it again (dailup makes searching slooooow) now that I actually need it. Specifically, monitoring the stack while a program runs and stepping thru code etc. The new Wiki site would be a good place for this also. Right now I have learned enough QF to use like a big calculator and I finally have stack words like dup, rot, swap etc. down, but beyond that I'm still getting lost. I think being able to SEE what a line of code is doing might help me out at least. That way I could load up some of the code from the file area and step thru it to see how it works. Just a suggestion!

Tim

By **Jeff** on Thursday, April 12, 2001 - 05:34 pm: <u>Edit</u>

This was something that took me a while to learn and understand, too -- Forth is very little debugging (or none at all!)

The concept behind Forth is that one "word" does one thing. So, for example, if you want to square a number:

```
: SQR DUP * ;
```

Is a word that does just that -- nothing more. To "debug" in Forth, you just test each word as you make it. To make sure SQR works, just test it yourself:

```
10 SQR .       100 ok
```

When done, try using DEPTH to see how many items are on the stack. See if that correlates with what you expected.

Lastly, always: each word does one thing. Break it down into many smaller

words if getting too large, and test each of those (like SQR).

HTH,
Jeff

I uploaded a little ditty recently that simplifies some of that; it will make a little box at the top of the console window and show you what's on the stack after each thing you do. Saves having to scribble .s or depth . in graffiti n times. Be on the lookout in a contrib area near you.

-Chap

It gets harder to debug when you are running routines within an application that can't necessarily be run isolated in the Quartus console. I find it useful during coding to _always_ have the stack depth displayed in the upper right-hand corner of my main form that I return to often. If it changes without a cause, it's an immediate indication that the routine just run has not left the stack intact. It's much easier to fix it immediately rather than try to locate it later. I keep it there all the way through POSE testing. To do this I use:

```
: string>win ( y x c-addr len -- )
\ Prints string to window at y,x.
swap >abs WinDrawChars ;

: int>disp ( u -- u )
\ Echo integer to window
\ at y=0, x=130.
dup 0 <# #s #> swap >r
0 130 rot r> swap string>win ;
```

Then in the code where I refresh the form, as when I re-enter it or change the contents, I add:

```
depth int>disp
```

I also dump various stack or variable values to other locations on the screen if I have to trace a problem down, using the same int>disp but with a different y,x.

The other technique I use all the time is to issue a number of beeps at places in the code. This way I can trace the legs of the code (say through

IF-ELSE-THEN code), iterations of DO-LOOPs (by having the number of beeps equal the iteration value I+1, so I=0 will have a beep), and even small values of variables. I use:

```
: beeps ( u -- )
500 ms 0 ?do 250 ms beep loop
500 ms ;
```

Then in the event of a problem I just put a "1 BEEPS" here and a "2 BEEPS" there and an "I 1+ BEEPS" in a loop, and so forth, and I can listen my way through the code as it is running. I believe others have done a similar thing with flashing the backlight.

These are fairly primitive, but effective. I agree that this should be a WIKI topic--if it's not there I'll create it tonight and put this in it as a start.

Ron

By **Barry Ekstrand (Ekstrandbb)** on Thursday, April 12, 2001 - 06:28 pm: Edit

Neal,

Is Chap's upload available? If so, I am missing it when perusing the Files area.

Barry

By **Neal Bridges (Nbridges)** on Thursday, April 12, 2001 - 06:30 pm: Edit

Not yet, Barry; playing catchup on a few items here.

Neal

By **Kris Johnson (Kdj)** on Thursday, April 12, 2001 - 11:33 pm: Edit

Feel free to post important tips as articles in the wiki:

http://www.sleepless-night.com/wiki/QuartusForthTips

Might be easier for people to find them some day. I'm sure Quartus Forum is full of this stuff, but searching through the archives can be tough.

-- Kris

By **WilliamTanksley** on Friday, April 13, 2001 - 02:55 pm: Edit

I'm a fan of testing at compile-time -- almost any test I can do by hand (as someone mentioned above) can and should be automated and put into the source immediately after the routine in question, so the compiler does the testing for you.

This way when someone has to modify the routine, they'll see examples of correct use, and after they modify it they'll know immediately whether their modification broke the old correct use.

A great little module for this is "tester (John Hayes)"; it's utterly trivial in its implementation, but almost incredibly natural to use -- for example,

TESTING Dup functionality.
{ 4 DUP -> 4 4 }
{ 0 DUP DROP -> }

Together with Wil Baden's text macros (which allow you to build huge, repetitive test suites in a single line), this is very powerful and useful.

-Billy

By **Kris Johnson (Kdj)** on Saturday, April 14, 2001 - 09:46 am: Edit

I've mined some of the information from this thread and put it into the wiki:

http://sleepless-night.com/wiki/QuartusForthDebugging

-- Kris

By **Ron Doerfler** on Saturday, April 14, 2001 - 11:16 am: Edit

Thanks, Kris. I've been swamped the last couple of days and haven't been able to do it as I had expected.

Ron

By **TimH** on Saturday, April 14, 2001 - 11:25 am: Edit

Guys,
Just spent some time at the WIKI. This is exactly what is needed for us rank beginners. It's shaping up very nicely and has already filled in some holes for me personally. Keep up the good work. With this forum and the WIKI site I have no excuses for not learning forth.
-Tim

By **Kelly Janz** on Wednesday, August 1, 2001 - 01:11 pm: Edit

To continue the thread:

On the Wiki topic "Debugging" Neal says:
"[NealBridges] Of those examples, I can think of ways to test event loops and animations piecewise and interactively."

Could you expand on that please? I'm still struggling with my Event Loop and would like some techniques to see what is going on inside on an interactive basis.

Thanks - Kelly

By **Neal Bridges (Nbridges)** on Wednesday, August 1, 2001 - 02:10 pm: Edit

Kelly, it might be better if we work with a concrete example as opposed to discussing debugging in the abstract. Can you outline what you're doing, and what you're having trouble with?

Neal

By **Kelly Janz** on Wednesday, August 1, 2001 - 06:52 pm: Edit

Well… I don't really have code that I would be willing to see the light of day 8-). The code situation is that I call ekey in my go word and then send the results to a doEvent word that has a large condthens structure to sort out the events and dispatch them to words like doPenUp, doPenDown, doControl, doMenu etc. To test things, I've tried to simplify the code so that each word puts it's name on the screen as it executes. I seem to be getting phantom events, because when I execute the go word, I get penDown's without touching the screen. It then goes into a loop where things blur by so fast I can't see all the words that go by, and I can't abort the loop. I would like to single step through that sequence to see what is going on. Is there a way to do that?

Thanks

By **Bob Ryan** on Thursday, August 2, 2001 - 04:13 pm: Edit

Hmm, Its hard to tell what's going on without seeing the code, but the error is probably in the event dispatcher somewhere. I suspect the program is seeing nilEvents and reacting as if they were penDownEvents.

Not being able to abort would mean that EKEY isn't being executed. The program gets lost in the event dispatcher and never returns to the loop containing EKEY.

'course all this is guess work 😊
-- Bob

To test my theory you can replace EKEY with

```
-1 (ekey)
```

in your event loop. This will prevent nilEvents from occuring.

Watch out -- that needs to be

-1. (ekey)

(the dot matters).

Neal

Thanks for the starters. I guess what I'd like to see is more of a general strategy for getting inside a loop structure - with some kind of pause word so that you could stop & see what was going on, then going through the loop once more. Right now, things happen so fast that I can't tell what's happening.

Could my doMenu word be what is preventing the Abort too? I'm not actually putting up my own menubar, so it should never change the Quartus bar... and the code only looks for an "About..." item - which should never occur. So I thought that leaving that menu code in would not interfere with any other menu items that ekey would usually handle. Ekey is handling certain events before I even see them - right? I guess I'm confused about what exactly ekey is doing and how my code builds on top of it (or does it substitute for it?)

Confused about the big picture,

Kelly

Good point, Neal.

To pause a Forth program use the MS word. For example

```
3000 ms
```

would pause for 3 seconds. Make sure the number is a multiple of ten.

Try commenting out the doMenu call and see what happens, but I think the problem is somewhere in the dispatcher itself.

-- Bob

Perhaps an example would help you, Kelly. Can you outline what it is you're trying to achieve? We can make you a short example.

Neal

I'm not being coy - really! But I thought that I lifted the doEvent word from someone else's posted code, and obviously I didn't steal enough or too much. I don't understand the condThens or the case construct completely and I'm working through the wiki pages on those.

Basically, my app is a game and I need to handle 2 menu commands, 2 buttons on the form and penDown, penMove and penUp events within a graphic gameboard area. Irwin's Quintominos code helped with the pen events - they almost always work - for a while at least (I think I'm leaving stuff on the stack which catches me later). If you want to sketch some code around that I'll compare the two to see how it's REALLY done.

Like I said, I need any help I can get in slowing things down enough to see where it is going off the rails. I will try adding
: wait (--) 3000 ms ;
to let me check the names of the functions as they get printed. I'm also going through Ron's database tutorial to see what I pick up, although I'm not really reading or writing files - I'm so new that almost anything gets me further down the road!

Looking forward to some time to work on this on the long weekend. Thanks for the help - Kelly

My best advice -- go 'one step at a time'. Write your handling code to handle one sort of event, and make sure that's working before extending it to handle a second sort of event.

I'll see what I can draw up by way of an example.

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Catching ALL switch-aways

By **Chapman Flack** on Wednesday, April 11, 2001 - 05:19 pm: Edit

Hi,

I've been struggling for some time now to figure out how to get something reliably done (or undone, as the case may be) before any switch away from Quartus.

For a while I completely overlooked the documentation of -257 THROW in the manual. OK, now
I have a pretty good idea how to deal with switching away in a standalone app.

But I do a lot of fooling around and testing words at the console, and that's where I want to make sure I don't forget to MathLibDone, or restore some old vectors, or whatever, when I get distracted and check ToDo or pop back to MemoPad.

There doesn't seem to be any easy, reliable way to catch switch aways _at the console_; I can't really do ' QUIT CATCH because QUIT resets the stacks so the CATCH frame gets clobbered (at least I think that's what happens). I'm thinking my best bet is to patch (bye) itself, but am I missing something?

Given that lots of functionality comes in the form of shared libraries that have to be opened and closed, and various other things like substitute vectors need to be reliably undone, some kind of common, reliable convention for getting a chain of clean-up words executed at switch-away _even at the interactive console_ seems like a good idea,

Any suggestions?

Thanks,
-Chap

By **Neal Bridges (Nbridges)** on Wednesday, April 11, 2001 - 10:33 pm: Edit

There was an exit vector way back in PilotFORTH; sounds like you need that again. Let me see what I can do.

Neal

I played a bit last night with something along those lines; I can say

```
' a add-cleanup
...
' b add-cleanup
...
' c add-cleanup
```

and at switch-away will be executed c b a. It's a patch into (bye).

But that led me to two questions.

1. What is the real deal with ['] and xt and MakePRC? xt's are already offsets relative to cs. Is it that the offsets actually change during MakePRC, because dictionary stuff and unused words get stripped out--is relocation happening that actually changes offsets living in codespace as jump targets? Or is the consideration due to something else I haven't thought of?

Of course the question is important because my add-cleanup is saving the xt's it gets in a linked list in data space. In one sense that shouldn't be a big problem: things that need to be UNdone at run time probably also need to be DONE at run time, so within a stand-alone app the invocations of add-cleanup that matter should all happen as the app itself executes and the xt's should all be hunky dory.

But what if there was something on the cleanup list from working at the console, at the time of building the app? Data space has to be copied by MakePRC, right? it's got literals and all sorts of important compilation byproducts in it. So those old cleanup xt's will be part of the app's cleanup list and (a) they might not even refer to things that need to be cleaned up in the app, and (b) their addresses will point someplace wonkers, and (c) the words they supposedly refer to might not even have been copied in.

So the cleanup list definitely has to be reset at startup... am I sane so far?

But if I have code to reset my cleanup list in go, say, then when I test go at the console it will clobber the cleanups needed for the console session.

I could condition the reset on being run standalone, not at the console. Question 2: what's the best way to test that condition? I suppose I could try xt>name on some named word (xt>name, maybe) and see if the name has vanished. Is there a better or more recommended way?

If the cleanup vector is built into the kernel and it gets reset as part of _kernel_ startup, I guess that would also solve the problem; the reset code would not be in go so testing go at the console wouldn't clobber anything.

But that leads on to another issue. Suppose I want to make sure some -initialization- happens only once per run of Quartus; for example, some vectors get replaced, saving the old ones, but if that happens twice then the new ones are saved and the old ones are lost. There seem to be the same two choices: either build an init-vector functionality into the kernel, which could be cool, or do one as an add on and execute it conditioned on a standalone run.

I like the idea of an init vector; to me it contributes to module cohesion if each module can just say "I need this stuff initialized, I'll put myself on the init list" instead of having to say, "programmer, this stuff needs initialized, be sure to add it to 'go' somewhere."

But now there's a REAL puzzle: how to build an init vector into an app and have the xt's come out right!

I'm thinking of a linked list where the header is actually a word containing a ['] that gets patched by the addition of each new init entry, and each entry is a :NONAME that calls the specified init word and then the previous entry on the list.

Does that make sense? Would it work? Am I making something way too hard?

Thanks,
-Chap

Yes, MakePRC relocates xts during the extraction process.

If I were trying to do something only once per run of Quartus Forth, I'd put it in its own memo and use NEEDS -- that way it doesn't get included twice.

How to see if you're running from within Quartus Forth, as opposed to a stand-alone app? I'd keep a flag set to FALSE, and only set it to TRUE at MakePRC time.

The whole thing sounds somewhat complicated to me -- I'd go with just putting your entry and exit operations in their own functions, and call them at the appropriate times.

Neal

One more short question. Is there a way to do something like the word cold but specifically
cold-and-don't-read-startup.quartus ?

Or perhaps even: coldwith mymemo.txt

-Chap

Nothing like that presently exists. You could build one -- set a feature, check for (and reset) that feature in your startup.quartus, and behave accordingly.

Neal

Ah, our postings crossed in the mail.

To your second answer, my interest is in getting something to happen once per run _of the kernel_:
that is, once if I start up QF interactively, and also once when starting up a standalone app.

There may still be an easy way I'm not seeing, but does that make it clearer why "needs" didn't seem to be the answer?

My hope is to be able to write a module that needs some initialization, and write it so a programmer only has to "needs" it in the construction of an app, or "needs" something that needs something that needs it, and it will make its own arrangements to be initialized when the programmer's final app is run.

It's conceptually simple enough to say, well, why doesn't the programmer remember what all initialization is needed by the modules needed by the modules that she needs, and call them at the appropriate times, but I have a bias … I'm at a center that studies software reliability and security, and the root of most evil seems to be things it would be simple enough for programmers to remember. It's simple enough to remember not to copy long strings into short buffers, but it would sure eliminate a lot of headlines about costly software failures and break-ins.

Granted, Palm break-ins might not be keeping anybody up at night, but unreliable software can still make for a bad day.

-Chap

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In /incoming: quithooks

By **Chapman Flack** on Tuesday, April 10, 2001 - 01:11 am: Edit

Hi Neal,

I just uploaded a memo that has been handy for me. It puts a box at the top of the console and displays the current stack contents there whenever the console is ready to accept more Forth. Looks sort of like a clunky calculator (I have schemes to make the resemblance even better later). I find it nice for trying things out and not always having to scribble . or .s to see what happened, and I bet for new users it can take some of the pain out of learning the stack. It can be easily customized to make different assumptions about what data types are on the stack and how to display them.

Two caveats: 1. it works by patching QUIT, so I'm only sure it works on my copy of 1.2.1U without adjusting addresses, but it does the patching about as portably as I could think to, and it does check that it's not stomping on something it didn't expect to find.

2. Obviously to do the patching I had to SEE QUIT in express violation of the first paragraph under LICENSE RESTRICTIONS, so if that displeases you, let me know. (And if there are instances of disassembly that don't displease you, maybe you could update the license to make your preferences clearer--there are other things I'm interested in writing, like floats-the next generation, that will likely require some amount of internals-gazing, and I'd prefer not to wear this itchy ski mask while doing it).

Cheers,
-Chap

By **Neal Bridges (Nbridges)** on Tuesday, April 10, 2001 - 02:31 am: Edit

Clever fellow. Thanks!

The license terms are there to protect the product; I'd say what you're doing isn't in violation of that.

Neal

By **Kris Johnson (Kdj)** on Tuesday, April 10, 2001 - 06:18 pm: Edit

The cooperative multitasking work I did would have been pretty much impossible without extensive use of SEE. So I'm a reverse-engineering criminal as well. 🙂

-- Kris

By **Neal Bridges (Nbridges)** on Tuesday, April 10, 2001 - 06:27 pm: Edit

When it's in the best interests of the product, Kris, I'm all for it. 🙂

The license clauses are there to help protect against theft.

Neal

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Precision caveat in DF. (dfdot)

By **Chapman Flack** on Tuesday, April 10, 2001 - 12:30 am: Edit

I got this message from Barry …
<<<
I am working on my next app and I came across a bit of odd behavior. If I
set a dfvariable to a default value of 1.0909e4 and then display it into an
input field with
set-places equal to 2, the value shown on screen is 10908.99. I can change
the amount in the input field to 10909 and it calculates properly, but after
exiting and then restarting the app (which uses preferences to remember the
last values used) the value in the field is again 10908.99.
…
Can you give me any insight on what is happening? I thought the precision of
the IEEE floats would handle values of this magnitude to 2 decimal places
without any problem, but something funny seems to be happening in the range
of 1.0908e4 to 1.0912e4. Any input you have will be greatly appreciated.
>>>

It seems to be a dfdot issue.…

If I say (dfloat) 1.0909e4, I get ("1.0909e4" -- 0000 0000 4e80 40c5), or

```
0100 0000 1100   0101 0100 1110 1000 0000 0000 0000 0000 0000 0000 0000 0000 0000
^|---2^14----| .10101 0100 1110 1
|   exponent      ^^
|                 |\-implied leading 1
\-sign bit (+) |
                  \-implied binary point

Hmm, even \pre doesn't seem to line up my arrows quite right...
```

and if you move the binary point 14 places right you have 10101010011101. = 10909.

Also, DFS. shows 1.0909000e04. But DF. shows 10908.99

The trouble is, it's tough to write good floating-point to decimal converters.
One of the basic problems is simple fractions like 1/10, 1/100, etc. repeat
infinitely after a binary point, just like 1/7 repeats after a decimal point, so
really NO precision in binary is adequate to represent them exactly.

Geert made a posting a while back about maybe having some references to dig up on
good conversion algorithms. One of the keys seems to be choosing "strategic"
powers of 10 to use in a scaling table. I would be interested in seeing the
references (Geert?) because I'm not sure what "strategic" means, but I might
guess the better negative powers of 10 would be the ones that have the most zeros
around the 53rd place (for DF), so they're affected least by truncation. Just a
guess. Neal used convenient powers of 10 (10^-1, 10^-2, 10^-4, etc.) which make
for a simple algorithm, but I'm not sure if they are the best ones or not. Also
there might be more careful ways to do build-exp and extract-digits.

As I said to Neal, I'm really glad he wrote dfdot because there was an obvious need and I sure didn't want to tackle it. It could probably be improved, but for the effort it would require I'd really rather wind up with something that allowed more flexible formatting. What I'd ideally like to do is stumble over a good existing, open source implementation of printf from the C library and either port it, or make it a shared lib and interface to it, and then DF. DFS. DFE. etc. could all be built on top of it.

In the meantime it looks like the existing DF. is a good start but the precision is limited.

-Chap

By **Neal Bridges (Nbridges)** on Tuesday, April 10, 2001 - 01:51 pm: Edit

I wonder if the constants I'm using in DF. are being accurately translated on the way in; that could be a source of loss of precision.

Neal

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Question about locals

By **Eric Idema (Eki)** on Monday, April 9, 2001 - 11:58 pm: Edit

Hi,

I'm new to quartus and forth this week and I'm writing some simple graphics routines as a learning excerise right now. I started with a drawLine word (simply uses winDrawLine), and moved on to drawRect which I would like to work by calling drawLine four times. So here is how my stack diagrams for each word look:

drawLine (x1 y1 x2 y2 --)
drawRect (x1 y1 x2 y2 --)

The line as you would expect is drawn between (x1, y1) and (x2, y2). The rectangle is drawn with the upper-left point at (x1, y1) and the lower-left point at (x2, y2).

So, for one, I really don't see how drawRect could be written to use drawLine four times just using the stack to arrange all the coordinates into the correct order. So I assume that using locals is the best way to go. Anyway, I've implemented it using tinylocals like so:

```
: drawRect ( x1 y1 x2 y2 -- )
use-locals
to L4 to L3 to L2 to L1
L1 L2 L3 L2 drawLine
L1 L2 L1 L4 drawLine
L1 L4 L3 L4 drawLine
L3 L2 L3 L4 drawLine
;
```

I really can't believe this is the most readable definition of drawRect that is possible. Could anybody give me some hints here?

I found this link off the faq for comp.lang.forth:
http://www.complang.tuwien.ac.at/forth/anslocal.fs Under this set-up the same word would, I believe, look something like this:

```
: drawRect { x1 y1 x2 y2 -- }
x1 y1 x2 y1 drawLine
x1 y1 x1 y2 drawLine
```

```
x1 y2 x2 y2 drawLine
x2 y1 x2 y2 drawLine
;
```

This seems far more readable to me, but I don't think the implementation on that web page will work because it uses (local) which isn't, so far as I can tell, available in quartus. (BTW, out of curiosity is (local) something that could be written by a user of quartus, or is that something Neal would have to add?)

At anyrate, I'm interested in any good ideas for how drawRect could be written in a more readable manner than what I have using tinylocals. Thanks in advance for any advice.

Eric

By **Neal Bridges (Nbridges)** on Tuesday, April 10, 2001 - 12:04 am: Edit

LOCALS support would have to be added in-kernel. It's not high on my priority list; in fact I have no immediate plans to add it.

DrawRect (or the same thing under a different name) will always be clanky; it uses the same four parameters in different permutations four times. It'd be clanky in any language.

I've seen it done without locals, days gone by, on comp.lang.forth; it comes up now and again, as it's the archetypal clanky bit of code.

The Palm OS itself provides a rectangle-drawing and a frame-drawing routine; you'll see there, they implemented it using a data structure to hold the coordinates, so that it'd be tidier in C as well.

Neal

By **Eric Idema (Eki)** on Tuesday, April 10, 2001 - 12:09 pm: Edit

Thanks for the info Neal. I'll stick with the implementation using tinylocals and move on.

Eric

By **Mark Beckman (Mbeckman)** on Tuesday, April 10, 2001 - 03:12 pm: Edit

Oh goodie, a chance to play with the stack! J

Here is a version of your DrawRect without local
(and lots of stackrobatics.) I made 1 change to the order that lines are

drawn to make the stack cleanup easy at the end, I drew the 1st line last.

This show that it can be done, but the locals version is **much** cleaner.

```
: drawRect ( x1 y1 x2 y2 --)
  2over over >r 2over nip r> swap (.. x1 y1 x1 y2) drawLine
  dup >r 2over drop r> 2over (.. x1 y2 x2 y2) drawLine
  over >r 2over nip r> swap 2over ( .. x2 y1 x2 y2) drawLine
  drop over ( x1 y1 x2 y1) drawLine ;
```

And here is a non-graphic version of drawline:

```
: drawline ( x1 y1 x2 y2 - )
 ." Line from " 2swap swap . ." ,"
 . "  to " swap . ." ," . cr ;
```

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New FloatLib.zip in /incoming

By **Chapman Flack** on Monday, April 9, 2001 - 11:36 pm: Edit

Hi,

I just put a new FloatLib.zip in /incoming. I called it FloatLib.zip (note the capital F and L) because I got a "file already exists" with floatlib.zip--that was probably from my earlier attempt that was frustrated by the CERIAS firewall. So floatlib.zip might be a partial file and you should mulch it, and then you can rename FloatLib to floatlib. (Clear as mud?)

Changes since the November version:

1. The comparison operators now properly return single-cell flags as required by the standard.
***CODE WRITTEN TO WORK WITH THE OLD VERSION NO LONGER NEEDS AN EXTRA drop OR or 0<> AFTER A COMPARISON SO WILL NEED TO BE MODIFIED. Sorry.

1.5. Because of (1), Neal's dfdot.txt needed modification (also in /incoming, uploaded separately).

2. Several words now have equivalent, inline definitions, generally words that deal with the sign bit ([SD]FABS, [SD]FNEGATE, MthLcopysign, etc.) or identify infinities and NaNs (MthLisnan, MthLfinite, MthLisinf) and are so simple it's silly to trap to PalmOS for them. Of course the inlined MathLib words will now work without doing MathLibInit and even if MathLib isn't really on the device. The revised ReadMe details which words are now inlined.

3. I noticed that the words 2>R and 2R> in core-ext had quite long definitions (14 bytes in code space) and they are inlined lots of times in floatlib, so I put equivalent, 6-byte versions in a revised core-ext (also in /incoming, uploaded separately). Together with other related mods in the floatlib, this shaves about 2kB of code space.

4. A memo qhdf has been added, providing a DF display capability for my quithooks memo (which I'll upload and describe separately).

5. This zip file does not contain floatlib.mpa: I'm not a Windows guy and don't have an easy way to make it.

-Chap

Thank you sir! I will integrate it asap.

Neal

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Newbie - Form resources provided by Quartus

By **Norman "Buz" Stewart (Buz)** on Monday, April 9, 2001 - 10:18 pm:
Edit

The descriptions for BlankFormID, MainFormID, and TitledFormID (in the Quartus Forth Manual) are all nearly identical (i.e., "Returns the ID of the [blank or main or titled] form resource provided by Quartus...").

Using ShowForm on the three IDs (giving me a blank screen in each case) isn't helping me to understand the difference between them. Could someone please briefly explain why and when you would use one over the other, or point me to additional documentation?

By **Neal Bridges (Nbridges)** on Monday, April 9, 2001 - 10:21 pm: Edit

Hey Buz.

BlankFormID is the ID of a completely blank form. TitledFormID is a form with a title (a blank title) -- you can set this title to whatever you want. Both are there simply for convenience.

MainFormID is the ID of the Quartus Forth console form; it's only there for completeness.

Neal

By **Norman "Buz" Stewart (Buz)** on Monday, April 9, 2001 - 10:56 pm:
Edit

I see in make-duco that you didn't delete the MainForm resource when you deleted the other two form resources. Is it not necessary to delete MainForm because it's "not really" in the standalone target prc in the first place?

By **Neal Bridges (Nbridges)** on Monday, April 9, 2001 - 11:02 pm: Edit

The reason I didn't delete the MainForm -- ID 1000 -- in the Duco sources is simple; my own Duco form is also numbered 1000. The CopyRsrc line deletes the MainForm and replaces it with my own.

The three forms -- Main, Titled, and Blank -- exist in every standalone app unless you delete (or overwrite) them. About 143 bytes in total.

Neal

By **Norman "Buz" Stewart (Buz)** on Monday, April 9, 2001 - 11:06 pm:

Edit

Ah! Thank you!

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Simple Skeleton

By **Gary Graham** on Monday, April 9, 2001 - 05:03 pm: Edit

will someone write a small program that just clears the screen, puts a couple lines of text on the screen, and has a button or two?
Plenty of comments would be nice.

I'm just a newby trying to figure out what I am getting into.

Thanks in advance

By **Neal Bridges (Nbridges)** on Monday, April 9, 2001 - 05:08 pm: Edit

The simple part is the text:

```
: go
  page
  ." Hello, Gary!"
  begin ekey drop again ;

go
```

The more complex part is the buttons. You'll need an app called RsrcEdit for that; you can grab it from the Online Resources section of the Quartus Forth manual.

With it, you'd define a form, and a couple of buttons on your form (positions, text, all that). Then you'd add a bit of code to your program that brought up your form, and a couple of conditionals to take appropriate action when your buttons are pressed.

Have a look at Steven Donahue's tutorial in the File Area -- it walks you through some of this. The sample apps in the manual are also useful, as are the many other example sources in the File Area.

Another good one, available from PalmGear, is Carl Jacobsen's PhoneDecode.

Neal

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DmOpenDatabase

By **Mike Will** on Monday, April 9, 2001 - 11:57 am: Edit

DmOpenDatabase is a curious creature.
It's stack diagram is:
(mode dbID. cardnum -- dbref.)
The SDK docs state that, if unsuccessful, it will return a zero. However, if one types something like:
1 1. 0 DmOpenDatabase

then a fatal exception occurs. No 0. Not even an error that can be trapped by wrapping DmOpenDatabase in a Forth word and using catch-throw. I would like to be able to pick from a set of previously generated dbID. values, so finding the db by name first is not convenient. Any thoughts?

TIA

Mike

By **Neal Bridges (Nbridges)** on Monday, April 9, 2001 - 12:00 pm: Edit

A number of PalmOS routines that claim they will return error values don't -- they just bring up the reset dialog.

In your case, if you make that 1 0. 0 you'll get "Null dbID passed", which is at least informative.

If your dbIDs are valid, the routine should work fine.

Neal

By **Mike Will** on Monday, April 9, 2001 - 12:46 pm: Edit

Thanks, Neal.

The problem is, it's possible for the passed dbID to be invalid (user has deleted the database since it was enumerated). Is there any other routine that can test a dbID's validity? If not, I'll be forced to rewrite about a week's worth of code to store and handle lists of names instead of dbIDs.

Do you know off-hand any of the other PalmOS routines that don't do what they claim to?

Thanks

DB Id's cannot be relied upon. I believe that they can change at any time. It is best to search for the database by using DmFindDatabase using the database's name.

Yes, I believe you're correct, Wade. I wasn't exactly 'relying' upon dbIDs, but was rather just using them to work with a set of databases efficiently in the short term. Doubles are much easier to work with than strings. If one goes missing, it's not critical in my app, as long as I can gracefully detect its absence. I'm a bit frustrated by having to redo existing code, but Quartus is fun to work with so that's ok.

I am, however, still concerned about blatantly incorrect documentation in the SDK. Palm is showing signs of becoming a sales-first, customers-last corporation. I believe it's not just market conditions that are to blame for their stock falling 90% from its high in recent months.

Thanks for the help, Wade

Mike

Thing is, that documentation has been incorrect since the original incarnation of the OS. I've never seen a definitive list of which system calls fail into a reset, instead of an error code, but you've found one, and I believe I've found another on a previous occasion (memory fails).

There's doubtless something about this in the Palm Development maillist archives.

Neal

You know what?
If I made hundreds of millions of dollars selling a tiny embedded operating system, I would be embarassed to have documentation like Palm's. That fact that it's been wrong for three years just compounds the issue. Also, I'm still bummed about them selling me a broken IIIxe and blaming one of their chip suppliers instead of apologizing.

On the positive side (yes, I do have one), I managed to rewrite my app to

use names instead of IDs in only a day, thanks to Quartus. I was worried about string ops slowing things down, but there's no perceptible difference.

Mike

By **Neal Bridges (Nbridges)** on Tuesday, April 10, 2001 - 02:05 pm: Edit

Glad to hear the cloud has at least a partially-silvered lining, Mike.

Neal

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String resources

By **Daren Thomas** on Monday, April 9, 2001 - 02:41 am: Edit

hi niel 🙂 it's about a week ago, since i first heard of forth, and am hacking away happily (sys reset every 10 minutes...)

i don't think i have understood everything yet... but anyway... could you help me with this?

(code to read a string resource)

```
\ rsrcString 9. Apr. 2001 DLT

needs resources
needs ids

id p4ap
id tSTR
id rsrc

: pEmit (n Handle>rel -- )
\ emit n  chars from handle
    swap 2@ >rel
    swap for
        dup @ emit
        8+
    next ;

: getAnB ( -- )
\ to have something to work on...
    p4ap rsrc usw-resources;

: getStr ( id -- VoidHandle )
    tSTR
    DmGetResource
    >rel ;
```

pemit just displays garbage 😫(is there another way to do it??? have i missed something essential???

thnx, Daren

You're mis-using **>REL**. You can't use **>REL** to take any arbitrary 32-bit address and make it a 16-bit address. **>REL** (and its counterpart **>ABS**) only work for dataspace addresses in dynamic memory, not for storage databases.

Modify your **pemit** to read data using **c@a**.

Neal

☺ gotta try that right away!!! (are these part of the words specific to quartus forth?)

where do you collect functions? i saw the kiwi-thread... and... well, shouldn't we all be storing libraries on the net for each other?

thnx a lot!

daren

>REL and >ABS are specific to Quartus Forth, as is **c@a**. They're non-standard words.

Lots of code is available in the File Area -- http://quartus.net/files/PalmOS/Forth

Neal

```
...am hacking away happily (sys reset every 10 minutes...)
```

Just a note to recommend a cardware product I really appreciate, as someone who crashes his Palm all the time. The app "Crash" shows you the error message and then in most cases automatically resets the Palm after 10 seconds without the need to poke the reset hole in the back. It's at http://www.dseifert.de/crash/index.html

Ron

hum! i hope to be past crashing my pilot soon 😊 what is cardware?

neal: solved the problem, where do i put it? …will have to check out the kiwi!

```
\ rsrcString 09Apr2001 DLT
\ defines getRsrcStr and emitRsrcStr

needs resources
needs ids

\ def tSTR to ret 32bit type-val
id tSTR

: getRsrcStr ( id -- lockedHandle. )
\ get String by id from open resdb
   tSTR
   DmGetResource
   MemHandleLock ;

: emitRsrcStr ( lockedHandle. -- )
\ emit Str char by char, stop at NULL
   begin 2dup c@a dup
   while
      emit
      swap 1+ swap
   repeat ;
```

i am posting this, because:

a) I'm proud of myself 😊
b) I searched this discussion forum for 'tSTR' and found nothing… so the next newbee will!

i would like to thank neal for the crucial hints he gave above!
_____

i learned:

- >rel and >abs only work w/ dynamic mem

- to read storage mem, fiddle w/ abs addr.

- abs addr. have the higher bits on top of the stack... swap 1+ swap to increase an addr. by 1.

- tSTR is not just any constant defined in a c header: it can be translated directly into a 32-bit val with the ids library for quartus forth. (munch t, spit, munch S, spit... or so *g*)

- oh, and (tuffy!!!) while-loops:

```
BEGIN <cond> WHILE <body> REPEAT
```

does the same is akin to perl while($cond) { &body }

thnx a lot for quartus forth, neal! will register sometime soon!

By **Neal Bridges (Nbridges)** on Tuesday, April 10, 2001 - 02:10 am: Edit

Glad to hear it, sir. Oh -- watch that swap 1+ swap stuff, it doesn't always work for 32-bit addresses.

Do 1 M+ instead.

Neal

By **Daren Thomas** on Tuesday, April 10, 2001 - 02:22 am: Edit

goody 🙂 i was looking for something like that!
M+ (will have to look it up...)

BTW: do u have an alarm hooked to this forum?

By **Neal Bridges (Nbridges)** on Tuesday, April 10, 2001 - 02:24 am: Edit

Electrodes. 🙂

Neal

By **Ron Doerfler** on Tuesday, April 10, 2001 - 11:36 am: Edit

>i hope to be past crashing my pilot soon

I still have a lot of them--you can expect one with nearly every mistake made regarding the stack depth or content (other than programs run in the

Quartus console).

>what is cardware?

It's similar to freeware--all the author asks for if you like the program is to send a postcard from your location so they have a little collection of postcards from around the world. Nice!

Ron

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Source from F83s that I want to use on the Palm

By **John A Peters** on Sunday, April 8, 2001 - 06:51 pm: Edit

GG forth source edited for the palm

GG is a short name for a command that can be quickly typed. It is version of a word I had originally named GOTO but it is not related to the goto found in the Basic language.

This word (command) takes a line on a screen or in a memo and moves it to a another position, moving the remaining text properly so no text is lost or overwritten.

It usefullness shines when you want to reorder a list of items in a memo (or on a screen in the old days). It is a command line oriented executable. In the Desk top, one would have to count line numbers by hand or else implement a line numbering system on the border of the memo window.

On the Palm one could engrave line numbers on the side of the screen or use an overlay. Don't let this line numbering problem stop you form seeing the usefullnes of this word. If a line was moved to almost the right place, it is easy to move it one more time to get it just right.


```
: GAD ( Get & Delete
( from-scr src-lind targ-line -- )
3 ?ENOUGH
Scr @ >r rot scr !
swap T X
r> scr ! 1- t u ;
( Get and DELETE is like )
( a single line BRING with delete )
: GOTO ( source target -- )
( Move a line )
scr @ rot rot GAD ;
( Do the right thing even if all )
( 15 lines are full of text )

FORTH DEFINITIONS
: GG ( n n -- ) [ editor ] GOTO [ forth ] ;
```

Can any one tell me if the above source will work with Quartis Forth?

Please CC to japeters@pacbell.net

By **Neal Bridges (Nbridges)** on Sunday, April 8, 2001 - 06:54 pm: <u>Edit</u>

It won't. That code looks suitable for an Forth-83 system that uses blocks to store files.

For those who don't know, blocks are 1024-byte data records that have 16 lines of 64 characters each -- with no end of line markers. These were in common use in the early days of Forth, when the system that Forth was running on frequently didn't have its own OS or operating system. The more common option in modern Forths is to use files instead of blocks; on the Palm, Quartus Forth uses MemoPad memos.

Neal

By **John A Peters** on Sunday, April 8, 2001 - 07:39 pm: <u>Edit</u>

Ah! Yes you are good (and fast too) with responses, Thanks.

When I use cut and paste, to move a block or line of text the cut line does not fill in. I have to fill it in by hand using the mouse and then the delete key.

Can Quartis execute the same commands that are available to the palm user? If so then the pseudo code would look like this:

(Begin Pseudo codef^o
1) Highlight the specific lines or block that is to be moved.
2) Cut the text to the clipboard.
3) Close up the vacated space (Perhaps up to the next EOL marker?)
4) Place the cursor on the proposed location for the insertion.
5) Insert the text, moving the current text down properly.
6) Move the cursor to the best place (to be determined by users beta testing)
7) Save the changes in case the user needs to use the undo command.
(End Pseudo codef^o

John

Please CC to japeters@pacbell.net Thanks!

By **Neal Bridges (Nbridges)** on Sunday, April 8, 2001 - 07:41 pm: <u>Edit</u>

I'm a little confused about what you're after, but it sounds like you want a modification to the MemoPad, rather than to Quartus Forth.

Neal

I am not sure that I want to modify the MemoPad if MemoPad is an application.

I do want to edit the memos in a more efficient way. I was hoping that I could call some lower level Palm applicaton words in a custom way, as I am used to in other Forths by reusing (calling)forth's lower level words. Maybe this is modifying MemoPad? Can this be done?

I tried INCLUDE disasm.txt but no ok. Please help a bit more.

The fast response has helped me get about 4 days ahead of other methods.

Can MemoPad be modified?

John, disasm.txt contains the implementation of SEE.

What exactly are you trying to achieve? I can't really get a handle on it.

There's no way to directly modify the MemoPad app -- it's in ROM -- but there are replacements for it available.

Neal

I am trying two things.
1) Learn Quartus Forth by SEEing what others have done. I usually SEE (decompile) interesting words and that leads to other words to SEE and so on.

2) I have a (usefull at least so far to me) applicaton in mind that I am trying to find out if it is possable to program. It is the GG work talked about above. That is to find a way to quickly move lines and blocks of text around in the memo pad.

Thanks
John

Quartus Forth is a native-code compiling system; SEE may not be as edifying as you expect. However, it's there in disasm to play with.

What you've described to date seems to fit old block-storage systems better; I'm not sure it's an adaptable idea.

Neal

By **japeters94112** on Monday, April 9, 2001 - 09:23 pm: Edit

Thankyou:
Please give me a reality check on the posability of programming this Idea.

I want to find or make a program that will take all the ToDoS in a Category and reduce each one's PRIORITY by incrementing each one's priority number by one integer. 4s become 5 3->4 2->3 1->2 and viola there are no highest category 1 items. This lets me select some doable today tasks to put as a #1

The purpose is to allow one to pick out some items and move them up in importance in to the space created by moving all entries to a lower priority. As you know all entries to the category default to priority 1, unless there is an option that I am missing.

Thanks for sharing your excellent knowledge.
John A. Peters

By **Neal Bridges (Nbridges)** on Monday, April 9, 2001 - 09:29 pm: Edit

That sounds possible, John. You'd need to figure out the format of ToDo items -- I don't know if it's formally documented anywhere.

A fair bit of work for a beginning PalmOS project, but if you take it in small steps you should be able to get there.

Neal

By **Matthew Blair (Blair)** on Monday, April 9, 2001 - 10:42 pm: Edit

Hi John,

I did some work with the ToDo database a while back (maybe a year ago or more). I wrote up a quick summary of what I found in a post to this forum. Unfortunately, I am not sophisticated enough with the forum software to point you to a link. If you do a search on my last name, you should be able to find it (I did).

Hope that helps,

Matthew

Yes he did, he did indeed. I couldn't remember if it was ToDo, or one of the others.

It's in the archives.

Neal

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Forth for Dummies

By **Norman "Buz" Stewart (Buz)** on Saturday, April 7, 2001 - 11:34 pm: Edit

You must all get tired of hearing this stuff from newbies, but...

Yes, I can see that the documentation is fairly extensive -- I have a big stack of it printed out, and everything in DOC format is already on my Palm. I also see a seems-too-good-to-be-true ongoing information and support system implemented in these discussion forums. If only all products had someone like Mr. Bridges behind them.

Nevertheless, I want to complain. My complaint is a general one, not directed to Mr. Bridges or to any other individual, but to the Quartus Forth programming community as a whole.

It appears that all attempts to build a comprehensive nurturing system for newbies have been haphazard, or quickly abandoned, and I can't understand why. How do you expect to grow your following when you only cater to people who either have previous experience programming in Forth, or who have such a ridiculous amount of determination that they are willing to wade through literally hundreds of links, printouts, code, etc., in an effort to build their own "Forth 101" course? I know that Forth is a sort-of build-it-yourself language, but should the documentation for newbies be that way, too?

The best effort I've run across is Steven Donahue's tutorial, from the File Area. But it's old, it's too short, and the teasing cliffhanger at the end ("Now let's move on to something a bit more challenging") makes me sad, because I know I'm not going to build anything like his QTip application [tease] without several more weeks of exhausting research.

What we newbies need is: "Quartus Forth and Onboard RsrcEdit for Dummies," or "How to Build Your Own Palm Applications Entirely Onboard, Step-by-Step!"

Please forgive. I'm not always so long-winded ... I'm just tired.

By **Neal Bridges (Nbridges)** on Saturday, April 7, 2001 - 11:37 pm: Edit

Hi Norman. I never get tired of questions; don't worry about that.

I think you'll see that across the board -- not just for Quartus Forth, but for any Forth tutorial. It's easy to get started, and hard to finish, so there's quite a few tutorials that start well and then either stop, or rush madly through the

rest of the material.

I'm working on that problem, but it'll be a while coming. For the moment, don't exhaustively research alone -- ask questions! If not here, then via email, though I encourage you to post here for the obvious reasons.

Neal

By **Norman "Buz" Stewart (Buz)** on Sunday, April 8, 2001 - 12:23 am:
Edit

Thank you. I suspect, having read many of the discussion threads, that your quick, friendly, and helpful responses will never cease to amaze me.

I want to stress again how much I appreciate the materials that are out there. Many Quartus programmers have been kind enough to share source code. Snippets and other examples (e.g., db-example.txt) collected in a centralized area are helpful, although it appears that the idea didn't sell too well. And, as I said before, I've run across lots of reference materials, mostly with your guidance.

But here's how I feel: Imagine that you can recognize a great advantage to learning another language like, oh, maybe Chinese. But nobody teaches it. Your Chinese friends support your desire to learn, but all they can do is point you to a large stack of novels written in Chinese, along with a huge Chinese dictionary (complete with definitions written in Chinese).

By **Neal Bridges (Nbridges)** on Sunday, April 8, 2001 - 12:25 am: Edit

It's not exactly 'nobody' -- there's quite a bit of info out there, but it's largely scattered. There are also books in print -- Forth Application Techniques is one, and The Forth Programmer's Handbook is another, both from www.forth.com. They may not address exactly what you need, but it's a start.

Neal

By **Norman "Buz" Stewart (Buz)** on Sunday, April 8, 2001 - 10:42 am:
Edit

I know, I'm just impatient. If Donahue's tutorial had kept going, I would be already doing some of the fun stuff (building small apps) while reading Forth language primers at the same time. Instead, I'm just reading the Forth primers, and >wishing< I could figure out how to make a button do something without having to glean the steps from dozens of discussion threads, or someone else's source. I should shut up now, or you guys are going to think I'm really unhappy. In fact, I'm still quite excited. Thanks again for the quick reply.

By **Andrew Kearns** on Sunday, April 8, 2001 - 11:03 am: Edit

I have to agree here, Donahue's tutorial is an excellent first chapter and I would love to see more. I'm finally moving past that stage now, but it has been a long frustrating haul.

The primers are good for basic concepts and I think stack manipulation is something you just have to do for a bit to get used to it, it isn't hard, just a process of constantly translating what you want into forth. Soon (I hope) that should just click in and be natural.

My beef is fairly minor, but in the contrib archives it would be really nice if all the code snippets which are providing some specialized command had instructions. I have looked at a few sections of code that is meant to be helpful, but I end up lost instead. This isn't really a complaint, more of a suggestion. Please include some basic instructions on use, and if you are feeling generous how it works would be nice. 🙂

That said, I have gotten lots of help from the files and especially the board. I'm learning slowly but surely. Frighteningly soon though I'm going to need to figure out how to split the program up and call other modules. I'm not looking forward to that.

Andrew

By **Neal Bridges (Nbridges)** on Sunday, April 8, 2001 - 11:15 am: Edit

I hear you. That's a key reason this forum exists. Use it as a resource.

The forum archives are another valuable source of info.

Neal

By **Neal Bridges (Nbridges)** on Sunday, April 8, 2001 - 11:46 am: Edit

Andrew, your app must be getting really big!

Neal

By **Neal Bridges (Nbridges)** on Sunday, April 8, 2001 - 11:57 am: Edit

Norman -- a few additional thoughts.

'Novice' covers a lot of ground. There's a tremendous difference between someone who has never written a computer program, and someone who has a language or two under their belt but has yet to learn Forth.

There's a gap to bridge between developers who are just becoming familiar with Forth, and those for whom it has 'clicked' -- who have crossed the conceptual threshold and are no longer struggling with the stack.

And there's a gap between programmers who are comfortable with a console-based interface, and those who already understand how a resource-driven GUI environment functions.

There's yet still another gap between programmers who are comfortable programming for a desktop OS, and those who are comfortable programming for a quasi-embedded environment like the Palm, with its various environmental and interface constraints.

I have all those types of novices and more approaching with questions. A comprehensive tutorial needs to address all of them; it's an enormous undertaking. The example code helps one segment of the population; the tutorials that are out there helps another; documents like the Rationale of the ANS Standard help still another segment; but as yet there's nothing that takes any flavour of novice from A to Z. I'm working on it.

In the meantime, this forum can help you, an individual developer, leap the individual obstacles that crop up during your development.

One developer at a time, into the future. 🙂

Neal

By **Norman "Buz" Stewart (Buz)** on Sunday, April 8, 2001 - 12:34 pm:
Edit

Everything you say makes perfect sense, and I know it would be impossible to meet the needs of everyone. I'm also impressed with your obvious desire to eventually meet them anyway. But wouldn't it be helpful to nearly everyone who downloads Quartus Forth and RsrcEdit for the first time to be able to quickly build an application, regardless of skill level? They would then be better able to perceive for themselves the power, portability, and eventual ease of your combined development environment. Wouldn't they then be less likely to delete Quartus Forth and RsrcEdit out of frustration, and more likely to register them? (As you can tell, I'm obviously interested in doing everything onboard.)

My wish list really comes down to one item: Steven Donahue's wonderful little tutorial should be updated and finished (by anyone with the knowledge to do it), and possibly even included in the Quartus Forth evaluation download. If not included in the zip, it should be prominently mentioned (and linked to) in the readme stuff. In the interest of selling product and boosting interest, it would behoove both the Quartus and Individeo camps for this to be done. I know I have no right to ask anyone to do this; I'm just surprised the value of the tutorial hasn't already been better exploited.

By **Neal Bridges (Nbridges)** on Sunday, April 8, 2001 - 12:53 pm: Edit

They can do just that -- there are two complete sample apps in the manual.

Pop them in the compiler and bingo, you've got fresh apps, no skills required.

Quartus Forth is a tool; in fact, it's a whole collection of tools. It's a complete compiler and development environment. This sets it apart from 'shake & bake' app-makers that only let you create one sort of app.

There are definitely challenges present in developing for the Palm. You need to read the Palm SDK docs, and understand the basic mechanisms of the event-driven GUI interface; understand the limits of the resources available on the device; understand the 'Zen of Palm' ideas, where app interfaces are designed according to certain principles, and each app strives to do one thing well.

Even Donahue's walkthrough of a 'Hello World' app runs into this. He takes you through the steps, but doesn't leave you understanding why you're executing each step. To delve into the why means you have to have a better understanding of the Palm OS, etc.

After walking through a 'hello world' tutorial, you're left knowing how to make an app with a button, maybe a menu, and a small feeling of accomplishment. But nobody wants to write that app -- they want to write their app, which is always going to be at least an order of magnitude more complex than 'hello world'. So they immediately have questions that go well beyond what the tutorial offers.

What about you, Norman? What's your app -- how can I help? We could use your experiences to extend Donahue's tutorial into its next chapter.

Neal

By **Norman "Buz" Stewart (Buz)** on Sunday, April 8, 2001 - 01:43 pm:
Edit

I love Duco and Year, and I've been able to learn from them. But they only give me a sense of your accomplishment. I'm not really comfortable tinkering with them -- as simple as they may be, they still seem complex to me -- whereas I have tinkered Donahue's "Hello World" into an entirely different app (that also doesn't do anything). And he did help me understand the steps I took in building it, at least enough that I feel comfortable tinkering without too much fear of mutilating my app. If his "QTip" app had been more than just a cliffhanger at the end of the "Hello World" section, I would be already tinkering with some interactive components. I like to tinker. And I prefer to tinker, at least at this point in time, with very little code to debug and without causing too many resets.

I know I need to read all of the other stuff you mentioned. I know it's important, and in fact I'm already doing it, but it's so much theory and so little hands-on! There's something to be said for the "Hello World"-type concept of hands-on learning. They don't make you learn grammar before teaching you

how to write your name on a piece of paper for your parents to read. But even without the grammar, it's still a real skill! And now you have something to tinker with! You can get creative and write your name on the walls with ten different crayons! You can have fun now playing with the "writing toys", in spite of the fact that you don't really know what you're doing, and those yucky grammar classes are right around the corner!

As for my app, I'm afraid my ideas are still a little too vague to be sharing them without a great deal of embarrassment...

By **Neal Bridges (Nbridges)** on Sunday, April 8, 2001 - 01:45 pm: Edit

I understand, Norman. I bet what you see as a mountain is in fact just a series of small hills in succession. Feel free to write me privately if you'd rather; glad to help!

Neal

By **Andrew Kearns** on Sunday, April 8, 2001 - 01:58 pm: Edit

Norman the feeling I get from your messages is that you want to tinker with some gui objects and have them do something -- not necessarily anything important at this point, just a specific action.

I went through this recently as well, my current project is to take a completed program I wrote in PocketC (Pocket Dimension if anyone is curious) and covert it to Quartus Forth while at the same time enhancing it with the features that I couldn't access from PocketC.

I had been struggling for months just getting the concept of Forth down while also finishing school, so it isn't actually much focused time. I got nowhere, for me I needed to have a project that does something, even something simple and contrived.

Hmm, I think I'm rambling now, but what I'm suggesting in a round about way is that if you want the QTip calculator, I suggest you do it. We will help. I know a few people in the forum have already gone this route and completed the project.

Neal - My app isn't actually large at the moment, I'm doing the engine which is nice and small, but since it is a role-playing game the content is the bulk. I am going to have to decide to go with external databases or program modules. I was thinking about calling modules because I already know how to access external databases. 🙂

Andrew

By **Norman "Buz" Stewart (Buz)** on Sunday, April 8, 2001 - 02:03 pm: Edit

Thank you, Mr. Kearns. I think I'll do just that. If I run into something I can't figure out from other discussions or the docs, I'll start a new thread.

Norman I will also be waiting, you have expressed many of the problems I am having. I have tried to read the Palm SDK documents, but it doesen't lead to anything. I simply don't understand them. A very simple app is what I need, where a lot of this stuff is used.

Andrew you got it, I need to take apart an app and try new things on it. The "Hello World" app got me started, but like Norman has stated it stops when it started to get interesting.

Neal, I do realize how difficult it will be to write something for all of the different forms of newbies. It's either to easy or just not easy enough.

Have you ever thought of teaching on online college course for Quartus Forth

Gary -- nice idea. I'll have to find some digital chalk and blackboard.

Have you looked at Swatch? It does lots of neat GUI things.

Another good one is Carl Jacobsen's PhoneDecode.

Neal

I've been looking at "wikis" a lot lately, A "wiki" is a collaborative web site that allows anyone to add anything they want, and to edit the existing content. Basically, it is a web site written by the users. The original wiki is at http://www.c2.com/cgi/wiki?WikiWikiWeb. Lots of others have been set up.

The benefits of that sort of thing over the Quartus forum, newsgroups, and mailing lists is that people can reorganize and edit the content as necessary to keep it all making sense.

I haven't found a Forth wiki yet. If one does not exist, how about we start one? The MeatBall wiki (at http://www.usemod.com/cgi-bin/mb.pl?MeatballWiki) is pretty open to anyone.

Once we find one, we might try collaboratively putting together a set of Quartus tutorials there.

-- Kris

By **Barry Ekstrand (Ekstrandbb)** on Sunday, April 8, 2001 - 10:00 pm:
Edit

Kris,

I had never heard of 'wiki' term before, but the concept of collaborative development with global virtual teams is something that we do use in my "real" job. I think it is a great idea to use the concept for building tutorials and snippet documentation. As active as this forum group is, and with the willingness to assist that seemingly everyone here exhibits, I can't help but believe some great reference material will be generated quickly and without undue burden on individuals. I think you are absolutely on target with the suggestion.

Barry

By **Andrew Kearns** on Sunday, April 8, 2001 - 10:58 pm: Edit

That sounds like a great idea. With a link on the Quartus site, us newbies can easily find our way there.

Besides, you can never have too much support. 🙂

Andrew

By **Kris Johnson (Kdj)** on Monday, April 9, 2001 - 12:10 am: Edit

I've moved the discussion of a wiki over to the "Interest in a Forth Wiki" topic in the General area.

-- Kris

By **Kris Johnson (Kdj)** on Monday, April 9, 2001 - 09:39 pm: Edit

I've created a wiki, and started the outline of some tutorials:

http://www.sleepless-night.com/cgi-bin/twiki/view/Main/QuartusForthTutorials

Please feel free to add more content.

The home page for the wiki is at http://www.sleepless-night.com/wiki

-- Kris

Mr. Johnson, this is a very nice thing you've done. On behalf of new users (at least the ones whose gap to be bridged is similar to my own), thank you very much! I hope it flys!

It's only going to fly if people participate. If you're interested in seeing it grow, please use it.

-- Kris

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Buzzword Report Generation

By **Shawn** on Friday, April 6, 2001 - 09:08 am: Edit

Alright, I've ported Leo Brodie's old Buzzword Report Generation program to the Palm in Quartus. I've uploaded it to /incoming and GPL'd it.

Enjoy.

By **Neal Bridges (Nbridges)** on Friday, April 6, 2001 - 01:45 pm: Edit

I'll post it in Contrib. Thanks, Shawn!

Neal

By **Chapman Flack** on Sunday, April 8, 2001 - 06:18 pm: Edit

Say, Neal, is it more convenient for you if I upload things to /incoming rather than sending you attachments as I've been doing? What's the address exactly?

Cheers,
-Chap

By **Neal Bridges (Nbridges)** on Sunday, April 8, 2001 - 06:22 pm: Edit

Hi Chap. You can ftp to ftp.quartus.net anytime -- but let me know it's there. But email is fine also. Have you sent me something that I missed?

Neal

By **Chapman Flack** on Monday, April 9, 2001 - 03:01 pm: Edit

Well, I don't know--when I go to the Contrib page the date on floatlib still reads 29 November. My only concern is that version had the misdefined comparison operators that returned double cell instead of single cell flags, and the more people code to that version, the more code will be broken by the fixed version and have to be revised. (Not to mention the version I sent recently shaves a couple K off the code space).

But I admit I've just been looking at the date, so if you put the update out there and didn't change the date, I wouldn't have caught it.

-Chap

The date changes automatically, Chap. I don't seem to have your update -- please resend!

Neal

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How do I parse/evaluate a string at runtime?

By **Tammy Cravit (Tammycravit)** on Friday, April 6, 2001 - 01:33 am:
Edit

I've been experimenting for the past couple hours trying to figure this one out, but I've clearly hit a stumbling block in my understanding of how Forth works. If anyone can help, I'd appreciate it.

I'm trying to write some words which are passed a chunk of Forth code as a string at compile time, and which evaluate the string at run-time. The basic idea is to be able to do something similar to the following:

```
\ x should be less than 10
: my-word ( x -- y )
    require" 10 <"
    do-something-with-x
    ;
```

and to have the require" word turn into the following when my-word is executed:

```
  dup 10 < if
    \ do some stuff
  then
```

Can someone please point me in the right direction?

Thanks in advance,
Tammy

By **Neal Bridges (Nbridges)** on Friday, April 6, 2001 - 02:04 am: Edit

I'm not sure exactly what you're trying to do, Tammy. Can you break it down a bit further?

Neal

By **Kris Johnson (Kdj)** on Friday, April 6, 2001 - 08:36 am: Edit

The EVALUATE word will interpret a string. So I think you want your
MY-WORD definition to be something like this:

```
: my-word ( x -- y )
  s" 10 <" evaluate if do-some-stuff then
  do-something-with-x
  ;
```

To replace S" 10 <" EVALUATE IF DO-SOME-STUFF THEN with REQUIRE" 10
<", I think this will work:

```
: require" ( expr" -- )
   [char] " parse evaluate
   s" if do-some-stuff then" evaluate
; immediate
```

Note: I haven't compiled or tested any of this. It may be completely wrong.

It's not clear to me what you're trying to accomplish, so I apologize if this
turns out to be unhelpful. I do notice that the above example won't work,
as "10 <" will consume X, and so DO-SOMETHING-WITH-X would fail.
Maybe you need to add a DUP somewhere.

-- Kris

Neal,

I've been doing some reading lately about "Design by Contract", and they
take the model of -- for instance -- explicitly ensuring that data values do
not exceed the range they're assumed to "always" be. Sort of like
assertions.

For instance, if I wrote a word to convert from degrees C to degrees F, and
I wanted to constrain it to operate only on 0-100 degrees C, I want to be
able to write something like this:

```
: convert-ctof ( degc -- degf )
    require" 0 >="
    require" 100 <="
    9 5 / * 32 +
    ensure" 32 >="
```

```
    ensure" 212 <="
    ;
```

That's a contrived example, I know, but I'm partly trying to do this as an exercise in learning more about the inner workings of Forth.

Kris, I'll play around with your example. Is there a way to build the DUP into require" so that it doesn't consume X?

Back to experimenting, I guess... :-)
Tammy

By **Neal Bridges (Nbridges)** on Friday, April 6, 2001 - 01:49 pm: Edit

Thanks, Tammy -- that makes more sense to me.

Have a look at the assert library. It lets you do something very similar to what you describe.

Neal

By **Tammy Cravit (Tammycravit)** on Friday, April 6, 2001 - 03:26 pm: Edit

Neal,

Thanks for the help. The code from the assert library seemed to mostly do what I want.

Now I'm trying to add a twist -- saving the chunk of code being evaluated so that if the assertion fails, I can display the assertion that failed. I tried the following:

```
variable expr-caddr
variable expr-len

true constant bycontract-enabled

: precond-error
 s" Precondition failure:" type cr
 expr-len @ expr-caddr @ type cr
 abort" DbC failure!" ;

: require(
 bycontract-enabled if
```

```
 [char] ) parse
 2dup
 expr-len ! expr-caddr !
 evaluate
 state @ if
       postpone 0=
  postpone precond-error
     else
  0= assert-error
     then
 else
  postpone (
 then
 ; immediate
```

but it displayed garbage. In thinking about it, I realized that parse probably
returns the c-addr and length of one of Forth's internal buffers, which
subsequently gets overwritten.

Is my guess correct? If so, how do I change the above word to copy the
string returned by parse so I can reuse it later? Also, what do the
"postpone" and "immediate" words in the definition of require(do?

Thanks for the help!
Tammy

By **Neal Bridges (Nbridges)** on Friday, April 6, 2001 - 03:49 pm: Edit

assert(is an immediate word, meaning it takes action when your
compiling. It parses the line up to the next), and compiles some support
code around that phrase to test for it at run-time.

I have a complete solution for a 'talking assert' here -- but if you'd rather I
point you in the right direction, the next hint is **POSTPONE SLITERAL**.

Neal

By **Kris Johnson (Kdj)** on Saturday, April 7, 2001 - 01:34 am: Edit

I don't know if you still care about the DUP question, considering your
explorations into ASSERT(. But if you were still using your REQUIRE" word,
my advice would be to put it inside the test, like so:

```
: my-word ( x -- y )
  require" dup 10 <"
  do-something-with-x
```

;

In other words, the check should leave the stack in its original state. This way, if the precondition-checking is disabled, the function still works.

Putting a DUP into REQUIRE" itself is probably not the thing to do, unless you are always going to assume that there is exactly one stack element that will be checked. Many preconditions will apply to multiple stack elements.

BTW, what is the conventional Forth wisdom on precondtions, postconditions, and assertion checking? I didn't see anything by Chuck Moore specifically on this subject, but my guess would be that he would be against it. I think he would say that writing correct code is a better approach than testing for incorrectness. I guess Chuck never makes mistakes.

- Kris

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A minor MathLib caveat, for anyone using it

By **Chapman Flack** on Thursday, April 5, 2001 - 05:13 pm: Edit

Here's a message I just sent today to MathLib's author. The problem *probably* doesn't mean that results will be wildly inaccurate, but it probably does mean they won't be quite as good as the MathLib source comments say.

Dear Mr. Huebner (and Handspring folks),

I have been wondering for some time if I should try to verify the compilation of
the various double-floating constants in the MathLib code. As I'm sure you
remember from when you worked on it, the numerical analysts who wrote the
original routines provided both hexadecimal bit patterns and scientific-notation
equivalents for the constants in their algorithms, accompanied with comments
like this one (from s_expm1.c):

* Constants:
* The hexadecimal values are the intended ones for the following
* constants. The decimal values may be used, provided that the
* compiler will convert from decimal to binary accurately enough
* to produce the hexadecimal values shown.

The trouble, of course, is that the compiler routine to convert from decimal
scientific notation to internal form is inexact, so when that notation is used
somebody has to check the object code to see that the compiler produced the right
results.

I finally got around to it and looked into the libr 0 resource of the MathLib
version that came with my Handspring Visor. The only routines I have looked at
so far are __ieee754_acos and __expm1, but unfortunately here is what I found
in just those two routines:

Segment: 1 50644 bytes First Segment
…

Code: 000234 2812 bytes __ieee754_acos e_acos.c
038c: B5688F3C should be B5688F3B (pS3) also at 06c0 0aac
04ea: 9C598AC7 should be 9C598AC8 (qS2) also at 081e 0c0a
052a: 1C8A2D4C should be 1C8A2D4B (qS1) also at 085e 0c4a
05bc: 33145C08 should be 33145C07 (pio2_lo) also at 08da
05fc: 54442D17 should be 54442D18 (pio2_hi)
...
Code: 005708 2370 bytes __expm1 s_expm1.c
57c8: FEFA39F1 should be FEFA39EF (o_threshold)
5882: 35793C75 should be 35793C76 (ln2_lo) also at 58ba 598a
5ac4: 6E09C32B should be 6E09C32D (Q5)
5B26: 9EAADBB8 should be 9EAADBB7 (Q3)
Code: 00604c 1512 bytes __ieee754_exp e_exp.c
...

The fact that the compiler messed up pi/2 (both the hi and lo portions) in the
cosine routine probably means there are similar problems in the other trig
functions. In general it looks like the compiler perturbed nearly half of the
constants (based on my sample of two routines--I started to go crosseyed).

Not being a professional numerical analyst myself, I can't say to what extent the
messed up constants affect accuracy. The constants that are off seem to be off
usually in two low order bits. What the algorithm does with them of course
determines how that error propagates. The library is surely still better than
nothing for many purposes, but it is dangerous to make assumptions about what
kind of applications will be compromised. What is a sure bet is that the error
analyses and bounds given in the algorithm comments can't be assumed to apply
to MathLib.

It seems to me the safest way to fix the problem is to edit the source so that the
actual hex values are used for the constants--it should be the decimal versions
in comments. (A real quick and dirty fix would be to go through MathLib.prc with
a hex editor, but, yuck, and it would be hard to be sure everything was caught.)

It might be tricky to use the hex values in dataless code, but it seems to me
there is a way for a library to have a data segment, which involves

allocating it
when the library is opened and using the Feature Manager to keep track of it.
I have not done it but am fairly sure I've seen it in the docs. Since MathLib only needs constant data, a solution might even be less complex than a general
global data space. Also, consolidating frequently used constants in a data resource could well shrink the library.

The only other suggestion I would make, since some source editing will be needed
anyway, is to add the code to raise the Inexact or Underflow conditions in appropriate places. These source files contain comments saying when they raise those conditions, but they don't contain the code to do it:

e_sqrt.c s_atan.c s_ceil.c s_expm1.c s_floor.c s_ilogb.c s_log1p.c s_nextafter.c s_rint.c s_round.c s_tanh.c

The required code looks like:

#include <FloatMgr.h> // in SDK 3.5, earlier it was called NewFloatMgr.h

_fp_set_fpscr(flpInexact | _fp_get_fpscr());
or
_fp_set_fpscr(flpUnderflow | _fp_get_fpscr());

Thank you for providing MathLib; it's a wonderful addition to the PalmOS world
and I hope it won't be too difficult to fix up these remaining issues. I would offer to help but I don't use CodeWarrior and it seems like reworking for GCC
would be the hard way to go. I'll help as much as I can by brainstorming or looking stuff up. Maybe the Handspring folks will also help, since they
have an interest in distributing a correct version; I would hope Handspring includes the fixed version as an OS update downloadable at their site.

Sincerely,

Chapman Flack

By **Neal Bridges (Nbridges)** on Friday, April 6, 2001 - 01:43 pm: Edit

Good eye, Chapman.

Neal

By **Dave Bennett (Dbennett)** on Friday, May 18, 2001 - 06:53 pm: Edit

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LOCALS| ?

By **Leo Wong** on Thursday, April 5, 2001 - 08:33 am: Edit

Are there plans to add LOCALS| to Quartus Forth? I'm asking for a friend.

By **Neal Bridges (Nbridges)** on Thursday, April 5, 2001 - 10:18 am: Edit

Hi Leo. I have no immediate plans to add the LOCALS wordset; however, there's a tinylocals library file available in the File Area that provides a different kind of locals functionality.

Neal

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Quartus Forth Manual in PDF format

By **Neal Bridges (Nbridges)** on Wednesday, April 4, 2001 - 09:09 pm:
Edit

The Quartus Forth manual is now available in PDF format, in the file area:
http://quartus.net/files/PalmOS/Forth/Docs

Neal

By **Barry Ekstrand (Ekstrandbb)** on Thursday, April 5, 2001 - 09:10 am: Edit

Neal,

On my system the pdf file opens up with either gray or black page backgrounds, depending on the particular page. Readability is zero on those with black backgrounds. I've tried adjusting preferences in Acrobat Reader a bit but with no success. I'm not sure if it is my version and/or preferences, but thought I'd pass it on to you.

Barry

By **Neal Bridges (Nbridges)** on Thursday, April 5, 2001 - 10:19 am: Edit

What version of the Acrobat Reader are you using, Barry?

Neal

By **Barry Ekstrand (Ekstrandbb)** on Thursday, April 5, 2001 - 11:58 am: Edit

Neal,

It is Acrobat Reader v3.02.

Barry

By **Neal Bridges (Nbridges)** on Thursday, April 5, 2001 - 12:01 pm: Edit

Thanks Barry. There's a newer free version available, but I'll try and gen the PDF for backward compatibility.

Neal

By **Neal Bridges (Nbridges)** on Thursday, April 5, 2001 - 12:09 pm: Edit

Hi again -- that file appears to be in PDF 1.3 format, and should work (works here); can you try the more recent reader and let me know?

Neal

By **Barry Ekstrand (Ekstrandbb)** on Thursday, April 5, 2001 - 01:38 pm: Edit

Neal,

I downloaded and installed Acrobat Reader v4.05c and everything looks correct now. The older version of Reader didn't display the background of the pages properly at all, but all is well with the current version.

Barry

By **Neal Bridges (Nbridges)** on Thursday, April 5, 2001 - 01:39 pm: Edit

Glad to hear that, Barry.

Neal

Add a Message

Which PalmOS PDA to get

By **Matthew Blair (Blair)** on Wednesday, April 4, 2001 - 10:31 am: Edit

Hi all,

Been a while since I posted here, but I've been lurking for some time. As some of you may know, I sold both of my Palms and gave up my Quartus license a while back; things got really busy for a good long while with a new job (almost a new career) and all of the learning and energy that requires.

Recently, though, a friend of mine bought a Visor Platinum and.....I believe I'm ready to come back into the fold.

Things have changed a bit since I last went shopping for PalmOS PDAs (a year ago!). Handspring has released several new additions to their line, as well as Palm and Sony. And so we get to the heart of this thread: I need opinions from people I trust and who I know actually USE their PDAs.

I am currently leaning toward the following PDAs:

Handspring Visor Deluxe
Handspring Visor Platinum
Palm IIIxe

These were selected due to the fact that each has 8MB memory and can be had for less than $300.

Personally I am leading toward the Handspring line due to the Springboard offerings.

I know this is somewhat off-topic for this forum, but I wanted to gather the opinions of people who use their PDAs in a similar manner to how I hope to use mine!

Thanks,

Matthew

By **Neal Bridges (Nbridges)** on Wednesday, April 4, 2001 - 04:37 pm: Edit

The Platinum is the fastest of the three; I'm carrying one lately. It's the best choice of the three on your list.

Neal

Actually, I've had a chance to use both the platinum and my IIIXe, and I haven't found the difference in clock speed to matter much from a user's point of view. The IIIXe is being discontinued by Palm, so you should pay only a 'rock bottom' price if you decide on that one. Both the platinum and visor deluxe, to me are pretty much the same. I've also seen the Sony Clie and Palm m100 (just like the new Palm m105, the IIIXe's replacement). They're good, but have smallish screens for programmers. The Sony also uses its own USB drivers, instead of using the one supplied with the Palm desktop. I guess I would recommend either the Deluxe or a cheap IIIXe if it can be had.

I'd avoid the Clie, as it seems from what I've seen like they are more prone to screen breakage than other Palms. I have a Visor Deluxe which I use for development now that I carry a IIIc as my main device, and I've been quite happy with it. In fact, I kinda wish I'd bought a Visor Prism instead of the IIIc now.

I think of the three you mentioned, I'd go with one of the Visors.

Tmamy

My favorite thing about my Handspring is the Backup springboard module. Just pop it in, tap the button, and everything gets backed up.

It saved me a couple of times when bugs in my Quartus apps made a hard reset necessary. And when I dropped the Visor and had to get a replacement.

-- Kris

Thanks for the comments! It looks like the Visor is heavily favored so far among respondents.

A couple of questions based on the responses above:

(1) Of those who own Visors, which SB modules do you own (if any) and

actually use?

(2) Neal: I was leaning toward the Platinum, mainly because it is further ahead on the technology curve than the Deluxe for only about $50 more. Is there anything else to recommend the Platinum, in your opinion, besides the speed increase? I handled a Platinum and a Deluxe side by side, and I don't think I noticed much difference between the two (OS differences aside). Where do you notice the speedup?

Thanks again all, and keep those comments and opinions coming!!!

By **Neal Bridges (Nbridges)** on Wednesday, April 4, 2001 - 11:23 pm:
Edit

I've only got the 8 meg flash module for the Visor.

The speed increase doesn't matter much for most apps, but it does speed up compile times, etc. With CruiseControl, Benchmark 2.0 clocks the Platinum at 244% (the IIIxe is the 100% baseline) -- not too shabby.

Neal

By **Neal Bridges (Nbridges)** on Wednesday, April 4, 2001 - 11:24 pm:
Edit

Oh -- additional reasons to choose the Platinum? Hmm, it's just a Deluxe with a faster processor. It's also silver in colour. That's it.

Neal

By **David** on Thursday, April 5, 2001 - 07:31 am: Edit

I thought I would add another choice here. I twisted my Palm III to the point where it was unusable (still works though). I bought a TRGpro to replace it because I wanted an industry standard CF slot. I now have over 2000 memos of Forth programs and the Manuals, Tutorials, PDF and all kinds of things on a Microdrive comming to a total of 130MEG. It uses AutoCF which will allow access to very large DBs. One I have at 11meg. Iy also is accessable by using systraps in QF. On board mem is 8MEG. It also has the PalmIII form factor so all of my acc. still work.

By **Kris Johnson (Kdj)** on Thursday, April 5, 2001 - 10:29 am: Edit

The only Springboard module I have is the backup module. The only other one that seems useful to me would be an 8- or 16-MB flash module. The Presenter-to-Go module seems like it would be cool if I have to start giving lots of presentations.

One thing about Visors: the IR beaming seems kinda flaky. For one thing, the port is on the side rather than at the top, so lining up with another user is a little awkward. Second, it seems to fail a lot of the time. Has anyone else seen this or is it just me?

-- Kris

By **Neal Bridges (Nbridges)** on Thursday, April 5, 2001 - 10:30 am: Edit

The beaming works fine on both of the Visors here in the Quartus lab -- though it is a stronger IR than the Palm, and sometimes it helps to hold it farther away.

Neal

By **Chapman Flack** on Thursday, April 5, 2001 - 12:18 pm: Edit

I've never had any trouble beaming with either of my Visor Deluxen, but I just talked a friend into getting one and we had the darnedest time beaming stuff over to hers.

I began to speculate that her LED/receiver are angled slightly down inside the case--it seemed to help to hold her visor a little -above- the transmitting PDA.

I use the backup module regularly. I've used an eyemodule a few times. I'm looking at the thinmodem plus 56K, which includes 8MB flash.

I've looked at the TRG Pro page--it looks like the ultimate geek toy. I'm not sure I'd be comfortable with that kind of an investment in my shirt pocket everywhere I go, but one thing I like about it is the better sound circuitry. I have the free app TuneIt on my visor; it's really handy, but have you ever tried actually tuning a musical instrument to a square wave? Yeiech.

-Chap

By **William Tanksley** on Thursday, April 5, 2001 - 02:59 pm: Edit

I used to use my Backup module all the time, but now I have a MemPlug (which reads and writes SmartMedia memory cards, and comes with a very nice backup programs along with other stuff) and have switched entirely to it.

I also have a Innopack/2V, but don't use it much now that my MemPlug is monopolizing its slot.

I highly recommend the MemPlug; its developers are very responsive. They

just finished a port of CSpotRun to allow it to read DOC files directly off the SM card, and freed up a lot of space for me.

Thanks again for the comments!

I have decided to go with the Visor Platinum - as a matter of fact I have just become the winning bidder on eBay for a new unit for about $50 less than retail. Hopefully the transaction is successful!

Regarding the MemPlug - is SmartMedia similar to CF in that there are other devices besides storage which can be used with SmartMedia?

I've also been interested in the 2MB memory module which incorporates an LED alarm flasher, since I am hearing impaired; however, I have not found any reviews yet to indicate its effectiveness....

Thanks again! I'm still interested in hearing comments about the SB modules so keep them coming!

I learned last night from a message board dedicated to Visor owners that there may be a problem with the LCD unit on the Platinum. Specifically, the problem has to do with streaking and flickering at the higher resolution grayscale modes. Does anybody here know anything about the details of this problem? Is it really a widespread problem with Platinums or just a vocal few people?

Thanks,

matthew

I haven't noticed it, Matthew, but then I rarely run in grayscale mode.

Neal

Well, I just paid for the Platinum, so hopefully my conversion from the Palm III series to the Handspring line will be rewarding.

Too bad I sold my Quartus license along with the Palms!

Thanks everyone for taking the time to send comments in about the devices

as well as the Springboard modules. I'm looking quite forward to being able to pop in additional memory as needed for backup or storage, plus the faster processor of the Platinum! And especially looking forward to rejoining the Quartus camp!!!

Matthew

By **WilliamTanksley** on Monday, April 9, 2001 - 08:25 pm: Edit

You asked, "is SM similar to CF in that there are other devices (aside from flash memory) which may be used…"?

Um… Well… No and yes.

No, there are no other devices. Yes, it's similar to CF, which also has no other devices which work with the Visor. There _are_ a couple of other devices for CF (they're very limited, but they exist), but there are no drivers for the Visor.

So I'm still happy with the SM I got ;-).

HOWEVER, I just found that someone just announced a real Springboard CF reader, so that's now just as attractive as the MemPlug SM reader (except, of course, that SM costs less).

-Billy

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Auto Shift

By **David Slay** on Tuesday, April 3, 2001 - 07:35 pm: Edit

Has anyone tried to make a get a field to auto shift the way memo pad does? I have tried just checking the auto shift box in RsrcEdit, but it doesn't seem to be that simple. I have the field set as Editable, Useable, Underline, AutoShift, and Single Line. Any thoughts?

Thanks,
David

By **Neal Bridges (Nbridges)** on Tuesday, April 3, 2001 - 07:44 pm: Edit

Silly question perhaps, but are you running ShiftHack?

Neal

By **David Slay** on Wednesday, April 4, 2001 - 08:03 pm: Edit

Neal,

No ShiftHack. I had never even heard of ShiftHack until I did a keyword search for "auto shift".

Actually, I figured out what I was doing. It was a stupid POSE thing. If you are using pose and typing on the keyboard, the letters are not autoshifted. Once I compiled the standalone app and moved it to my Palm, it worked fine.

Sorry for yet another stupid question.

David

By **Neal Bridges (Nbridges)** on Wednesday, April 4, 2001 - 08:54 pm: Edit

Never heard of ShiftHack? I've got to step up my advertising! 😊

Neal

By **Shawn** on Monday, April 9, 2001 - 03:20 pm: Edit

ShiftHack Rocks! Autoshift is annoying when writing Forth code

By **Neal Bridges (Nbridges)** on Monday, April 9, 2001 - 04:11 pm: Edit

Thanks! It's a favourite of mine too.

Neal

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AppInfo block

By **Mike Will** on Monday, April 2, 2001 - 11:17 pm: Edit

I'm not clear on the methodology for the AppInfo block. It's basically a record that's attached to an application. To create and use this block for an app, I would have to open a reference to the app's database from within the app's database, so to speak.

Should I do an OpenDB and use that reference (dbP.) to mess around with the record pointed to by appInfoID. ? Or is the dbP. of the current app available without explicitly opening its database?

I'm not asking for nitty gritty code here, just the basic approach.

Thanks

Mike

By **Neal Bridges (Nbridges)** on Monday, April 2, 2001 - 11:54 pm: Edit

Here's an existing thread on categories that shows access to the AppInfo block: http://www.quartus.net/discus/messages/23/736.html?#POST4561

Neal

By **Mike Will** on Tuesday, April 3, 2001 - 07:57 am: Edit

Thanks, Neal.
This is good code and I looked at it before. However, it appears that Rick is using an entirely separate, external database here, not the application database itself. Correct me if I'm wrong.

Mike

By **Neal Bridges (Nbridges)** on Tuesday, April 3, 2001 - 10:41 am: Edit

You're right, Mike, but the same technique should pertain. Open your application database for writing just as though it were an external database.

Neal

By **Mike Will** on Tuesday, April 3, 2001 - 11:59 am: Edit

Ok, that was my approach. Ignore the fact that I'm in the application and just open and close it as if it was external. It does seem to work, but I'm getting unexplainable bus errors in the emulator. That's usually a clue that there's something wrong with database access, which is why I came to the forum. (The Quartus Forum, sounds positively gladiatorial). So, I'll plug onward and see if I can find the problem.

Thanks again, Neal

PS I never met a 32-bit Forth I liked.

Mike, I've never tried specifically what you're trying. Do you get the same bus errors if you try to open another application for write?

Neal

Nope.
My code works fine for simple databases, but not for apps. A few interesting notes:
- closing the app database causes a bus error
- DmDatabaseInfo causes an address error
- DmGetAppInfoID causes an address error, makes the specified app invisible and non-deletable

Ok, so you can't use appInfo with an app, only a data-database. Why is it called appInfo? Why would you use it at all? Why not just create a brand-spanking new database and design your own records as you see fit, without all this nonsense?

That's what I'm gonna do.

Mike

Sorry, Neal. In answer to your latest question, the answer is Yes, not Nope.

Mike

Mike; that tickles some memory in my brain. I think you're right, appInfo blocks only live on data (non-resource) databases. I'll have to dig into the

docs later.

Neal

By **Neal Bridges (Nbridges)** on Tuesday, April 3, 2001 - 07:44 pm: Edit

Mike; that tickles some memory in my brain. I think you're right, appInfo blocks only
live on data (non-resource) databases. I'll have to dig into the docs later.

Neal

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Learning DOES>

By **jeff** on Monday, April 2, 2001 - 03:17 pm: Edit

Neal (and anyone else), I'm trying to learn the concept of using DOES>. I think I have it down, but something doesn't make sense. Take the following example:

```
: CONST ( n -- )
    CREATE , DOES> @ ;

10 CONST R
R
```

A simple enough example (used everywhere I find on the net). Now, when CONST is compiled, its code-field basically looks like this:

```
CREATE , ;CODE @ NEXT
```

Or something similar anyway. And when R is created, its parameter-field contains a 10 and its code-field looks like this:

```
(jump to ;CODE section of CONST) NEXT
```

What I don't understand is where does the @ get its value to fetch? I know it is the parameter-field, but where does the parameter-field address get pushed onto the stack?

If the parameter-field address of a word is automatically pushed onto the stack when a word is executed, then if I have:

```
: go ;
```

When I type GO there is nothing on the stack... I'm just confused 😊

Thanks. And sorry if this was too verbose...
Jeff

By **jeff** on Monday, April 2, 2001 - 03:23 pm: Edit

Hehe, within minutes of writing this I found the answer. For anyone else learning Forth or is interested....

Words created with : are added to the dictionary with an empty code-field and parameter-field. However, words created with CREATE automatically have their code-field initialized with code to push the address of their parameter-field onto the stack.

Is this correct, Neal?

By **Neal Bridges (Nbridges)** on Monday, April 2, 2001 - 08:45 pm: Edit

Jeff, that's conceptually more-or-less correct, but the actual implementation differs quite a lot.

CREATEd words return a dataspace address, and execute a routine. By default, that routine does nothing, so they just place their dataspace address on the stack. If you modify a newly-CREATEd word with DOES>, you assign it a new routine to run after it places that dataspace address on the stack.

Neal

By **jeff** on Tuesday, April 3, 2001 - 08:15 am: Edit

Can I ask how they put their parameter-field onto the stack? When they are CREATEd, is a something added to their code-field to do this? or is it a control bit in their dictionary entry? or something else?

Jeff

By **Neal Bridges (Nbridges)** on Tuesday, April 3, 2001 - 10:35 am: Edit

What you're calling the 'parameter field' -- an old term from the early days of Forth -- is a dataspace address; it is compiled into a new CREATEd word as a literal value. Quartus Forth functions have no 'code-field', as such.

The Forth systems you're reading about are doubtless threaded systems, either 'indirect' or 'direct' threaded. In contrast, Quartus Forth is a native-code system, meaning it directly generates optimized machine code while compiling. It's not a threaded system; threaded systems are an order of magnitude slower.

Modern Forth systems are virtually all native-code compilers.

Neal

By **Chris Bucsko** on Thursday, April 5, 2001 - 05:15 pm: Edit

I'm having a hard time figuring out a lot of words like DOES>, inline, immediate, etc. The old Starting Forth book is especially dated when it comes to these concepts. Is there a better reference around which explains run-time vs. compile time behavior in Forth? It's not so much the words themselves, but why and under what conditions you would use them.

By **Neal Bridges (Nbridges)** on Friday, April 6, 2001 - 02:06 am: Edit

Hi Chris. There are a couple of books available, as I've discussed here in the Forum before; The Forth Programmer's Handbook, and Forth Application Techniques, both out of www.forth.com.

However, what might be more useful is if we go over the problem areas one at a time here in the Forum. Pick one, and we'll start.

Neal

By **Chris Bucsko** on Friday, April 6, 2001 - 05:45 pm: Edit

Thanks for the offer! Let's start with DOES>. Leaving aside the dataspace structure for the moment, what exactly does the CONST word from above do? I didn't know you could use CREATE in a colon definition, but it's not surprising. However the syntax " CREATE , DOES> @ " loses me completely.

By **Neal Bridges (Nbridges)** on Friday, April 6, 2001 - 06:16 pm: Edit

Let's first look at **CREATE**.

```
create fred
fred . -> 526
```

Here, **CREATE** makes a new function (named **fred**) that returns the next available address in dataspace. Note that the '526' depends on how much dataspace has been used thus far, and will vary.

Let's take it the next step, and store some data at fred.

```
create fred 5 ,
fred @ . -> 5
```

Here we use **,** to store a value in dataspace right after **fred**. The **,** also moves the dataspace pointer (**HERE**) forward by one cell.

So now **fred** works just like a variable. We can fetch from it (with **@**) and store to it (with **!**).

```
7 fred !
fred @ . -> 7
```

As a matter of fact, we could even redefine **VARIABLE** using **CREATE**:

```
: VARIABLE  CREATE 0 , ;
```

Now, by default, that's all a **CREATE**d function does -- it returns an address in dataspace. But that's not all it can do. You can make it do something else, by telling it what it **DOES>** after you **CREATE** it.

A **CONSTANT** is like a **VARIABLE** that automatically fetches its contents with **@**. So we can define **CONSTANT** like this:

```
: CONSTANT ( x "name" -- )
  CREATE ,  ( this creates "name" and stores x after it  just as we did above)
  DOES> @  ( this tells the latest CREATEd word what to do when it runs -- in this
case, fetch what is at its address)
;
```

Neal

FWIW, I've found it easier to understand Forth if I don't get into implementation details like 'code-field', 'parameter-field', and so on. As Neal mentions, not all Forths are implemented this way, and in any event, you don't really need to know the internal structures of the dictionary to write applications.

I think it's best to look at the more abstract descriptions of operations as in Forth Programmers Handbook and the ANS Forth spec.

-- Kris

Chris -- did that help?

Neal

One thing I'd like to add for Chris (and others) that made a huge learning difference for me is this: CREATE takes its parameter from the current stream -- not where it is in code.

So if I type:

```
create foo
```

The input stream is "create foo". When CREATE is read, it grabs the next WORD from the input stream "foo" and creates it.

However, with:

```
: VARIABLE CREATE 0 , ;
```

CREATE is in a definition, but still gets its argument from the input stream. So if we now type:

```
VARIABLE FOO
```

The input stream is now "VARIABLE FOO". First VARIABLE executes, hits CREATE and grabs the next WORD in the input stream "foo" and creates it again.

Probably something already understood, but just thought I'd reiterate it.

Jeff

Sorry I was 'out of it' for awhile. This helps tremendously!! One thing I've learned lately is to look at all the characters in a Forth definition. when reading text, it's easy to skip over commas, etc. but words like , are REALLY important in Forth code. I think I'm beginning to understand when I put both Neil's and Jeff's explanation together. So when CREATE is used, should it always be followed by a , to keep the dataspace pointer updated? What other uses are there for DOES> besides CREATEed words? One thing I would like to learn how to do is dynamic arrays in Forth. It would be nice to look at all the records in a category (for instance) and CREATE an array big enough hold all the records. Then reCREATE the array if a new record is added. Has anyone ever done this?

You'd use , after CREATE only if you want to store the top item on the stack directly after the CREATEd name.

For dynamic arrays, you wouldn't use CREATE -- CREATE only works at compile-time, as it modifies the dictionary. You'd want to use ALLOCATE (or its friend (allocate)).

Neal

Well.. I just did a search of ALLOCATE and (allocate) and it looks a bit 'over my head' for now. I'm going to play with CREATE for a little, until I'm comfortable with it, and then start a new thread on some of these other words like 'inline', 'immediate', etc. But one quick question... I

haven't done a PRC of my app yet, but it looks like I should change from allot to (allocate). I only use these words a couple of times, to make room for creating records, etc. Any advice? Should I try to make a PRC on an incomplete app just to look for errors?

By **Neal Bridges (Nbridges)** on Tuesday, April 10, 2001 - 03:28 pm: <u>Edit</u>

ALLOT is just fine, so long as your doing the allotting at compile-time, and not at run-time. At run-time, you need to use **ALLOCATE** or **(allocate)**.

Neal

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Floats - the next generation - design proposal?

By **Chapman Flack** on Monday, April 2, 2001 - 03:16 pm: Edit

A few months ago Neal clued me in to the existence of the Forth Scientific Library (www.taygeta.com/fsl/sciforth.html) which is a very cool thing. It fills me with some sort of perverse glee to think of using my visor to solve small problems of the sort I'd otherwise take to the office and throw at Matlab.

It looks like it shouldn't be too hard in general to make FSL code run under Quartus, but there are two sticky points in ths FSL coding guidelines.

FSL code is supposed to assume the existence of the Floating Extension word set (guideline 5) and to assume a separate-floating-stack implementation of Forth (guideline 3). My current floatlib isn't really suitable for FSL - it can provide all the floating ext functions, courtesy of MathLib, but I had to misspell them all because they don't really work on the native float format; and my current floatlib keeps floats on the data stack.

Well, the floatlib was my Quartus get-my-feet-wet project, and now that I have a better idea what I'm doing it should be possible to do a next generation. Over the last few months I've bothered Neal a few times about adding some native support like a d2systrap, but I now understand that was unnecessary, because I was accustomed to other languages where there were things I had to beg the language implementor to do for me. As I come to learn The Way of Forth, I can see there's no reason with asm I can't write my own d2systrap just as efficient as if Neal built it into the kernel. The same goes for most of the other things I've bothered Neal about.

So, now I can't see any reason I couldn't write a new floatlib that provides its own floating stack implementation--all I need to do is allot 8 sfloats or dfloats somewhere--redefines the built in F words, and provides all the extension words in their standard spellings, all of which can be done without imposing on Neal's time. At first I thought replacing the built in F stuff would require a whole lot of patching, but I think the only patch really needed would be to rebind >FLOAT in the text interpreter, and maybe something about checking for float stack underflow. And I'm getting more comfortable with patching; I still think of it as a last resort, but it is easy enough and it does work. It could all be done via, say,:

needs f-is-sf or
needs f-is-df

where the first would just magically turn Quartus into a native 24-bit IEEE implementation, or the
second would turn it into a native 53-bit IEEE Forth.

Because mathlib does everything in double precision, f-is-sf would have to define all the extension words to do essentially SF>DF CallTheFunction DF>SF, where in f-is-df all the ext words would just call the underlying functions without conversions. So f-is-sf would give lower precision, less memory demand, faster basic arithmetic, and slower advanced functions, and f-is-df would be more, more, slower, faster, respectively, but EITHER choice would be able to run unmodified FSL code, depending on the desired precision.

Here is one design question I'm wondering about: I would be tempted to make my float stack grow *upward*. That way before trapping to one of the PalmOS arithmetic routines, I could just temporarily point a7 at the right spot *below* the operands, which would already be in the right order; it would save shuffling. But for that to
be safe I would need to be sure that PalmOS traps
switch the stack, so nothing below my (a7) will get clobbered. I haven't experimented with that yet; does anyone just know the answer? ;)

Any other comments/suggestions/critiques? I have NO IDEA when I'll have time to work on such a thing, but this is what I'm thinking right now.

-Chap

Chap,

A comment or two. Your initial floatlib project was great from my perspective. The DF format allows me to crunch some pretty big numbers in WealthBuilder's financial calculations while maintaining precision to the penny, which was an absolute requirement.

I would love to see a FSL-type library for the SF and DF formats so I can include only those functions needed in an app rather than all of Mathlib. The arguements for shared libraries notwithstanding, if I only need the exponential function I would prefer not to force a user to load Mathlib if they don't already have the need.

I can't give any worthwhile feedback on the design of such a library, but I

guarantee you I'll use it when it is available! I hope you can find the time to take this on, it sounds like a great addition to the SF and DF capabilities.

Barry Ekstrand

Chap -- so you don't think I'm not watching -- your questions need quite a bit of rumination.

By the way, your math package is terrific! Thanks again. And you've never been a bother; ask any questions, anytime.

Neal

Hmm. It seems I had never quite grokked that PalmOS runs even user applications in supervisor mode. Yecch. So even in my user app, a7 is the supervisor stack pointer, and if I were to point it into an upward growing float stack and then trap into PalmOS, everything PalmOS does internally would stomp all over my stack. Sigh.

So I would need to copy arguments from the float stack onto the return stack before float traps; but even so, with an upward growing float stack I would only need to know the total size of arguments and copy them as a single block, as opposed to the float-by-float copying I would otherwise need to preserve the right word order.

-Chap

I'm interested in doing 64 bit (or even more) float arithmetic. I'm a newbie but I've done a lot of programming on other systems. How easy would it be to get set up with extended precision? I want to do certain esoteric calendar calculations.

Chap Flack's FloatLib is available -- details here:
http://64.21.136.85/cgi-bin/twiki/view/Main/FloatLib

It allows you to use IEEE double-precision (~65 bit) floats in your Quartus Forth apps.

Neal

By **Kris Johnson (Kdj)** on Friday, April 27, 2001 - 09:08 am:

Regarding esoteric calendar calculations, you may want to look at the `calendar` and `easter` modules included with Quartus.

-- Kris

By **Chapman Flack** on Tuesday, May 8, 2001 - 10:20 pm:

Sorry, I hadn't looked at this thread for a while. The IEEE double precision floats do not have 64 bits of precision--they are 64 bits wide, but some of that is exponent and sign. The precision (including the hidden bit) is 53 bits. PalmOS does not support the 80-bit IEEE extended format.

I'm not aware of any easy way to get more than 53 bits of precision in floating point on a Palm; I've read about techniques that use two or more IEEE floats, but if you wanted to find references on how to do it--hmm, you might find them in the article "What every computer scientist should know about floating point arithmetic" reprinted from Computing Surveys; I linked to it from a few floating point topics on the wiki.

Hope that helps,
-chap

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Colorful Problem

By **Dave Ruske** on Monday, April 2, 2001 - 12:49 am: Edit

I decided to colorize my app a bit, so I spent some time playing with RsrcEdit on the IIIc emulator making some 8-bit versions of my monochrome bitmaps. I now have an interesting problem: I can build the program fine and run it from QF, and everything displays as I colored it. So far, so good. Then I go to build the standalone... and get an error **MemoryMgr.c, Line 4340, NULL handle**.

I tried running just the make with the "needs myapp" line commented out and ": go bye ;" substituted so I'd have a "go" to feed MakePRC. Essentially, this reduces the compile to MakePRC followed by a few dozen copyrsrc lines. Apparently, QF is dying while trying to bring in some of the resources.

Has RsrcEdit mangled my resource database somehow, or is QF just playing an April Fool's prank on me? Anyone bump into something similar?

By **Steve Bohrer (Skb)** on Monday, April 2, 2001 - 01:05 am: Edit

The "Go>Last Error" menu item helped me out of a similar spot, where one of the resources listed in my make file had the wrong type or ID (I forget which). The "Last Error" command took me to the line where the make died.

By **Dave Ruske** on Monday, April 2, 2001 - 09:35 am: Edit

Thanks Steve, but I the only option I have when I get that error is to reset the Palm. I'm going to throw some traces in to see if I can figure out which resource it's choking on... maybe I just need to recreate one resource.

By **Dave Ruske** on Monday, April 2, 2001 - 12:39 pm: Edit

Just to report back... turned out to be a stupid user trick.

I redefined copyrsrc as:

```
: copyrsrc   cr .s key drop copyrsrc ;
```

and stepped through the file. Much to my surprise, it wasn't blowing up on one of the modified bitmaps, but an alert. Somehow --- and I have no idea

exactly how, but I probably colorized from a stale hotsynced version --- two of my alerts had disappeared from the resource database. I copied 'em back in from one of my backups, and everything builds nicely.

I suppose I didn't discover that when running from QF because those two alerts didn't pop up when I was playing with the colorized version.

Sorry to trouble the forum with this silliness, but I guess it can add one more data point to the archive: if a resource isn't present, copyrsrc will die in such a way that you'll need to soft-reset your device. Use the code above to determine which resource it dies on and hopefully you'll be able to easily fix the problem.

By **Neal Bridges (Nbridges)** on Monday, April 2, 2001 - 10:04 pm: <u>Edit</u>

Thanks, Dave. Glad you found it. I'm enhancing CopyRsrc so that it doesn't fall over if you give it a bad resource ID.

Neal

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What's the latest release of QF?

By **Chris Bucsko** on Friday, March 30, 2001 - 05:31 pm: Edit

I see a few people alluding to version 1.2.7R of Quartus Forth. Is this an official release, or only the interim version? If it's official, how can I upgrade? I can wait if it's only the interim version.

By **Neal Bridges (Nbridges)** on Saturday, March 31, 2001 - 01:30 am: Edit

It's still in beta, but coming out of it shortly! Thanks for your patience.

Neal

By **Chapman Flack** on Monday, April 2, 2001 - 01:56 pm: Edit

Say, is there a release notes/history document on the site somewhere? I haven't found one.

Probably each release adds something new that's really useful to some developers and less interesting to others, and a release history file would be a way to see what's cool in each release without having to interrogate Neal.

-Chap

By **Neal Bridges (Nbridges)** on Monday, April 2, 2001 - 09:00 pm: Edit

Chap, I don't have a single progressive document showing what bugs were fixed where. The changes have been slight and incremental; the real new stuff is coming in the next build, and I'm documenting that presently.

Neal

By **Neal Bridges (Nbridges)** on Monday, April 2, 2001 - 10:01 pm: Edit

Chap, I don't have a single progressive document showing what bugs were fixed
where. The changes have been slight and incremental; the real new stuff is coming in
the next build, and I'm documenting that presently.

Neal

By **Ken Schumacher** on Thursday, April 5, 2001 - 06:45 pm:

I read the Quartus Forth review at PalmGuru.com by Dave Ruske. His document says he reviewed version 1.2.5R. I just visited the web page and the latest version I can find is 1.2.1E. Does one need to by the registered version to access this later version or have I committed some "pilot error" and navigated to the wrong place?

By **Neal Bridges (Nbridges)** on Thursday, April 5, 2001 - 06:52 pm:

Hi Ken -- 1.2.1 is the eval release, 1.2.5r ships when you register. I'll be aligning the two when the next update comes out.

Neal

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Alarms

By **Mike Chen** on Friday, March 30, 2001 - 05:27 pm: Edit

I can't figure out how to set an alarm in my QF program. Anyone have any quick code that they are willing to share? I need a silent alarm that will run a function (or even just run my program normally) at a specific time. Thanks.

By **Neal Bridges (Nbridges)** on Saturday, March 31, 2001 - 01:42 am: Edit

Mike, for that I believe you'd require launch code support, which is presently available in the 1.2.7 beta. I'm on the road, and unfortunately can't send it to you until Monday evening; drop me a note.

Neal

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Newbie Q: return to Quartus console?

By **Michael Park** on Friday, March 30, 2001 - 01:51 pm: Edit

I'm slowly getting the hang of PalmOS programming in Forth. I have a little form and a simple event loop:

```
: go
  show-panel
  false done !
  begin ekey do-ekey done @ 0= while repeat
  mainform ;
```

There's a Quit menu item that sets done to true. It all seems to work: my form comes up, the buttons work, and selecting Quit returns to the Quartus "ok" prompt, but... the Quartus menu is gone (it's still my menu). So, how do I get the Quartus menu back? Or more generally, what do I have to do to restore Quartus to its state before I ran go?
(I know no real PalmOS app has a Quit command, but it seems really handy to me for experimenting in Quartus--if it works.)

By **Neal Bridges (Nbridges)** on Saturday, March 31, 2001 - 01:43 am: Edit

A simple

mainform

after your loop will return you to the Quartus Forth main console form.

Neal

By **Michael Park** on Saturday, March 31, 2001 - 09:04 pm: Edit

Thanks Neal, but I do call mainform after my loop. It doesn't restore the menu, though -- that's the problem...

By **Neal Bridges (Nbridges)** on Saturday, March 31, 2001 - 11:21 pm: Edit

Michael -- sorry, I missed that. My guess -- your form is numbered 1000, just the same as the Quartus Forth form. Try a different number for your own form.

Neal

By **E.** on Sunday, April 1, 2001 - 12:00 am: Edit

So is it better to start your numbering (within RsrcEdit) at 2000? I always have, just because I'm paranoid.

I have another strictly informational question about RsrcEdit, but I'll start a new thread for that one, since it only sort of applies here.

By **Kris Johnson (Kdj)** on Sunday, April 1, 2001 - 02:49 pm: Edit

I start my resource numbering at 2000. Seems like a good idea to not use the same numbers that Quartus does, even if you don't need to return to the console.

-- Kris

By **Michael Park** on Sunday, April 1, 2001 - 11:46 pm: Edit

Thanks Neal, though it wasn't my form, it was my menu that was numbered 1000.

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Powered on?

By **E.** on Friday, March 30, 2001 - 11:56 am: Edit

Thanks to Steve Bohrer, I managed to trap a poweron event. Almost.

What sort of event is it? I had the usual

```
: go
  begin
    ekey
    dup keydownevent = if
      event >abs itemid
      dup
      poweredon if
        ." Powered on." cr
      then
    then
    drop
  again
;
```

…but that didn't work. If I remove the "keydownevent = if" check, then I can see the event. If it's not a keydownevent, what is it? None of the other event types in events.txt look correct.

By **Steve Bohrer (Skb)** on Friday, March 30, 2001 - 03:07 pm: Edit

Here's a relevant bit from the "Palm OS Programmer's Companion"

> **Quote:**
>
> The key manager manages the hardware buttons on the Palm OS device.
> It converts hardware button presses into key events and implements
> auto-repeat of the buttons. […]
> The event manager is the main interface to the keys; it returns a
> keyDownEvent to an application whenever a button is pressed. Normally,
> applications are notified of key presses through the event manager.
> Whenever a hardware button is pressed, the application receives
> an event through the event manager with the appropriate key code
> stored in the event record. The state of the hardware buttons
> can also be queried by applications at any time through the
> KeyCurrentState function call.

Then, the Palm OS Reference has this to say about a keyDownEvent:

> **Quote:**
>
> keyDownEvent
>
> This event is sent by the system when the user enters a Graffiti®
> character, presses one of the buttons below the display,
> or taps one of the icons in the icon area; for example, the Find icon.

For this event, the data field contains the following structure:

```
struct _KeyDownEventType {

WChar chr;
UInt16 keyCode;
UInt16 modifiers;
};
```

Field Descriptions

chr The character code.
keyCode Unused.
modifiers 0, or one or more of the following values:

shiftKeyMask Graffiti is in case-shift mode.

capsLockMask Graffiti is in cap-shift mode.

numLockMask Graffiti is in numeric-shift mode.

commandKeyMask The Graffiti glyph was the menu
command glyph or a virtual key code.

optionKeyMask Not implemented. Reserved.

controlKeyMask Not implemented. Reserved.

autoRepeatKeyMask Event was generated due to auto-repeat.

doubleTapKeyMask Not implemented. Reserved.

poweredOnKeyMask The key press caused the system to be powered on.

appEvtHookKeyMask System use only.

libEvtHookKeyMask System use only.

Finally, the header Event.h gives the definitions of these constants:

```
// keyDownEvent modifers
#define shiftKeyMask        0x0001
#define capsLockMask        0x0002
#define numLockMask         0x0004
#define commandKeyMask      0x0008
#define optionKeyMask       0x0010
#define controlKeyMask      0x0020
#define autoRepeatKeyMask   0x0040        // True if generated due to auto-repeat
#define doubleTapKeyMask    0x0080        // True if this is a double-tap event
#define poweredOnKeyMask    0x0100
#define appEvtHookKeyMask   0x0200        // True if this is an app hook key
#define libEvtHookKeyMask   0x0400        // True if this is a library hook key
```

and chars.h gives the codes for the various buttons:

```
//  The Application launching buttons generate the following
// key codes and will also set the commandKeyMask bit in the
// modifiers field
```

```
#define hardKeyMin              0x0200
#define hardKeyMax              0x02FF
#define  hard1Chr            0x0204
#define  hard2Chr            0x0205
#define  hard3Chr            0x0206
#define  hard4Chr            0x0207
#define  hardPowerChr           0x0208
#define  hardCradleChr          0x0209            // Button on cradle pressed
#define  hardCradle2Chr         0x020A            // Button on cradle pressed and
hwrDockInGeneric1
                                       //  input on dock asserted (low).


#define ChrIsHardKey(c)     (((c >= hardKeyMin) && (c <= hardKeyMax)) || c == calcChr)
```

The Companion and Reference guide are available free from
http://www.palmos.com/dev/tech/docs/ . The headers are part of the SDK, available free at
http://www.palmos.com/dev/tech/tools/ .

So, first test for a keydown event. Once you get one, test the "chr" and "modifiers" values. If the command key bit is set, test check for key presses. "chr" is at the start of the event data union, 8 bytes into the event record, or,

```
 event 8 + constant EventDataOffset
```

Thus, EventDataOffset @ on a keydown event gets you the chr value.

The keyCode value is 2 bytes into this data area, and modifiers is 4 bytes. Different types of events have different stuff at different offsets, so I found it handy to have a word to fetch from an offset into the event data area:

```
: (eventOffset)  ( n -- eventData )
\ return value n bytes into
\ event data union
  EventDataOffset + @ ; inline

: keyMods@ 4 (eventOffset) ;
```

Finally, to test if a keyDown event caused power on,

```
(hex) 0100 constant powerOnMask

: poweredOn? ( -- flag )
  keyMods@ powerOnMask and ;
```

This assumes that the global var event is contains data from a keyDownEvent.

On the other hand, to test specifically for the on/off button, test modifiers for commandKeyMask, with a chr equal to "hardPowerChr", 0x0208

🔼🔼🔽🔽✉ By **Chris Bucsko** on Friday, March 30, 2001 - 05:25 pm: Edit

This is really interesting. Does itemid use the event offset?

```
:itemid ( &event. -- menuitem )
8 m+ @a ;
```

🔼🔼🔽🔽✉ By **Steve Bohrer** on Saturday, March 31, 2001 - 03:04 pm: Edit

Itemid needs m+ (mixed double/single add) because it expects the pointer to Event to be a global 32-bit address. I _think_ this is because Neal's previous version of event handling depended on this.

But, as far as I know now, there is no reason to deal with 32-bit addresses when using event, except in the case when you pass its address to an OS trap.

So, I use my own event words that deal only with single math, and I don't use >abs with Event.

On the other hand, the words I show above, kmods@ and (eventOffset) do the calculation of the field address at run time. If I had a better understanding of compile vs. interprate mode, I'm sure kmods@ could be improved to just do a fetch. Or, maybe it should just be a constant?

By **chris bucsko** on Sunday, April 1, 2001 - 06:54 pm: Edit

I've generally been using

```
event >abs itemid PalmEvent = if...
```

in a very rote fashion to detect Palm events, but this explanation of yours is very instructive, especially for Graffitti events, double taps, etc. Could we post this in the file area for future reference?

By **E.** on Sunday, April 1, 2001 - 11:06 pm: Edit

I spoke poorly. I have (but did not paste) all that code (from your original post), editing out only what I didn't (think I'd) need. Certainly all of the code you have above is in there. I still can't get it to work. I can trap all sorts of other keydownevents, but not that one. Here's my code. Please notice that 99% of it is stolen from your previous posts.

```
needs events

event 8 + constant eventdataoffset
(hex) 0100 constant poweronmask

: (eventoffset)
   eventdataoffset + @
; inline

: keymods@
   4 (eventoffset)
;

: poweredon
   keymods@ poweronmask and
;

: go
   begin
     ekey
     dup keydownevent = if
       event >abs itemid
       dup
       poweredon if
         ." Powered on." cr
       else
         ." Other KDE." cr
       then
     then
     drop
   again
;
```

Now, I know that there's a lot that I'm not understanding here, but I can usually tell that I'm lacking an important clue. Not this time. I believe that if what you have written works, then what I have written should also work, but this is not the case. Where is my particular blindness / idiocy THIS time?

(duplicate post deleted!)

Oops. The OS doesn't seem to pass power key events to apps. A quick listing of events received,

```
: go begin Ekey . again ;
```

shows that a program does not get a key press event when the power button wakes the Palm from sleep. Thus, you won't see any event with its poweredOn flag set.

Sorry to have posted misleading code (And to have gone on at length about how it should work!) I wound up not needing the poweredOn? word, so I never tested it.

I assume that if you capture the hard keys you could get these events, but I've never tried this.

Otherwise, E's code has a stack balance problem: the keymods@ word reads directly from the global Event variable, so the phrase "event >abs itemid dup" is un-needed, and would put two unused values on the stack each time through the loop.

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Anecdote, a few questions.

By **E.** on Friday, March 30, 2001 - 09:05 am: Edit

So yesterday I hastily whip up a demo of my latest program for the folks at work. None of them (except my supervisor, an ex Professional Forther) are Forth people, so they don't understand the "weeks of nothing tangible, then overnight, a new app" concept, I think. Interactive testing and debugging? You betcha, and lots of it!

Anyway, I hand around the URL of the zipfile during the meeting, and we all move along. Suddenly, one person reports that his Palm is now caught in a Fatal Exception - Reset loop, immediately after HotSyncing. It's dead. He hard resets it before I can guide him through a warm reset, and restores all his data. Naturally, I am puzzled, since I've tried everything except Gremlins on this app, and it's a rock. I quiz him, and he has a Palm V. I've TESTED this on a Palm V (much heterogeneity among the Palms at work), so I'm at a loss. Oh, wait, it's not a Palm V, it's a Kyocera SmartPhone, which is "exactly identical to a Palm V". Somehow, if the phone won't work when the Palm part has crashed, there's GOT to be some added connections in there somewhere, yes? Anyway, since I'm bad at hardware, I let everyone else in the meeting tell him that "exactly identical" is not the phrase to use while I poke around and try to figure out what's going on. Surprisingly, they all seem to back me up, since I can logically explain why my app causing this problem is Not Possible. Which (finally) brings me to my first question.

Neal? 1.2.7R doesn't have launchcode handling, does it? I know that 6R didn't, but this new version, I'd like to be 100% sure.

Anyway, the ironic part is that after completely backing me, my ex-Forther supervisor goes home and installs it on his Palm Pilot Pro. It crashes. It's not dead, because the Reset button works. This brings me to me second question.

Anyone? Which font is the Palm Pilot Pro missing? My guess is Symbol.

Many thanks for any input, and for listening to me ramble.

By **E.** on Friday, March 30, 2001 - 10:27 am: Edit

And, yes, I greatly oversimplified the anecdote. I didn't want to use 12 screenfuls of text.

By **Wade Carlson** on Friday, March 30, 2001 - 06:26 pm: Edit

Welcome to the wonderful world of debugging. I've had various problems in the past with Palm V's. I'm guessing that the Palm V ROM is somewhat buggy, which I'm guessing why Palm won't put out a Palm V Rom for the emulator. It often takes me a lot of time to track down these bugs on a Palm V series without owning one, either. I'm guessing the crash on the Palm Pilot pro is related to the fonts as you have suggested. Sorry I can't be of more help, but often the way to track down these bugs on the Palm V's is too find out exactly where they are crashing by inserting some 'debugging' code into your code. I just have it spit out numbers in the top left corner of the screen after each line of code. Whatever number is left when the device crashes, that is where the problem lies.

By **E.** on Friday, March 30, 2001 - 09:02 pm: Edit

It crashed as soon as he tried to HotSync it. I don't even know where to BEGIN to look in my code for such a problem. Hence my question about launchcodes.

By **Wade Carlson** on Saturday, March 31, 2001 - 09:08 am: Edit

Unless you are using the beta version that accepts launch codes (1.2.7 Beta), your friends crash may have had nothing to do with your program. I would see if you could get him to try it again. It may have had more to do with some hack that he had installed.

By **E** on Saturday, March 31, 2001 - 03:47 pm: Edit

I AM using 1.2.7R, but I do no explicit launchcode handling. In addition, I HotSynced (instead of beaming) it to a few more Palms (including a V), and his was the only one that had problems. I read on PalmGear, in a few "Updates" blurbs, "Now compatible with Kyocera and Qualcomm phones!". To me, this implies that those platforms have unspecified issues. As much as I hate to do this, I'm going to hand-wave and claim that it's not my fault.

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Fatal Exception after first install

By **Helmut** on Thursday, March 29, 2001 - 06:53 am: Edit

I have installed q4th121e.prc and the lib-notes and want to try quartus forth.
After typing in the example 3 + 8 .<CR> the system crashes. A <CR> without anything else leads to a fatal exception.

My system: PalmVx, OS 3.5.0 German with a lot of applications but no active hack.

What is wrong?
Thank for any advise

By **Neal Bridges (Nbridges)** on Thursday, March 29, 2001 - 07:46 am: Edit

Are you running any editing enhancements, Helmut? There are a couple on the market that patch the system, yet are not HackMaster hacks; they cause what you're seeing.

Neal

By **Helmut** on Friday, March 30, 2001 - 04:41 am: Edit

Thanks a lot,

it was 'textplus' with the activated option 'textplus anywhere'.

After deactivation the problem disappears.

Neal, thanks for your fast response

Regards
Helmut

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Starting Forth quesition

By **Paul Johnson** on Wednesday, March 28, 2001 - 04:45 pm: Edit

Working through "Starting Forth," I have a couple of questions:

1. Is the loop index still kept on return stack? Brodie says that you cannot safely use something like: "10 >R 10 R> I * Loop"

Is this still the case in Quartus?

2. Brodie mentions a number of "standard" words which do not appear in Quartus, like ?DUP and .R

Comments?

Thanks,

Paul

By **William Tanksley** on Wednesday, March 28, 2001 - 05:57 pm: Edit

1. You can always use >R and R> as long as nothing gets between them -- the example you give is unsafe only because there's no DO in it, which I assume is a typo. If there was supposed to be a DO between the 10 and the >R, it's unsafe on all Forths. If the DO was supposed to be anywhere except between the >R and R>, it's fine.

2. Starting Forth doesn't document a standard -- the words he uses are merely common-use. ?DUP is available in Quartus, but I forget how or where. .R isn't available, and although it could be written fairly easily it wouldn't make much sense.

-Billy

By **Dave Ruske** on Wednesday, March 28, 2001 - 06:10 pm: Edit

You could also get a surprise from something like this:

```
: test  ( -- )
   5 0 do 7 >r i . r> drop loop ;
```

Not dangerous per se, but if you're mixing **i** and **>r/r>** you need to

remember that **i** and **r@** are basically synonyms... at least in QF (not sure if that's guaranteed by ANS).

?dup seems to be built into the version of QF I'm running (1.2.7R).

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Transfer *.txt to memo

By **Dmitry Yakimov** on Wednesday, March 28, 2001 - 03:45 am: Edit

How can I transfer *.txt files from PC to memoPad in emulator? May be it is necessary to make pdb file with creatorID=memo and type=DATA, but what about categories wich are aviable in memoDb.pdb? Is there an utility to do it or I need to write it by myself?

By **Steve Bohrer (Skb)** on Wednesday, March 28, 2001 - 10:31 am: Edit

You can hot-sync to POSE with the standard Palm Desktop software. Create a separate user name (e.g. POSE) in the desktop software. You can copy and paste memo files from other user names, or from any other text source, into POSE's memo pad in the desktop software, and then hot-sync it to the emmulator.

This thread has a link to instructions for POSE hot-sync.

By **John Newell** on Wednesday, March 28, 2001 - 12:00 pm: Edit

Try MakeDoc. It's small but works well.
http://www.palmgear.com/software/showsoftware.cfm?sid=62956220010207174333&prodID=90

TWord has more to it but I don't use it much.
http://www.palmgear.com/software/showsoftware.cfm?sid=62956220010207174333&prodID=2357

John

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HotSyncing to POSE

By **Bob Ryan** on Friday, March 16, 2001 - 02:30 am: Edit

Hi,
How do I get the POSE to HotSync to my desktop software? I'd like my POSE enviroment to be the same as on my handheld. I've checked the user name on the POSE and it is the same as on the handheld, but it still won't HotSync.

Thanks in advance,
Bob

By **Steve Bohrer (Skb)** on Friday, March 16, 2001 - 08:21 am: Edit

I need a separate user name to get POSE to hotsync on the same system as my handheld. Thus, I have my real user name on my real device and a separate user ("POSE") for my POSE file. Otherwise, when I sync from POSE, I get a dialog saying that I need a unique name.

To actually compile from POSE, I have to reset it's user name to my registered Quartus name, and then have to set it back to hotsync.

To transfer memos between the two devices, I copy from POSE and paste into my real user within the Palm Desktop program. It is also possible to export a selection of memos to an archive file, and then import those memos into the other user name.

If you don't need a full sync, you can export compiled apps from POSE, and then install them the regular way to your handheld.

By **Vaughn Wine (Vwine)** on Friday, March 16, 2001 - 11:07 am: Edit

Hi Bob!

I don't know if you've made it past this point, but I remember having extreme difficulty getting POSE to HotSync. The info from this link helped me get it to work: HotSyncing with POSE. You'll probably be most interested in the section named "Configuring the Palm OS Emulator for Synchronization via Network Connection" about a quarter of the way through.

Hope this helps!

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Everything else!

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Welcome to Everything else!. You may enter any of the discussions below by clicking on the appropriate link. Or, to start a new discussion of your own, click on the "Create New Conversation" button.

Palm Buys Be

By **Kris Johnson (Kdj)** on Friday, August 17, 2001 - 12:05 am: Edit

Palm is buying the intellectual property and technology assets of Be, Inc. Full details are available here:
http://www.prnewswire.com/cgi-bin/micro_stories.pl?ACCT=no&TICK=PALM&STORY=/www/story/08-16-2001/0001556231&EDATE

My question: why?

-- Kris

By **Mike Will** on Friday, August 17, 2001 - 09:22 am: Edit

Maybe they've decided to bail on the handheld business and get into the pretentious yuppy video toaster market 🙂

Mike

By **Kris Johnson (Kdj)** on Friday, August 17, 2001 - 12:57 pm: Edit

Speculation on Slashdot seems to be centered on the potential of using BeIA as the new Palm OS kernel for ARM-based handhelds.

Not a bad idea, I guess. $11 million for a multitasking OS kernel with multimedia capabilities is probably a pretty good deal. We'll just have to wait and see how Palm screws it up.

-- Kris

By **Neal Bridges (Nbridges)** on Friday, August 17, 2001 - 01:08 pm: Edit

They might just want some core technologies. $11 mil. isn't much in the grand scheme of things.

Neal

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Programming burnout

By **Wade Carlson** on Saturday, August 11, 2001 - 09:42 am: Edit

Does anybody else go through programming burnout from time to time?
I've been away from palm programming for several months now, and just
can't seem to get motivated to get back into it. I've still been monitoring
the message boards, but I haven't really been participating, and I haven't
been doing any programming, despite that fact that I need to do some
updates to my apps. I've been spending time with my other hobby (flying
R/C electric airplanes). I think I'm just in a rut, cause programming seems
more like work than fun right now. Anybody got a cure for this?

By **Kris Johnson (Kdj)** on Saturday, August 11, 2001 - 11:03 am: Edit

I don't know of a cure, but spending time with other hobbies isn't a bad
thing.

I'm actually considering a career change myself. I've been a professional
software engineer for ten years, and I'm really getting tired of it. It was fun
when I started, but now it just seems like an endless, pointless activity. The
popular operating systems suck, applications are too complex, and
everything is so buggy that trying to create a reliable system on top of any
platform is a futile exercise.

Playing with Quartus is the only thing that is keeping me interested in
programming at all.

-- Kris

By **Neal Bridges (Nbridges)** on Saturday, August 11, 2001 - 01:20 pm:
Edit

One cure for me is to learn something new, explore some area of software
development or mathematics that I know little about. Knuth, Pickford,
Gullberg -- or any of a dozen others.

Another cure is reading about the history of computing, the great men and
their accomplishments.

Exploring another hobby for awhile is also good, as long as it involves
learning something new.

Neal

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Palm OS

By **Nikhil suhane** on Tuesday, August 7, 2001 - 06:31 am: Edit

I would like to know
How I can use the SysGetTrapAddress()
and SysSetTrapAddress() for improving
the performance of my application.

I am working on the developement of an
application where i want the notification ,
whenever user delete an application or file .
Please give me an example also if you can.

thanks
nikhil

By **Neal Bridges (Nbridges)** on Tuesday, August 7, 2001 - 02:26 pm: Edit

Nikhil -- it sounds like what you want is a HackMaster module. These are small apps, usually written in assembler for speed, that hook into system calls to enhance their function.

If you wrote a normal application and hooked system routines into your code, you could only be sure that it would work while your app is active; nothing stops the OS from relocating the application code once you exit the app. HackMaster modules are protected from this.

Neal

By **Nikhil Suhane** on Wednesday, August 8, 2001 - 06:35 am: Edit

Neal

I do not want to use HackMaster I only wants the notification of deletion of an application or record from the system.

In my application it shows the list of applications, and files available in a sorted order.Now if i delete an application/file from the list it takes time to launch my application again .I wants to reduce that time(Relaunch of my application time).

Nikhil

Neal
Thanx for the reply

I do not want to use HackMaster I only wants the notification of deletion of an application or record from the system.

In my application it shows the list of applications, and files available in a sorted order.Now if i delete an application/file from the list it takes time to launch my application again .I wants to reduce that time(Relaunch of my application time).

Nikhil

There is a notification system in the Palm OS, but only in the most recent versions. I haven't done a lot of investigation into it myself, but Palm has documented it thoroughly in the SDK. That'd be a good place to begin research.

Neal

I would like to know that
how I can get the list of the system defined Categories.Because i wants to add these categories with some other categories in the category popup List.

Nikhil

Dear Neal,

If you have any Idea about the Problem which I mentioned in my previous question then please reply.

I was hoping somebody with more category expertise would leap in, but I'll take a shot.

Each app has its own categories; to use another apps categories in your own app, you'd need to read them out and add them into yours. This can be done; there's code in the Contrib area that will read the categories from any app.

Neal

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HandEra POSE

By **Mike Will** on Thursday, August 2, 2001 - 08:11 pm: Edit

Forgive me if this has been covered previously.

The emulator from HandEra is really sweet. Really does SD and CF card
simulation beautifully. It and three ROM images are available from
http://www.handera.com/support/developsupport.asp
and seems to work well. Unlike Palm, HandEra doesn't make you wait 6
weeks to get permission to download ROM images.

My only gripe is the speed. I thought the 330 was F-A-S-T but this emulator
is 50% the speed of regular POSE. Anyone else have different results?

Mike

By **Jamie Cairns (Jamie)** on Thursday, August 2, 2001 - 10:18 pm: Edit

Same deal here - I was using the POSE (to test a bunch of apps to make
sure they'd work) while I waited for the 330 to arrive.
The 330 POSE is really slow... but the actual unit is pretty quick.
(benchmarks at 244% out of the box)

Not many POSE users in the H-U-G, but I saw no real answers when the
question came up a month ago...

Jamie

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Palm exchange

By **John Newell** on Tuesday, July 31, 2001 - 07:06 am: Edit

I live in the UK. My Palm Vx had a scratched screen so I contacted the UK Palm Support Desk about an exchange. I had to send it to Palm (Celestica) before they would send a replacment for £73 and I'm still waiting (10 days now).

I believe in the States there is a replacement program where a replacement is sent (within 3 days) before having to send back the original. Could someone just say how much this service costs in the States before I have-a-go at Palm for their tardy service?
Thank you.

Regards
John

By **Jim Hendricks (Jimh)** on Tuesday, July 31, 2001 - 08:01 am: Edit

If the unit is in warranty, the swap service is free. It works very well. I replaced my IIIc that way because I was having problems with the touch screen. They send you a reconditioned unit (I received mine in 2 days, but I think they specify 5-7 days or something along those lines) and once you've had a chance to load up the recon'd unit and test it, then you send your unit back in the box the recon'd unit came in with the supplied shipping label. My recon'd unit might as well have been new, I couldn't tell the difference.

Jim

By **John Newell** on Wednesday, August 1, 2001 - 04:16 am: Edit

I got it wrong. According to 3Com's web site for Exchange, you have to send it back first and you should get a replacement in 3 days. It took 10 days here (and there's something wrong with it).

Err - Does anybody know how much is the Exchange service in the States. I can't find it on the web. Thanks.

Regards
John

Add a Message

Username:

Password:

E-mail:

This is a public posting area. If you do not have an account, enter your full name into the "Username" box and leave the "Password" box empty. Your e-mail address is optional.

Payment from PalmGear?

By **Wade Carlson** on Monday, July 30, 2001 - 07:08 am: Edit

Anybody else getting delayed and delayed in their payment from PalmGear? I still haven't been payed for May's sales yet, and here it is almost August. I emailed them but no reply. This is getting rediculous.

By **Neal Bridges (Nbridges)** on Monday, July 30, 2001 - 12:35 pm: Edit

Same here, Wade.

Neal

By **Kris Johnson (Kdj)** on Monday, July 30, 2001 - 09:23 pm: Edit

My payment of $0.00 came right on time. Or maybe it's late--I can't be sure. 🙂

It seems like there was a month where I was getting "Monthly Sales Totals" every few days. I suspect their accounting system is a little screwed up.

-- Kris

By **Dave Bennett (Dbennett)** on Tuesday, July 31, 2001 - 05:51 pm: Edit

I get two monthly download reports for my apps on PalmGear; one from PalmGear and one from someone else. They are never in sync or remotely close to reporting the same numbers. The PalmGear report is accurate while the other says things like "8000 downloads of WindChillFactor" and "0 downloads of Text2Morse". Perhaps they are trying to sort out this discrepency between their two systems; but at least the courtesy of a reply or some kind of general announcement would be nice.

By **E. Ross Helton** on Wednesday, August 1, 2001 - 04:05 pm: Edit

Hi Dave,

Like you I have gotten two different reports. Also as you said one of them is not even remotely correct, but the other is.

This has happened twice and I passed it off as a glitch in the process as they were making change overs to the new system.

Make it a good day!
Ross

By **Dave Bennett (Dbennett)** on Wednesday, August 1, 2001 - 06:05 pm: Edit

Today I received 3 copies of the report. All three were the same. Maybe things are looking up!

By **Barry Ekstrand (Ekstrandbb)** on Monday, August 6, 2001 - 01:35 pm: Edit

I also received multiple copies - 5 in total, of which 3 were blank and 2 that didn't match. The 2 with values appear to need to be added together to get the total downloads for the month - its as if the first report was run before the month end and it reset the number of downloads for the month to zero, which is then where the second one picks up.

The payments from PalmGear are slow on this end also - I did get May but haven't seen June yet. It seems to me that in the digital world 60 days or more for accounts payable is a little long, hopefully it will improve.

Barry

By **Kris Johnson (Kdj)** on Tuesday, August 14, 2001 - 10:37 pm: Edit

I'm curious: would anyone be willing to divulge how much money or how many registrations they've received for their PalmGear applications?

I don't mean to pry into anyone's finances. I'm just wondering if a nice PalmOS shareware app can produce a substantial amount of income, and for how long. Specifics would be appreciated.

-- Kris

By **Jim Hendricks (Jimh)** on Wednesday, August 15, 2001 - 08:30 am: Edit

I'm as curious as Kris on this since I am getting ready to make my own shareware venture and it would be nice to know what I might be able to expect. It would also be interesting to see what the opinions are on the pricing of apps, what is reasonable, and what are reasonable means to encourage registration.

Jim

Hi Jim,

As someone who tries out a fair bit of shareware, the thing that most encourages me to buy is to be allowed to try it out for long enough that it becomes "must have". Like many others, I use DateBook4, and the main thing that convinced me to buy it was the 45 day uncrippled try out period. Similarly for pedit.

If something is only partially functional, I tend to delete it instantly, as I cannot try it properly. Obviously, the way that you use may require a different approach due to "once only" information etc, but otherwise this seems to me to be a good balance - people will buy your software if they need it.

In my experience, results vary widely based both on the type of product, and the appeal of any given piece of software. Games sell better than most products when they hit the sweet spot; games that don't hit that spot sell very poorly.

Tools sell well to developers, but that market is smaller than the market for games.

In general terms, with all else being equal, you can expect anywhere from 0.5% to 5% of your downloads to result in product sales, with the low end being more common. Subtract your costs from that to figure profit.

Neal

To add a couple of comments:

1) Pricing does seem to have some affect - everyone wants a bargain, but pricing too low apparently can make some people believe it isn't worth trying out. When I first released LoanPayment there was a $5 registration fee; I doubled it to $10 with the first update since the capabilities went up by a factor of 4. I saw the rate of downloads and registrations jump dramatically at that point.

2) I have both char-ware (charitable shareware, where all proceeds go to

the Juvenile Diabetes Research Foundation) and commercial shareware available. The char-ware has a higher rate of registration than the commercial shareware, so I assume it sells both on utility and for the charitable aspect.

3) The marketing side of the equation is something that is largely ignored but would seem to be particularly pertinent. It looks like most developers are content to post the software to PalmGear and maybe a few other sites and let the users find it. This may be fine for something like the "sweet spot games" Neal mentions, but for everything else if you can get the word out in other ways it will be beneficial.

By **Jim Hendricks (Jimh)** on Wednesday, August 15, 2001 - 06:41 pm:
Edit

Thanks guys for the input. My first release will be a game, won't reveal what yet, don't want to let the cat out of the bag. Suffice it to say it's a game I have yet to see on the palm.

I agree for application software that crippleware tends to push me away from the eval, but I also know that there is yet to be an app software timeout that is very reliable. I also tend to like the timeouts based on number of uses, or based on actual used days rather than days since you first tried the software out.

For games, it seems that you have to cripple it in some way. Either eliminating features, or eliminating levels, or eliminating the ability to create your own levels and playing user created levels. Guess you could also go with the timeout, but I have yet to see the timeout that I am happy with that is relatively hack resistant, and/or reinstall resistant.

Been thinking of pricing at $10 - $15, but don't want the price to scare people away. Been thinking also about source availability. For most this would not be relavant, but for some developers, being able to get at the source can be a good learning tool. Just don't know how to release source in a benefactory way without losing sales or seeming too easy to get to the source. Will still have to consider a policy for Quartus users since I have benefited from the community, contributed to the community, but still enjoy the chance to help aspiring programmers along.

Well, time to take the philisophical cap off and get back to programming. If I can't get the code done, this whole issue is a moot point!

Jim

By **Kris Johnson (Kdj)** on Wednesday, August 15, 2001 - 11:06 pm: Edit

Some possible ways to release source without losing your business:

- Release source under GPL. That would keep anyone from reusing your code in another commercial app.

- Release source only for a crippled version or for an earlier version of the software.

- Give source only to registered users, and make it clear that redistribution is not allowed.

Of course, some would claim that Forth source code is completely unreadable. If you don't mind letting Quartus users see the source, you probably don't have to worry too much about the C and Satellite Forms programmers figuring it out. For what it's worth, I've released source to my programs, and the only questions/comments I've ever received about it was from other people on this forum.

-- Kris

By **E. Ross Helton** on Thursday, August 16, 2001 - 03:43 pm: Edit

Hi Jim,

Barry is correct pricing affects downloads a lot. $5.00 isn't much of anything, and should bring registrations like mad. However, I believe that many see a product listed for $5.00 as also not being a product worth having no matter how good the product is. $10.00 on the other hand seems to make people more confident that what they are getting is worth the time to register. Of course $10.00 isn't the only price that should be charged, but if it is between $0.00, $5.00 or $10.00 the ten dollars procduct is seen a something good, and the zero and five product are probably viewed as being the same thing.

Make it a good day!
Ross

By **Neal Bridges (Nbridges)** on Thursday, August 16, 2001 - 04:13 pm: Edit

Depends on the product. LightHack sells quite well, and it's $5.00. Having said that, though, the question becomes -- would I have fewer than half as many sales if I doubled the price?

Neal

By **Kris Johnson (Kdj)** on Friday, August 17, 2001 - 09:06 am: Edit

Anyone have any thoughts on marketing? As Barry said, many developers just put their stuff on PalmGear and then wait for the money to roll in. That may have worked a couple of years ago, but now PalmGear gets dozens of new packages every day. I don't pay attention to the new packages any more, and I'm sure other users don't either.

How does one reach the potential buyers?

-- Kris

By **Neal Bridges (Nbridges)** on Friday, August 17, 2001 - 10:52 am:
Edit

Part of that is PalmGear's fault. Last time I met Kenny that was my complaint -- the new packages list is invariably filled with fifteen updated data files for some obscure application, kicking everything else clear off. As a forum for announcing new or changed apps, it is thus worthless.

Advertising can be prohibitively expensive for small software businesses like ours. Word-of-mouth is quite important.

Neal

By **Barry Ekstrand (Ekstrandbb)** on Friday, August 17, 2001 - 01:39 pm: Edit

A few more thoughts, wearing my MBA hat.

On Pricing

Remember what gets people to look at the software and then to register it is their perception of value, which can be defined as

value = { (perceived actual performance / expected benefits) / price.}

In my opinion there is a basic three step process:

1) User finds the software and description, setting initial expectations about performance. The description and price drive this; it is possible that a $5 fee will look appropriate for an app that provides a simple-but-beneficial task but that same $5 might look way too low for an app that purports to do very complicated things. In this latter case, if it looks too low, they may not bother to even look at it.
2) If they decide to try it, user downloads and tests software, creating perceptions about actual performance. Here the initial expectations have an influence on their assessment of performance, not just on the final judgment of value. When expectations are exceeded, perception about acutal performance is often judged to be higher when the initial

expectations were lower.
3) User then evaluates price against the initial expectations and performance perceptions and decides either to register (because it has enough value) or not register (because the performance / price relationship is too low.

Bottom line: there is no magic price because there is a dynamic process taking place, with an intertwined relationship between promises made (description), price, and the user's experience in evaluating it. Each software product needs to be considered on its own.

On Marketing / Advertising

It is increasingly clear to me that relying on PalmGear alone does not cut it; that being said, most other Palm software sites are worse in terms of exposure and number of downloads per day. The word needs to be spread through other arenas. A couple of things that have helped boost some of my programs:
1) Getting it included on a CD-ROM collection, particularly when it is being distributed to people in a particular organization. This will only be relevant if the program fits the needs of the organization, of course, but think about who will use the program - if there is a professional or social organization that those users are part of, see if they put together CD-ROM collections for their members.
2) Similarly, even if the organization isn't distributing a disk, if you can get an announcement to their network it can help. For example, I made my CanMortgage program to calculate Canadian mortgages in response to requests from Canadian users of my LoanPayment program. When it was ready, I was able to get an announcement into a Canadian realtor's network through one of the users, so everyone in the network became aware of it.
3) Again an extension of the above, post the software to the organization's website if it has a section for downloads.
4) As the user base grows, try to leverage it for your new programs. I've had good success in getting repeat customers by letting them know when I have new programs available. I believe having a policy of distribuing updates for free helps with the perception issue and makes them more oriented to registering subsequent programs.

Bottom line: Neal said it right, word of mouth is essential, but you need to help speed up the movement of the words in any way you can. Look for places to spread the word - usually there is no cost associated with it other than your time.

That's all for now,

Barry

By **Kris Johnson (Kdj)** on Friday, August 17, 2001 - 01:47 pm: Edit

I've noticed that I get a lot more downloads from PalmGear immediately after releasing an update than I do immediately after the initial release. I suspect this is due to the Updated Software list being smaller. (Although I notice that this is changing--maybe other developers have caught on to this trick?)

It would be nice if PalmGear would categorize the new releases. The eBooks and travel guides definitely deserve their own sections. But then again, PalmGear might lose advertising fees if their site was more helpful to all developers.

-- Kris

By **Neal Bridges (Nbridges)** on Friday, August 17, 2001 - 01:57 pm: Edit

That was my suggestion to Kenny years back -- have a series of category buttons across the top, for the newest & updated apps in each category, instead of one big mixed list. He said something about there not being enough room on the page; I suspect there were other considerations, however.

Neal

By **Mark Beckman (Mbeckman)** on Friday, August 17, 2001 - 03:35 pm: Edit

As to the phenomena of more down loads from the update than from the new product category. I personally view any new palm app with suspicion and usually wait for at least the first update to try it. Let someone else be the beta tester...

Mark

By **Kris Johnson (Kdj)** on Saturday, August 18, 2001 - 02:27 pm: Edit

That's why I always add a few bugs to the second release, just to make sure everyone participates in the fun. 🙂

-- Kris

By **Mark Beckman (Mbeckman)** on Sunday, August 19, 2001 - 12:29 pm: Edit

Hmmm, I don't need to "add" them they seem to just "magically" to

appear.

-- Mark

I get a lot of downloads initially from my free apps, and then something will spur interest and I'll get a rush of downloads at an unrelated time.

One app gets constant, seemingly endless downloads, and that is MetricMeasure. I don't get it either. 🙂 It's had close to 8000 downloads in 1 year. Who'd have thought. A question for Barry is "would people have paid for this?" Personally, I think not.

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Handera ?

By **Jamie Cairns (Jamie)** on Wednesday, June 6, 2001 - 03:22 pm: Edit

Slightly off-topic, although I am using them for learning Forth using Quartus…
My P3 just died, just 2 weeks after my P3e screen quit - was looking at replacement options and was wondering if anyone else had looked at the Handera 330. It seems to me like it's a good machine, and since I'm not entirely convinced of the benefits of colour (except for games or pictures…), and having the CF expansion option as well as MMC…, Anyways, what's the consensus - why do you need color (if you do), and is it worth the extra $150 (C$)?

Thanks
Jamie

By **Tim Hulme** on Wednesday, June 6, 2001 - 03:47 pm: Edit

IMHO, You only need to bother with color as you say, for games and surfing the web. My wife has a Visor Prism and surfing the web with it using the Blazer web browser is very nice when compared to mono. She also plays way to many games, so for her it's nice. I'm happy with my Visor Solo. The only draw back I see to the Handera is it's not USB hotsync. Expansion options I think make it worth it though.

By **Ron Doerfler** on Wednesday, June 6, 2001 - 05:29 pm: Edit

Color is also nice for non-game apps that have complicated displays, including Planetarium, PocketSat, and some mapping programs. The screenshots look so much more readable (I haven't received my color Palm yet).

Ron

By **Kris Johnson (Kdj)** on Wednesday, June 6, 2001 - 05:55 pm: Edit

The available color PDAs (Prism and IIIc) both seem to suffer from these problems:

- slow (color screens require more CPU power)

- drain batteries quickly

I plan to stick to mono PDAs until these problems are solved, or until some more-compelling color apps come out.

BTW, has anyone considered implementing something like Chuck Moore's Color Forth on a PDA? With the limited screen space, it might make some sense.

-- Kris

By **Stefan Wehner (Chandor)** on Wednesday, June 6, 2001 - 06:16 pm: Edit

As I have just ordered a Handera maybe my reasons to decide for that unit instead of a M505 might help you too.

1. The ability to use a CF card (even the 1gig Microdrive) as storage and peripheral in several devices from Laptop to digital camera had me already consider going for a TRGPro.

2. The innovation they choose by enlarging the usable screen size is much more useful than color for the kind of applications I use and develop. Color is nice, but as Kris said, I won't easily sacrifice battery power for that. If I need to show Flash animations I go for a Laptop and probably an external monitor.
I have almost ever found the amount of screen real estate being a limitation for applications.

3. as for games, well carrying a Gameboy Advance is only a bit of strain on the purse, and as far as I remember prices it is also about 150 bucks.

The arguments above will only fit your case if you use the unit as a workhorse though, the higher the amount of recreative use, the more color becomes an issue and I will happily upgrade to a color unit provided that power consumption and peripherals match the Handera.
-- Stefan

By **Jamie Cairns (Jamie)** on Thursday, June 7, 2001 - 12:06 am: Edit

Thanks for the opinions - I hadn't even considered battery life, and yeah, USB would be nice, but the extra 15 - 30 seconds won't kill me... OK - I had almost decided, but it's good to hear that my reasons for doing so are shared by others... Have ordered.

Thanks all
Jamie

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Word Completion software

By **Simon Hill** on Saturday, May 12, 2001 - 08:20 pm: Edit

Neal - FYI
A while ago I asked you about a problem I had with Quartus and we
tracked the culprit down to TextPlus.

I have since switched to CIC WordComplete and it 1) doesn't crash Quartus
and 2) actually works within Quartus!

They got my money beacuse TextPlus (SmartCell) propose to solve the
problem by allowing you to switch their product off in certain apps, which
doesn't really solve the problem.

By **Neal Bridges (Nbridges)** on Sunday, May 13, 2001 - 10:34 am: Edit

Glad to hear that, Simon!

Neal

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not have an account, enter your full
name into the "Username" box and leave
the "Password" box empty. Your e-mail
address is optional.

Palm Security

By **Ronny Svensson** on Tuesday, May 8, 2001 - 05:04 am: Edit

If I lock and turn off my Palm with a password is the data safe or is there some backdoor?

Ronny

By **Kris Johnson (Kdj)** on Tuesday, May 8, 2001 - 10:43 am: Edit

There are backdoors. There's some special character sequence that will put the handheld into debugging mode. Also, if a bad guy can do a HotSync with your handheld, then they can see all the data.

If you want real security, you need to get one of the programs that encrypts all the data.

-- Kris

By **Sam** on Sunday, June 17, 2001 - 03:35 am: Edit

Can a hotsync be performed when the PAlm is locked???

I'd love a program that would encrypt DOC or NotPad files when Hide Private records is activated, and decrypt when Show Private Records is triggered. Any hack/other like that out there?

thanks

By **Chapman Flack** on Saturday, June 23, 2001 - 01:10 pm: Edit

I just tried hotsyncing using pilot-xfer, and I got prompted for my password first. I'd assume the Windoze and Mac hotsyncs work the same way, but I don't know.

However, there are dot-shortcuts that can be entered at the password prompt to put the device into serial debugger or serial console mode, either of which can be used to extract your data.

There are also several different packages on PalmGear that remove those particular shortcuts from your Graffiti ShortCuts database. Chances are it's not difficult to do with RsrcEdit, either.

-Chap

I believe those shortcuts are not active while the device is locked, in the newer versions of the OS.

Neal

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.PDB has an icon

By **E.** on Tuesday, May 1, 2001 - 05:42 pm: Edit

I am developing an app for work that has to read from a database.

I go into RsrcEdit and create a database. Hooray. I can read from it. Lucky me.

Unfortunately, the REAL database is going to be huge (I'm not typing in 5000 chars in RsrcEdit, thanks), so I make a Perl script to do it for me.

After some initial wackiness involving little- vs. big-endian numbers (the "number of records" and "record offset" field do not seem to be MSB-first), I get a .PDB file that I can sync and read from.

It has an icon. I go into RsrcEdit, and they look identical. I do a 'hexdump -c' on them, and except for creation time, modification time, the 2-byte 'filler' and the "Modification Number" (which I was told to create zeroed out), they're identical. Well, okay, their names, too.

Any ideas why the off-board one would have an icon? They both have the same CrID and type "DATA".

By **Neal Bridges (Nbridges)** on Tuesday, May 1, 2001 - 10:09 pm: Edit

PDBs don't normally have icons, E. Only resource databases do. Are you using the default launcher, or possibly some fancy 3rd-party launcher that pretends to assign icons to certain database types?

Neal

By **E.** on Tuesday, May 1, 2001 - 10:18 pm: Edit

Stock OS, no hacks even.

And yeah, the fact that they usually don't is what has me puzzled, to say the least.

By **Steve Bohrer (Skb)** on Tuesday, May 1, 2001 - 11:27 pm: Edit

Check the database header attribute "dmHdrAttrLaunchableData", 0x0200. This flag is not shown by my version of rsrcEdit, but it makes OS3.5 stick icons on data files.

If this bit is set, and you tap a data file, the OS trys to launch your app with a special "open this file" launch code. I don't know details, but I have seen these icons on POSE for files generated for CSV Manager, and tracked it down to this flag.

By **E.** on Wednesday, May 2, 2001 - 12:21 am: <u>Edit</u>

Hm. After the name (32 bytes, NUL-padded), this is the next line:

printf("%c%c", 0x5a, 0x00);

Going back into the .PDB and looking, those are the values in the "attributes" header area.

By **Steve Bohrer (Skb)** on Wednesday, May 2, 2001 - 10:11 pm: <u>Edit</u>

That C code looks like a confused implementation that was trying to deal with byte swapping, but it will definately set bits in what the Palm considers to be the MS byte of the attributes. I expect that the 0x5c should go to the LS byte, but I'm too lazy to look up what flags "0x5c" stands for. Since you are using a C compiler, you should use the named defines for these values from the Palm SDK header files. Create the desired attriutes word by OR-ing together a bunch of the masks, and then output this word.

From C level, if you are putting out values a byte at a time (as your printf example does) you can ignore the issue of how the processor actually stores words and longs in memory, because if you ask C for the MS byte, you get it. So, just write the MS byte first, followed by the LS. For example,

```
void printPalmWord(unsigned short w)
{
    printf("%c", (unsigned char) (w >> 8));
    printf("%c", (unsigned char) w);
}
```

If you don't already have it, the Palm File Formats documentation is handy, because it has pictures that show which byte goes where.

By **E.** on Thursday, May 3, 2001 - 11:38 am: <u>Edit</u>

It's Perl, not C. Using the header files is not a viable option, I'm afraid.

Unfortunately, switching the endianness doesn't help.

Time to find another way to accomplish this.

By **E.** on Thursday, May 3, 2001 - 03:40 pm: <u>Edit</u>

Problem solved, and I don't know how. Change CrID, it works. Change it back, and it works.

Although I did spend an interesting few moments tracking down a bug or two in the 'pilot-link' package. Heh.

By **E.** on Thursday, May 3, 2001 - 09:30 pm: Edit

ONLY CHANGE ONE VARIABLE AT A TIME.

Okay. Changing the endianness DID help, but I didn't notice it because of the other stuff I changed.

To be fair, I wouldn't have noticed it anyway, because of the interesting bug(?) I just found. Okay, undocumented feature. Whichever.

I don't know if this holds true for all CrIDs, or just mine (changed below to "XxXX"). Anyone who wants to test it (I'm far too rushed with this project) is welcome to.

CrID: XxXX
Type: DATA
Name: XxXXData

This will install the PDB, but will strip out the (single 16-byte) record inside the database.

CrID: XxXX
Type: DATA
Name: XxXXPasswdData

This will work just fine. I could, in fact, change the Name to ANYTHING except "XxXXData" and it would work.

Lovely.

By **Steve Bohrer (Skb)** on Friday, May 4, 2001 - 08:34 am: Edit

Hard to see what exactly you want us to test: Are you guessing that no database on the Palm can have a file name composed of its Creator-ID followed by its Type? Or, that the Palm hot-sync software barfs with such files? Or, that such a name leads to a strange error in the code you are using to generate the database file? If the later, we don't have much to test.

A point that caught me when I wrote code to read a PDB file: Although the "RecordListType" appears to be an 8-byte structure, the last two bytes of it

are actually the start of the data. Thus, in the PDB file you write, put the "RecordEntry" for the first data record right after the two-byte "numRecords" field of the "RecordListType". Only write the two zero pad bytes if numRecords is zero.

If you put these extra two two pad bytes before your first record, your RecordEntry array will be out of sync, and the offset of your first record will appear as zero. In this case, the record would be skipped, and it would look like the hot-sync process has "stripped out the single record in the database".

But, I can't guess why you can genereate the file properly with one name but not with another. This sort of random behaviour certainly points to a bug somewhere, and it is probably worth finding.

By **E.** on Friday, May 4, 2001 - 11:30 am: Edit

I don't necessarily WANT anyone to test anything. But to answer your question, the first two. The code I use A) shouldn't matter, and B) is never going to see the light of day. It is… inelegant.

And as for the pad bytes, when I had one record, if I didn't put the filler in there (0x7f7f, arbitrarily), it took the first two bytes of my record off and left me with a 14-byte record. With the errors I was previously bitching about, I would end up with a database with 0 records in it.

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Paying for Shareware

By **Ronny Svensson** on Monday, April 30, 2001 - 11:35 am: Edit

I live in Sweden and have a VISA-card connected to my bank-account. The problem is that my bank advises me not to use my card on the net. I have also been in contact with American Express who are advertising aggressively about their online fraud insurance. The problem is that when you read their conditions it's basically the same as VISA:s - no mentioning of any fraud insurance. I called Amex again but they said that I was protected against fraud even if it didn't say so in the conditions which I am supposed to sign…

So the questing is. Is there some other way to pay for Shareware?

Ronny

By **Neal Bridges (Nbridges)** on Monday, April 30, 2001 - 12:04 pm: Edit

With my products, you can buy them from PalmGear over the telephone, or alternately mail me a cheque/money-order directly.

Let me know, I'm sure we can work something out.

Neal

By **Ronny Svenssonh** on Wednesday, May 2, 2001 - 02:32 pm: Edit

This was a general question. I'm using a Palm and a registered version of Quartus which was bought by a customer for my use. But there are other shareware programs that I would like to register. The thing is that I don't know how payments normally are handled in the US. When it's shareware we are talking of small amounts of money. It's just so much simpler for the seller to get a card-number online.

Ronny

By **Neal Bridges (Nbridges)** on Wednesday, May 2, 2001 - 02:53 pm: Edit

Speaking generally, most shareware authors are happy to receive payment in the form of mailed cheques or money-orders.

Neal

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Any Quirks with Palm IIIXE???

By **E. Ross Helton** on Wednesday, April 25, 2001 - 12:15 pm: Edit

Hi,

I was wondering if anyone had had a problem with the Palm IIIxe? My Palm III (Palm Pro upgraded) gave it up and I purchased a IIIxe. I really like it, but I seem to have a battery problem or the unit gets turned on somehow and burns out my batteries much quicker.

Has anyone had this problem, and is there a program to make sure it is shut off if accidently turned on?

Thanks

Make it a good day!
Ross

By **Neal Bridges (Nbridges)** on Wednesday, April 25, 2001 - 12:34 pm: Edit

My IIIxe is a faithful servant, Ross. Have you tried a backup, hard-reset & restore?

Neal

By **E. Ross Helton** on Wednesday, April 25, 2001 - 12:54 pm: Edit

Hi Neal,

Thanks for the feedback!!!

What happened yesterday after having put in new batteries two days ago which rendered my Palm dead and required a full restore, was that when I went to use it the screen was flashing and reset only gave me the option of erasing which I did.

At this point I am looking at the software installed. I had a software called "Powerfix" it was supposed to make the battery info work better. I deleted that and hope I guessed correct.

Make it a good day!
Ross

By **Neal Bridges (Nbridges)** on Wednesday, April 25, 2001 - 12:57 pm:
Edit

Curious. The flashing screen usually represents memory corruption.

Neal

By **Mike Will** on Wednesday, April 25, 2001 - 05:11 pm: Edit

Ross,

Sounds like a bad 8M RAM chip. You can go to:

http://www.palm.com/support/dram

to check your serial number. I have a bad IIIxe that exhibited the symptoms you describe. The fix at Palm corrected it.

Mike

By **E. Ross Helton** on Thursday, April 26, 2001 - 08:59 am: Edit

Hi Mike,

Checked it out and Palm says mine isn't one of the affected ones.

Thanks for the help.

Hopefully I have gotten it ironed out.

Make it a good day!
Ross

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Password:

E-mail:

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Benchmark Siting

By **Dave Ruske** on Tuesday, April 24, 2001 - 12:38 pm: Edit

I was just reading PalmStation's latest coverage of the HandEra 330, clicked on the "Wow! it's fast!" link and was greeted by an image of Benchmark 2.0.

Just curious, Neal, have you played with the new resolution on HandEra's POSE version or an actual unit yet?

By **Neal Bridges (Nbridges)** on Tuesday, April 24, 2001 - 02:29 pm: Edit

Not yet, Dave. It sounds like a nice gadget.

Neal

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This is a public posting area. If you do not have an account, enter your full name into the "Username" box and leave the "Password" box empty. Your e-mail address is optional.

Release 3.3 and 3.5 differences

By **John Newell** on Tuesday, April 24, 2001 - 07:25 am: Edit

I have developed an app (in Forth) on a release 3.5 ROM. When I try and run it on a release 3.3 ROM I get errors as follows:

Code goes like this:
FrmInitForm
FrmSetActiveForm
FrmDrawForm

Works fine on the 3.5 ROM but gives an error:
--> Form.c, Line:3796, No event handler
when it hits the FrmSetActiveForm when run on the 3.3 ROM.

Does anybody have any idea why?

John

By **Neal Bridges (Nbridges)** on Tuesday, April 24, 2001 - 03:58 pm: Edit

I guess 3.5 doesn't mind if there's no default event handler. Your form needs one -- if you use ShowForm to display it, you'll get a default handler. Will that suffice?

Neal

By **John Newell** on Wednesday, April 25, 2001 - 07:20 am: Edit

What I wanted was to init and activate the form but, depending on other conditions, the form may or may not be drawn.

Err - how do I create a default handler?

Why does FrmPopupForm work?

John

By **Neal Bridges (Nbridges)** on Wednesday, April 25, 2001 - 12:33 pm: Edit

This might do the trick (pseudo-code):

```
: handler ;

: go ...
  ['] handler xt>abs formP 2@ FrmSetEventHandler ;
```

As to why FrmPopupForm doesn't complain in the same circumstances on the same ROM -- that's one for the Oracle. 🙂

Neal

Possible amendment:

: handler 0. d0! ;

Neal

Thanks Neal. I'll give it a go.

John

I gave it a go … and it worked fine so that the app. brings up the form under both 3.5 and 3.3 ROM's as follows:

```
: FormIDHand 0.0 d0! ;

:go
FormID FrmInitForm
['] FormIDHand xt>abs 2over FrmSetEventHandler
FrmSetActiveForm
.
.
FormID FrmGetFormPtr FrmDrawForm
```

but (did you feel it coming?) a problem has appeared at the other end of the app. The app. launches (using SysUIAppSwitch) another app. Between the launch command and the next app. starting I get an "Invalid chunk ptr." error.

If I remove the the Event handler line on the 3.5 ROM version (which

always worked without the event handler) the launch works OK.

Any ideas?

By **Neal Bridges (Nbridges)** on Wednesday, May 2, 2001 - 01:52 pm:
Edit

John, I'm not sure why you'd be seeing that. I'll have to set up a test-case here.

But a follow-up question -- why do you want to do this thing, where you're initializing a form and later deciding whether to display it or not? Why not use ShowForm to both initialize and draw the form at the time you decide you want it to appear on-screen?

Neal

By **John Newell** on Tuesday, May 8, 2001 - 08:36 am: Edit

Conceptually (not actually) the sequence goes like this:
InitForm
SetFormActive
GetWindowBounds
SetWindowBounds \ Position the form at run time
Do
DrawForm
..
...
...
Loop
DeleteForm

That way, you don't get the "Flash" you get of rubbing out the previous screen and re-showing the form.

John

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Forth Revolution and Chips

By **William Tanksley** on Monday, April 23, 2001 - 04:04 pm: Edit

"E" asked me to post about my Forth chip design, so here goes.

In this class the project was to take a group of five people and design an
8-bit chip. We were at the same time studying the major types of chip (we
had a facinating teacher). As a result, most of the people designed 8-bit
RISC or accumulator machines.

The problem is that accumulator machines are rather complex, and RISC
machines only perform well with lots of pipelining (and that's complex). I
convinced my group to take a different route; we built a stack-based chip
patterned after Chuck Moore's F21. The results were more than beautiful:
our chip ran FAST, and solved all of the assigned problems as much as an
order of magnitude faster than any of the others in the class.

We did so well in our design (because it was so simple) that we had some
spare time left to design in a "cheat". That is, we knew that one of the
assignments involved a sort of sixteen numbers, so rather than write a sort,
I designed a hardware sorter. My sorter can sort 16 stack entries (of
course, and power of two will work) in 4 cycles. Thus, it takes me 4 cycles
and zero memory references to do a 16-element sort!

At the end of class I recieved my greatest reward: someone came to me
and said, "Hey, the TAs docked me a point because I used too many cycles
for sorting -- everyone seems to have gotten a similar result, though. We
used 900 cycles. How many did you use?" I'm pretty sure I didn't gloat too
much, but I've been gloating ever since: 90 cycles is the entire time it took
to run our application.

So anyhow: aside from the clever "cheat", the main principle of my chip
was that nothing should ever stall the running of the chip unless it was part
of the solution. I had to use a clock for this prototype, but the design in
theory doesn't require one. I used 2 on-chip stacks 16 registers deep (since
that was the problem size), and the ALU's inputs were hooked directly up to
the top two stack items. As soon as one instruction finished popping,
pushing, or shuffling the stack, the ALU would start computing all of the
possible math answers, and simultaneously the next instruction would start
loading and being decoded.

The ALU placed all of its outputs on different lines, so the instruction

decodeer simply had to MUX which one of the lines was the answer, pop the stack, and trigger the WRITE line of the top-of-stack register.

Everything was happening at once -- well, almost everything.

The only thing holding me up was memory. It just takes so long to load the address, wait for the result, and then read the data. But then I realised a solution: I made "load address" and "read data" into software instructions. Like Chuck's chip, I have an ADDRESS instruction; unlike Chuck's chip, writing to the A register immediately starts a memory read, which is loaded into the D register when it's finished. The DATA instruction loads that register onto the stack; the DATA_INC instruction loads then increments (thereby starting a new data-fetch cycle).

The good result: data reads were in general MUCH faster, since you often know the address many instructions before you know the data. The bad result: just like Chuck's ADD instruction, if you ask for DATA before it's had time to be read, you get gibberish. Thus, the programmer has to know the timing. Fortunately, it's not hard.

Lots of fun results. Read Chuck's philosophy on his chips at the Ultratechnology website.

-Billy

By **Harry** on Monday, May 7, 2001 - 04:42 pm: Edit

----------- <<< Chips for Forth, Money for Nothing, Chicks for Free! >>> ------------- Does anyone know where this comes from?

Here is the latest about Forth-Chip developments from Jeff Fox and C.H. Ting.
C.H. Ting writes:
Thank you for the message. I am currently in Taiwan running a new company we called "eForth Group", trying to build chips [tested on complex Xilinx chips] which will run eForth as its native language. I am happy to report that we just landed a project to develop a chip for Chinese eBook to be used in elementary schools in China. This chip will be useful in many other projects and we definitely welcome your input.
Jeff Fox writes:
Hi Harry, Interesting stuff. The PC Card DSO is a real killer. Very impressive. I also liked the chart, but I couldn't find the $20 20Mhz Oscilloscope made with F21. ;-)
Yeah, Chuck's latest round of technology, pushing the edge in .18u and beyond is quite remarkable. The numbers are still proprietary but lots of stuff we did in .8u sets lots of records when the tiles are scaled to .18u.
---------------- Jeff Fox

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Starting the Second Forth Revolution

By [**Harry Winter**](#) on Saturday, April 14, 2001 - 08:33 pm: Edit

Long Live the Revolution! --- A Letter to Neal Bridges

Second Forth Revolution! The first happened in 1972 when HP overthrew the existing Calculator industry with their Forth-programmed "Handheld-cuties". But now comes the "Real Revolution", overthrowing the multi billion dollar Test&Measurement Industry.

Dear Neal, (please edit, mutilate, or erase it as you wish.)

While reading the editorial by Jon Titus in the Sept./Oct. issue of Test&Measurement World : <<< "Put an Instrument in your Palm" >>>, I found the reference to your Web-site and your Quartus Forth offering. (I downloaded the Forth and will pay you on May 15 when I become one of the ten winners in the first round of the Handspring/Xilinx contest. Count on it, I'll win, but if I should enter the final round will depend on what the legal department of Xilinx ideas are on IP protection.

I am sure you have a copy of Jon's editorial, but I will include a Xerox in my slow-mail to you. If you are not aware of Jon Titus history, he was the writer/sales person etc. for Altair, the very first PC. (Which looked like a Toy-minicomputer, which made it ultimately fail.). The editorial is about the great lesson Jon learned in this life from the demise of Altair, but he has no clear concept of where this small beginning of Palm-Instruments will ultimately lead. My Web-site < www.msmisp.com/futuretest > is about this ultimate path for Test & Measurement, but it is not easy to comprehend. (Sorry about that) However, from your personal selection of literature on programming, I have high confidence that "You" will understand.

You might wonder what this long-worded introduction has to do with Forth and with Quartus Forth on Palm computers (PDAs) in particular. One reason I can think of is that the "very-compact-size" of Forth programs is ideal for the complex and universal instruments on the Palm-platform, which I am predicting. (Forth is the antitheses of the "bloated" C-programs of today.) The other reason is that I am a hardware and systems engineer who can only "Think in Forth"; and I know how stupid that might sound, but it is the only explanation I have for a very promising system architecture I came up with. This is for the "Flagship" of the T&M industry, the GigaHertz DSO (digital oscilloscope), at a cost and size more than ten times less than the present products of this industry. (Total scope market is over $1 billion.) You will find a description on my Web-site in the Paper "Handspring/Xilinx Contest, -- a design exercise". In this paper, I freely show the block diagram and the PC-Card with every component visible and its type labeled without giving away anything. This is possible because the design is 80% software based, which is not explained. Without the software, the picture shows only a random sample of inexpensive chips of a number much too small for any of the conventional DSO designs. (Very similar to showing only the words of a Forth program)

If you also read the paper on "Compute-Centric Instruments" on my web-site, you will understand why I am proposing (and predicting) the design of instrument-specific SoCs (System on Chip) for the future of a new $15 Billion T&M industry. This would be something like Motorola's slogan about "Digital DNA", but combined with instrument-specific software,"Forth DNA". And this is what might interest the discussion group on your web-site.

The same way that HP started the revolution in scientific calculators in 1972 with compact Forth-programming (See "Through the Market Backdoor, while they sleep." on my web-site.), why not start the "Revolution" in T&M with "thinking in Forth", hardware and software. The compact size of these Forth programs is certainly appropriate for the complex jobs to be done by these new StarTrek Tricorders, but I have a hunch that this "size feature" is far more than temporary or trivial. I am inspired here by a definition given by Daniel Hillis, computer scientist and author of "the pattern on the stone" (1998). He writes about the measure of information (page 99):

The amount of information in a pattern of bits is equal to the length of the smallest computer program capable of generating those bits.

I believe that this is also true for the number of elements in hardware architecture concerning the measure of complexity of tasks. Better software and hardware DNA should always be able to capture any market.

With regards, Harry

Harry, I was unaware of the editorial before you wrote; thanks very much for forwarding a copy.

I've looked at your site, but not in-depth yet; there's a lot there. Interesting stuff.

We've seen simple hardware and good software capture markets before -- the Palm itself is one such example. It's a very simple architecture, with a good OS, and as such has succeeded where far more complex systems have not.

The future is certainly handheld, and Forth is and will remain an extremely powerful and versatile tool for both design and development.

Neal

Hi Neal, here is a copy of the editorial - you'll still get the original by "Stagecoach", Harry

TEST POINTS -- USA-special edition, September, -- Europe-edition, Oct./Nov.

----------- >>> PUT AN INSTRUMENT IN YOUR PALM <<< ------------

by Jon Titus, Editorial Director, Test&Measurement World

When IBM introduced its first PC in 1981, it did a smart thing. It provided information about the computer's bus and its software, so almost anyone with some software or electronics experience could produce add-in cards or software for the computer. If IBM had offered a proprietary bus and had hidden the workings of its software, its PC would have been a footnote in history. Instead, the IBM PC became the starting point for many innovative designs.

Another type of small computer lurks, ready to tackle instrumentation tasks. It comes with a built-in display, a touch screen, I/O connection, easy connection to a PC, and an IrDA port. Surprise, it's the computer in all those portable digital assistants, or PDAs, that many of us rely on to store information. Most users wouldn't think of a PDA as an instrument controller, but most IBM PC users didn't think of their word processors as instrument controllers, either.

Recently I bought a Handspring Visor PDA. The Visor runs the Palm operating system (Palm OS), and it comes with an open slot for Springboard modules. I'm intrigued by the possibilities of that open connector. Various companies already offer memory-expansion, modem, game, and camera Springboard modules. Data-acquisition and I/O modules won't be far behind. If you prefer the original Palm PDAs, now you can buy data-acquisition add-ons from Datastick (www.datastick.com)

The specs for the Pam OS and for the I/O connections on these PDAs are open, and you can download them from the Palm OS Web site (www.palm.com). No, you won't have to code in assembly language. You can use freeware tools such as GNU, or buy the Code Warrior C/C++ compiler package from Metrowerks (www.metrowerks.com) for a few hundred dollars. And you can even find a version of Forth for Palm OS (www.quartus.net)

Granted, a Palm Pilot won't control high-speed ATE, but it might suit many portable instrumentation needs. How about a basic DMM module, or a simple logic-analyzer module? Yes, screen sizes are small, and you may dislike using graffiti lettering for data entry, but improvements

are coming and accessories such as full-size keyboards are here now, Just remember, IBM PC came with only with a monochrome monitor that displayed simple character-based graphics. Not much potential there, right?

By **Harry Winter** on Thursday, April 19, 2001 - 04:46 am: Edit

WHAT ABOUT A REVOLUTION WHERE NOBODY COMES? --- Another letter.

To: Randy Dumse, President, NewMicros Inc.

Dear Randy, I hope you still remember my Palm-Scope project and me. I am again working on it, more than ever. There is a description on my Web-site about my current design and I would like you to have a look at it. Your letter to me, (nine or so years ago) about the "screen-display" being the most important part of a scope has been one of my guiding design principles ever since.

1.) Anything you can tell me now would also be much appreciated, you have the rare wisdom of age! The paper is called "Handspring/Xilinx Contest, a design exercise", and it is the latest paper on my web-site < www.msmisp.com/futuretest >

2.) Do you have a copy of your paper: "The R65F11 FORTH Chip," FORTH Dimensions, Vol. 5, No. 2, p. 25 -? I would like to list it as a reference for a new paper I am writing, for which I don't even have a good title yet. Remember the time you wrote this paper? The great advantage of Forth at that time was that its programs were so "compact" one could write "non-trivial" applications on tiny 8-bit processors, such as the HC11, for the first time. As you know, a 30 Kbytes program in Forth can accomplish a big and complex application, such as in the scientific calculators from HP in the 70's, which was a great market success. The same application would very likely take more than 3 Mega bytes of code in C++. That is a ratio of 1 to 100, but nobody cares today, because "Moore Law" has made memory dirt-cheap. (One could say that "large memory on one chip" was the first SoC.)

What I am trying to understand, and then to explain by writing this paper is why not only the Forth program for my scope design has so few bytes or components, but why the hardware too has so few components or chips. This is certainly not because the system performance is simplified or compromised; in fact, the Palm-scopes have more features and performance than the competing products. (Compare the specs.)

I am now convinced that the reason for the substantial reduction of hardware cost in my designs, compared to that of conventional scope designs, was not caused by any great inventiveness of mine, but by the << Software/Hardware Co-design methodology >>, which I practiced. I did that for the first design (without the DIS concept) in the < Harris Semiconductor/ Embedded Systems Programming magazine design contest > in 1990. (The RTX2001A Forth chip, remember? I won in that contest.) And now I have been doing it with your HC11 Forth chip and the hardware chip count is still extremely low, and with vastly better performance.

What is going on here? My explanation is that the "Codesign methodology" caused me to "Think in Forth", just as Leo Brodie recommends it in his book by the same title. One could actually say, "The hardware is designed in FORTH!"

I will not attempt to explain this here, but just give you a few hints. (If you have the Brodie book, the introduction with the chapter on "Component Programming" is the key.) He writes about "decomposing" an application into (Forth) "components", not into "structures" or the conventional modules. For him, a component is:

"The smallest set of interacting data structures and algorithms that share knowledge about how they collectively work." A Component is a resource, which involves data objects and algorithms. It doesn't matter whether the data object is physical (such as a hardware register), or abstract (such as a stack location). It doesn't matter whether the algorithm is in code or done by a "finite-state machine" in hardware."

Another important concept, which is part of the above, is the "uses" hierarchy from a paper by David L. Parnas, who writes:

"Systems that have achieved a certain "elegance" ... have done so by having parts of the system "use" other parts ... The design of the "uses" hierarchy should be one of the major milestones in a design effort. The division of the system into independently callable subprograms has to go parallel with the decision about uses, because they influence each other."

This last (software) concept is very evident in several parts of my hardware design and the "blocks", shown in the block-diagram, are always "combined-components" consisting of a hardware part, and a software part inside the virtual Forth-engine.

In the new paper I am writing, I will attempt to show how these "software concepts" are implemented in "Hardware", and how an excellent flexibility and testability is being achieved by doing so. I believe that the unprecedented reduction of hardware cost is being achieved by the combined nature of the "components", because the software part is predominant and basically for free.

In conclusion, while the "compactness" of Forth programs has lost its "commercial" advantage in this age of cheap RAM and Flash EEPROM, a basic difference between software and hardware still exists. (Charles Moore at one time said that his ultimate goal was to have software running without any hardware, sorry Charles, not yet in this physical Universe!) One's designed, Software can be copied for free, but Hardware cannot. Here is where a < Forth-Software/Hardware Codesign methodology >, with Hardware "components" having a predominant Forth-software content, will again provide the "commercial" advantage which Forth had at one time.

While the best ratio in "compactness", the amount of hardware needed compared to other conventional designs, is only 1 to 30 and not the 1 to 100 of pure Forth programs, this ratio will have a significant impact on the competitiveness of products on the market.

With regards, Harry Winter

By **Dave Ruske** on Thursday, April 19, 2001 - 10:25 am: Edit

Hi Harry. One thing in your message really popped out at me:

"...The same [30K] application would very likely take more than 3 Mega bytes of code in C++..."

30K of Forth equals 3Megs of C++? Are you including the size of the development environment and compiler to come up with a 100:1 ratio? If not, I'm either a lousy Forth programmer or an exceptional C++ programmer!

By **Kris Johnson (Kdj)** on Thursday, April 19, 2001 - 11:42 am: Edit

10 to 1 is a more believable ratio, but I'm sure there are plenty of C++ programs out there that could be made a hundred times smaller.

And really, C++ code could be made compact if C++ programmers wanted to. But people who use C++ are generally more interested in object-oriented abstractions and reuse of third-party libraries than they are in code size. As indicated in Harry's article, cheap RAM and hard disk space has made compactness irrelevant to most programmers.

-- Kris

By **Neal Bridges (Nbridges)** on Thursday, April 19, 2001 - 11:49 am: Edit

Part of what makes some C++ executables so truly mindbogglingly huge is massive inlining. In order to crank up the speed as high as possible, functions -- even quite large ones -- are aggressively inlined each time they are called.

The result -- huge binaries.

Neal

Harry, I once designed a digital recorder based on a single CMOS chip (4011 or 4016, I forget). Worked beautifully. Nobody bought it. I learned a lot about psychology from that experience. People will only buy hardware/software that comes with 20 lbs of manuals.

In any case, the real problem with 4 megabyte "hello, world" apps is not just waste, but reduced reliability. If a phantom error creeps up in a Quartus app, I relentlessly hunt it down and find out what happened. If the same thing happens in a VC++ 6.0 app, I completely ignore it (believe me, ALL C++ programmers do, they'd starve otherwise). When was the last time you spent serious time investigating a Windows crash?

Whenever I argue this with an MFC type, I like to use DNA as a metaphor. At the base-pair level, DNA is even more reliable and predictable than a transistor. However, string a few billion of them together, and you get a significant probability of mutation, defect, cancer, and death.

Small code that fits into "one brain" as Neal puts it, will always be valuable. I'm just too old and jaded to get evangelical about it anymore.

Mike

Jeff Fox's essay "Thoughtful Programming and Forth" has his views of how to produce 100x smaller systems. In general, he is talking about hardware and software designed together to give as minimal and as elegant a solution as possible. He does not suggest, say, that you can write a Forth app which still attempts to deal with all the bloat and overhead of the Windows API and have said app be 100x smaller than a similar C++ solution.

Still, I found his paper to be thought provoking and informative, even when applied merely to software development.

Very interesting. There's already some data-capture Springboards -- see VisorCentral.com, and look for the 24-bit and 32-bit boards.

Keep in touch! I wanna hear more.

-Billy

THANKS TO: --- Dave --- Kris --- Neal --- Mike, --- Steve - and - William,

for responding to my posts. I already began to believe no one had read it, or looked at my Web-site. And about that "Forth Revolution" thing, I am not evangelical about that either Mike. I just would like to see the PDAs or Palm computers turned into the Worlds first StarTrek Tricorders. Or better Quart(us)-corders. --- Print out the one page on my web-site that says it all --- hit the word OPPORTUNITY on the bottom of the first page. And remember, this is a $1 billion market which, I believe it is a bigger market than that for the first scientific calculators from HP. "Forth" comes into the picture, because today, it is the only programming language, which can do it. In 5 years, these little marvels will also have 10 Gigabytes of storage and the C++ bloated software will try to takeover, but Forth will have its "foot in the door". (By-the-way, do you know want a Tricorder is?)

Dave, you are right, the 1 to 100 ratios are wrong, I just tried to make a complement to all the Forth people on this discussion site. (To make proper compliments to software experts you need to be one yourself, and I am not. To paraphrase the quote from Neal about Forth: >> The one code that fits into a "small brain" << mine!)

Steve, I would really like to know how to get hold of the paper by Jeff Fox, "Thoughtful Programming and Forth", any suggestion?

Has anyone watched the series on public television about the Genome project? --- I learned that the program for the construction of the human body and brain has 30,000 of these. And there are several billion of these four letter sequences. (Would that be like binary bytes?) ---- The most interesting discovery however, I believe, is that only 1.5% of these sequences are actually used to construct the "human program", and that 50% of the rest are actually "viruses" which only replicate themselves. (Hitchhikers) Ha! Talking about bloated software and a complete lack of "Garbage collection". Mother Nature is a very sloppy programmer. But, apparently this is the most efficient way to do things when you have such a cheap method of duplicating multi-billion byte storage devices. (Much cheaper than making giga-transistor silicon chips). --- However, there is a big difference in the way Nature develops these "programs": they are "grown", they "evolve" and Nature only provides the "recipe": Evolution. For Daniel Hillis in his book "the pattern on the stone" this method is the ultimate way of programming.

William, yes I'll keep in touch about my StarTrek Quartus-corder project. I'll know on May 15 if I win the first round and get my Handspring Visor and the Xilinx development board. If you looked at my contest paper and the app-note from Xilinx, you'll see a new phenomenon, "Bloated Hardware". The Xilinx FPGA is a very much larger chip than the old Motorola HC11, which has a much better implementation of the SPI (I2C) link, besides being a complete CPU. As I said before, I will not enter the final round of the contest. No one could get the big program for the Visor done in time anyway, for this part I will need help! (Any suggestions?) --Instead I'll keep looking for a small company to manufacture and market the design.

Keeping in touch, Harry

By **William Tanksley** on Friday, April 20, 2001 - 08:02 pm: Edit

Good luck!

Jeff Fox's writings are on his website, http://www.ultratechnology.com/. Good stuff by Moore as well. Chuck's chip designs are /really/ interesting; back in college I copied the basic principles of his earliest one and POUNDED the competition.

-Billy

By **E.** on Saturday, April 21, 2001 - 03:51 am: Edit

Not to try to derail the conversation or anything, but, Billy? Could you please expand on that last post of yours in a new thread? Sounds most interesting.

By **Harry Winter** on Saturday, April 21, 2001 - 04:57 pm: Edit

Neal, I am officially changing the name of my PalmScope designs to
-------------- <<<< QUART-CORDER >>>> ---------------
(Made possible by a sophisticated Program designed by Quartus Inc.)
-------------- [just being very hopeful]

Remember, the little Visor module provides 4 main functions (not 3):

1.) Very High Bandwidth Digital Sampling Oscilloscope, DSO
2.) Time-domain Reflectometer, TDR (e.g., for Cable tests)
3.) Digital Volt Meter, 4 digit DVM (or better)

4.) Wide Bandwidth Spectrum Analyzer (FF-Transform program)

The function of providing displays for part of a PCB layout (test-points)
and simulated scope pictures is the job of the interfaced EDA programs
running on a PC-Workstation, not that of the "QuartCorder".

What do you think Neal, why can't Quartus Forth not "take a bite out of"
the $1 Billion DSO market? Every Revolution needs money to finance it.
Do you know any rich person who is willing to do this? I don't!
So, the first step is to get the money, the Revolution can be postponed
and its need discussed and re-evaluated much later.

Harry

PS, I finished the first chapter of "Thoughtful Programming and Forth",
Great Stuff! --- HW

I like the sound of that, Harry 🙂

Neal

TO: - Dave - Kris - Neal - Mike, - Steve - Billy and the mysterious E !
I made a Great Discovery --- FORTH is a < DISRUPTIVE TECHNOLOGY>!
Have you printed + read Jeff Fox's paper: "Thoughtful Programming and Forth"? - No? Shame on
you! To understand this post you must read the first 4 pages!
While Jeff's paper has some grammatical "sloppiness", that's ok, some prove-reading will fix it. But
what got my attention was one abnormality; the index is not at the front, but on page 5. Why?
Because for only 30 pages, there is a long 4-page prefix. --- What is this relatively long prefix all
about? --------------- FRUSTRATION!
I know, because 16 years ago I felt the same about my efforts in hardware and systems
engineering at Bell Labs. After a year with Bell, in the middle 60th, I became the lead-engineer for
a fairly large project. (Because I was the only "warm body" in that group who knew how to design
with "solid-state" stuff, --- anybody remember that word?) When that project came in on schedule
and substantially under cost, it was looked on, believe it or not, as a great "curiosity". Because
never in the history of that department had this happened before. For 25 years I designed like this
to provide high-performance but low cost systems, mostly large "fault-tolerant" systems, always
believing it was for the benefit of our "customers" and therefor in the interest of "management".
Until one day, when I was talking to a department head (whom I considered to be my friend) about
my objectives in designs and why some of the upper management seem to dislike me for it. He
pulled me into his office for privacy and told me the secret:
"Our customers are not the people who use our phones or long-distance services, but the
regulatory agencies of the government. AT&T gets a "fixed profit" on any new equipment they
install, the more it costs to manufacture, the higher our profits!"
While this was a specific objective for the "monopoly" of AT&T, the other reasons, given by Jeff
Fox, are more important and are applying to all big companies, including AT&T. It is a form of Ego
gratification, which is accomplished by Greed, which drives the large majority of middle and upper
management. (I am not arguing against ego gratification, it is their "means" I am opposed to:
Greed and Devious Scheming.) --- So here I was, striving all my life for excellence in engineering,
getting 12 patens for AT&T, and finally learning that this was not considered a desirable goal by my
management. - Frustration!
I took early retirement from Bell Labs and spend 7 years for Zen type meditation. I was fortunate,
I found a teacher (in Canada) who could do this without all the religious trimmings of the Asian
cultures, call it a Western ZEN. Interestingly, in Zen you know when you have graduated, you don't
need a test and a certificate.
<< A young monk came from far away to ask the Zen Master Joshua (778 AD China) for his
"teaching", Joshua replies, "You have just entered the gate. Well then, let me spit in your face."

\>\>
If you fully understand this and smile about it, you are ready to return to your home-village to sit in front of your cottage. The villagers will come to you, the grand Master, and talk about their troubles in life. Ever 15 minutes or so you say: "Ah soooh?" And then maybe: "Ahh sooh!"

Zen certainly took care of my frustration, but I decided not to do the home-village thing. I began to use my knowledge in system architecture instead to analyze this human-system phenomenon described by Jeff Fox. I also found out that someone else had just been doing this research, a Professor Clayton Christensen with the Harvard School of Business. I don't say that you have to read his book: "The Innovator's Dilemma, When New Technologies Cause Great Firms to Fail", but read at least my paper < "Disruptive Innovation 101" >

If you don't want to study this research by Clayton (no programming here) you will just have to trust me when I tell you that "Forth" is definitely a <disruptive technology> as defined in Clayton's research. As such, the major industry will never promote or adapt it, in fact they can't! As Clayton writes: "Never in history have the leading companies in an industry led a disruptive revolution, They typically have not just ignored the potential disruption, they have actively worked to discredit and oppose them."

It's a "SYSTEM-FLAW" inherent in all of modern industry, about which Clayton has this wonderful conclusion: "The very Capabilities that make their Organizations Effective also Define their Disabilities."

Just think about Windows OS to understand the meaning of this sentence. Explaining all this to the leaders of the industry has no effect --- they are completely "boxed-in", into the confines of their "business model". If you ever wondered what < thinking inside the box> means, this is it, they are complete trapped with no way out.

This is the type knowledge that experienced hunters use to track and kill "animals". And this is also the type of knowledge, which can be used to "kill" established industries. All you need is a certain type of weapon, a "killer-application", which is a <disruptive technology>. I personally don't like the term "killer-application" and prefer the term "enabling application" instead, because of positive effects they have on the very large majority outside the effected industry. Clayton writes: "Nearly every one of the disruptive technologies reviewed in the The Innovator's Dilemma - including hydraulic excavators, steel minimills and small business accounting software - had the effect of enabling a larger population of less-skilled [and less wealthy] people to do things that historically had been in the domain of expensive specialists. In each of these examples, customers ultimately found themselves with products and services that were far more reliable, more convenient to use, and cost less, than what would have been available had these disruptive revolutions not occurred. ---- Though they were simple and inadequate at the outset, the disruptive innovations that overturned their industries left us much better off - even though they invariably left in their wake the wrecks of the companies that were the industry's prior leaders. --- In fact, these disruptions have been a fundamental mechanism by which the quality of our lives has improved." ---

What the group around Chuck Moore: Jeff Fox, C H Ting, etc., etc., etc., have been trying to do for more than a decade is to convince "the industry" that Forth is a better product. (Benchmarks, Forth-engines in silicon, less programming man-hours, etc.) It can never work, because you are trying to sell them a <disruptive technology>, something which will "disrupt" their "business model" which will kill them. (Suicide!)

We have been trying to sell a "tool", or a "method" to the management of industry, which is quite different from selling an "application" to the market. The "market" is < The people >, the "industry" is the < Power-structure >. Please try to understand this, think of selling the concept (method) of "Democracy" to a Kingdom and an Aristocracy. No matter how convincing you can show (benchmarking) that the welfare of everyone will improve tenfold or more, they will never listen to you.

Fortunately, we already have a democracy with a (supposedly) free market economy, which includes competition. The problem is that most big industries are homogenous concerning their business model, e.g. the T&M industry. In this case it takes a very small, but courageous company to introduce a killer application, because non-of the, even medium size, companies will dare to violate this "accepted" business model. Have you ever wondered why the term "unfair advantage" is used in business circles to characterize such an event? What is unfair about it? What has ethics got to do with it? The answer is that this company is not "playing by the rules", the rules which the power structure has silently agreed upon.

If you have read all this "business stuff" up to this point, I would like to thank you, because it is essential to understand this for the survival of Forth as a living computer language. Chuck Moore and "his merry men" have done their utmost, a supreme job of proving and improving Forth, but now even Chuck has given up on Forth as a commercial language. "Forth is not the future of computer languages", his words!

I would really like to try to prove him wrong by coming in "the back-door" with a great "Killer application" in Forth, Software and Hardware!

Are you with me? --- I can't hear you, ARE YOU WITH ME?

Well, I guess I'm just having fun, and that, by-the-way, is what Chuck is saying about what he is doing now --- just read his fire-side chat on the web-site.

Your Revolutionary, Harry

PS. What subject did you want to discuss E? --- Forth Engines in Silicon, C.H. Ting? Stack Computers ala Koopman? NC4000, RTX2000, or the latest dreams of Chuck? The RTX2001A is my favorite, I have two of them. And if we ever get this "Killer App" going, I will use some of the millions to buy a license for this chip. Then convert it from the 2-u technology to the modern 0.15-micron at 3 volt. Maybe add some peripherals and give the chips away for free to Universities. --- H.W.

By **Harry Winter** on Tuesday, April 24, 2001 - 02:41 am: Edit

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FORTH is a < DISRUPTIVE TECHNOLOGY>!

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If you fully understand this and smile about it, you are ready to return to your home-village to sit in front of your cottage. Now you are the "Grand Master" and the villagers will come to you, and talk about their troubles in life. Ever 15 minutes or so you say: --- "Ah soooh?" And then maybe:--- "Ahh sooh!"

Zen certainly took care of my frustration, but I decided not to do the home-village-thing. Instead, I began to use my knowledge in system architecture to analyze this "human-system" phenomenon described by Jeff Fox. I also found out that someone else had just been doing this research, a Professor Clayton Christensen with the Harvard School of Business. You don't have to read his book now: "The Innovator's Dilemma, When New Technologies Cause Great Firms to Fail", but you must at least read < "Disruptive Innovation 101" > on < www.msmisp.com/futuretest/ >

If you don't want to study this research by Clayton (no programming) you will just have to trust me when I tell you that "Forth" is definitely a <disruptive technology> as defined in Clayton. As such, the major industry will never promote or adopt it, in fact they can't! As Clayton writes: "Never in history have the leading companies in an industry led a disruptive revolution, They typically have not just ignored the potential disruption, they have actively worked to discredit and oppose them."

It's a "SYSTEM-FLAW" inherent in all of modern Western industry, about which Clayton has this wonderful conclusion: "The very Capabilities that make their Organizations Effective also Define their Disabilities."

(Just think about Windows OS to understand the meaning of this sentence.) Explaining this to the leaders of the industry has no effect --- they are completely "boxed-in", into the confines of their "business model". If you ever have wondered what < thinking inside the box> means, this is it, they are completely trapped, with no way out.

This is the type knowledge that experienced hunters use to track and kill "animals". The knowledge of the "fixed-instincts" of animals, which gives them great capabilities, but also disables them to respond to changed in the environment, such as hunters. [Philosophy of Martial Arts: Turning the Strength of an Opponent against him.] And this is also the type of knowledge, which can be used to "kill" established industries. All you need is a certain type of weapon, a "killer-application", which is a <disruptive technology>. I personally don't like the term "killer-application" and prefer to call it "enabling application" instead, because of the very positive effects they have on the very large majority of people, outside of the effected industry. Clayton writes:

"Nearly every one of the disruptive technologies reviewed in the The Innovator's Dilemma - including hydraulic excavators, steel minimills and small business accounting software - had the effect of enabling a larger population of less-skilled [and less wealthy] people to do things that historically had been in the domain of expensive specialists. In each of these examples, customers ultimately found themselves with products and services that were far more reliable, more convenient to use, and cost less, than what would have been available had these disruptive revolutions not occurred. ---- Though they were simple and inadequate at the outset, the disruptive innovations that overturned their industries left us much better off - even though they invariably left in their wake the wrecks of the companies that were the industry's prior leaders. --- In fact, these disruptions have been a fundamental mechanism by which the quality of our lives has improved." --

What the group around Chuck Moore: Jeff Fox, C H Ting, etc., etc., etc., have been trying to do for more than a decade is to convince "the industry" that Forth is a better product. (Benchmarks, Forth-engines in silicon, less programming man-hours, etc.) It can never work, because you are trying to sell them a <disruptive technology>, something which will "disrupt" their "business model" which will kill them. (Suicide!)

We have been trying to sell a "tool", or a "method" to the management of the industry, which is

quite different from selling an "application" to the market. --- The "market" is < The people >, the "industry" is the < Power-structure >. Please try to understand this, think of selling the concept (method) of "Democracy" to a Kingdom and an Aristocracy. No matter how convincing you can show (benchmarking) that the welfare of everyone will improve tenfold or more, they will never listen to you.

Fortunately, we already have a democracy with a (supposedly) free market economy, which includes competition. The problem is that most big industries are homogenous concerning their business model, e.g. the T&M industry. In this case it takes a very small, but courageous company to introduce a killer application, because non-of the, even medium size, companies will dare to violate this "accepted" business model. Have you ever wondered why the term "unfair advantage" is used in business circles to characterize such an event? What is unfair about it? What has ethics got to do with it? The answer is that this small company is not "playing by the rules", the rules which the power structure has silently agreed upon.

If you have read all this "business stuff" up to this point, I would like to thank you, because it is essential to understand this to strive for the survival of Forth as a living computer language and as a viable commercial product. Chuck Moore and "his merry men" have done their utmost, a supreme job of proving and improving Forth, but now even Chuck has given up on Forth as a commercial language. As he said in his 1999 Fire-side chat:

"I've been worrying a lot about where we are and where we are going and this is the time at the new millennium. It's kind of pathetic actually that we are all sitting here talking about Forth. It is not the wave of the future."

I would really like to try to prove him wrong by coming in "the back-door" with a great "Killer application" in Forth, Software and Hardware!

Are you with me? --- I can't hear you, --- ARE YOU WITH ME?

Well, I guess I'm just having fun, and that, by the way, is what Chuck is saying about what he is doing now --- just read his fire-side chat on the web-site.

Harry, --- Your Revolutionary,

By **Neal Bridges (Nbridges)** on Tuesday, April 24, 2001 - 11:44 am: Edit

There certainly is a trend toward greater complexity in modern programming languages. Some of the most recent entries on the scene are positively baroque.

Forth is just the opposite -- simpler, cleaner, faster, yet at least as powerful. This simultaneously frightens and confuses a lot of programmers, and can't be understood at all by a large segment of management.

The way to use this power is to simply use it. This is what Chuck Moore did with his Forth CPU (now sold by Patriot Scientific); they reap the benefits of the Forth philosophy while not marketing the Forth aspect at all (they sell it as a Java chip).

Forth has widespread use in the embedded world, and the consumer has no idea what language his microwave, coffee-maker, television, etc. is programmed in. There are no 'C Inside' stickers, any more than there are 'Forth Inside' stickers.

Use Forth to get your products developed easily, quickly, and reliably, and using hardware orders of magnitude less complex and less expensive than your competition. When they wonder how you do it, don't tell them; they might catch on. 😊

Neal

Does anyone know the E-mail address for Dr. Ting or for Chuck?

Dear Josephine, it was nice talking to you on the phone.
Here is my letter to Dr. C.H. Ting

Dear Dr. Ting,
Don't know if you remember me; many years ago you printed my description
of the "Palm-Scope project" in your "More on Forth Engines" paper, a winning
submission to the Harris/Embedded System RTX 2000 Contest.
This project is still going on and you will find a paper on my web-site
<<< www.msmisp.com/futuretest >>>, (another Contest entry, for which, however,
I cannot enter the final round, because of lack of IP protection.)

But this is not why I am contacting you. The reason is much more important!
Is has to do with Forth in general and with yours and Chuck Moore's decade of
struggle to find acceptance for the Forth language in the industry. This is a path-
breaking new understanding which came out of the Harvard School of Business,
from a Professor Clayton Christensen. (a Nobel Prize type of discovery)

His book, <"The Innovator's Dilemma, When New Technologies Cause Great
Firms to Fail" > is a MUST read for you. It will explain any frustration you
experienced in this last decade. I have been in contact with Clayton and worked
with him for several years now. But the great insight about Forth came only when
I began to participate in a discussion group on Forth on a Canadian web-site.
<<< www.quatus.net >>>. The particular group is under "Discussion Forum:
Everything else!: Starting the Second Forth Revolution". The important paper
is the one called "Forth is a < Disruptive Technology >!", Tuesday,April 24.
But you might also be interested in the paper "What about a Revolution Where
Nobody Comes?, It has to do with the application of "Forth-Philosophy" in
Hardware design. (I hope you are aware that there is no conceptual difference
between computation in software or hardware, any program can theoretically be
implemented on a Finite-State-machine.)

Lastly, when you have read my papers you might agree with me that Chuck and
Jeff Fox should also be made aware of Prof. Christensen's research. (please do so)
It is vital to an understanding of the difficulties which Forth is having in the
Commercial World. But more importantly, knowing what the problem is should lead us
to a solution! Again, look at my paper "Forth is a < Disruptive Technology >",
for which there is a better formatted version on my own web-site. (Somewhat difficult
to find, go to "Handspring/Xilinx Contest ...", last chapter: "The Software is the
Instrument" .
With Regards, Harry Winter.

Dr. Ting is developing a new forth chip in Taiwan, and already tested in Xilinx FPGA.
It is a very simple design and take only few pages of VHDL description. It also has a document for
this design, but in CHINESE language.
If someone like to contact with Dr. Ting, I would like to transfer the mail.

regards
harry chou

I put a revised version of my paper < FORTH is a <Disruptive Technology> on my web-site and
mailed letters to some "Forth-people". Philip Koopman (Stack Computers) answered but apperntly

missed this paper. Here is his letter:

Harry,
Thanks for sharing your thoughts. I agree that T&M tends to be neglected in favor of "sexier" products. But I'm not sure if you're going to be able to stir up much more life in the Forth community. From the things I have heard even FIG is pretty moribund at this point.

I've moved on to other topics mostly because attempting to get tenure with a career in stack computers & Forth is not a smart move. But also
the community has dissipated over the last decade as well.

Regards,-- Phil

By **Harry** on Sunday, April 29, 2001 - 06:31 pm: Edit

I forgot to post the letter I send to the FIG group --- here it is:

To: John D Hall, ----- ABOUT THE FUTURE OF FORTH --- (if there is any!)

A year and four-month ago the Creator of Forth, Chuck Moore, made the following remarks at his Dec. 99 Fireside chat: (< http://www.ultratechnology.com/ >)
"I've been worrying a lot about where we are and where we are going and this is the time at the new millennium. It's kind of pathetic actually that we are all sitting here talking about Forth. It is not the wave of the future."

I agree with Chuck, the "slow death" of Forth has been going on for many years, what is the FIG publication doing about the SURVIVAL of Forth as a commercial language.

Four years ago, I presented a hardware architecture for a new instrument to a group of engineers at a company. Programmers in the group began to giggle and whisper to each other when I said I was doing the programming for the instrument in Forth. I wonder what happens to the "resumes" of our young Forth-enthusiasts (listing Forth expertise as their main qualification) when they apply for a job at one of the larger electronic firms. We might believe that nothing can be done about this sad affair, but putting our heads into the "Sand of Silicon Valley" certainly will not help.

We feel so helpless about this "non acceptance" of Forth in the industry, because we don't understand the Causes! These "causes" are addressed in my new paper: paper 9, "Forth, identified as <Disruptive Technology> shows the way to success", on my web-site: < http://www.msmisp.com/futuretest/ >. How about publishing it (with some editing maybe) to create awareness in our Forth community. With this "awareness", solutions for reviving Forth become obvious. The particular solution I am personally interested in is a way to "overthrow" the Test&Measurement Industry, a $15 Billion Dinosaur. (Subject of the web-site) Forth comes into the picture because of its original design objective, instrument control, and its compact size for portable applications.

The concepts in my paper are based on a path-breaking research by Professor Clayton Christensen, Harvard Business School, "The Innovator's Dilemma, When New Technologies Cause Great Firms to Fail". (A discovery waiting for the Nobel Prize) Reading this book is essential; easy reading, but comprehension takes time.

Regards, Harry

By **Neal Bridges (Nbridges)** on Friday, May 4, 2001 - 03:20 pm: Edit

An article that might be of interest, re competitive advantage:
http://www.paulgraham.com/paulgraham/avg.html

Neal

By **Darren Cook** on Friday, June 8, 2001 - 08:21 pm: Edit

I must write and say I have just finished reading this entire discussion including some of the mentioned related websites and papers, and find it absolutely fascinating. I don't understand much about T&M, nor do I even program in Forth yet, but I certainly grasp the value of it as a language and inherently understand and agree with it's original programming philosophy. A year ago I tried to delve into QuartusForth and found it difficult to grasp (I had no books on hand and only the material available from this website), and difficult to learn on the palm as some/many of the non-QuartusForth tutorials used examples with words that were not standard in Quartus. In addition I floundered for lack of vision; I had no software product (no "problem" or "need to meet") with which to drive my learning.

But I got it; at least, a part of it. I took with me an excitement about what Forth is capable of doing, the way it works, and in some ways found myself thinking more like Forth. I took the key concepts of the language (as I grasped them) and began to apply them to my other programming (Web Applications using Cold Fusion, Javascript, SQL), with results that made me proud to have "discovered" Forth and filled me with an insatiable curiosity to really understand it and be able to use it.

So I have found myself back at quartus.net in the last week, and today stumbled upon this discussion. Boy does it hit home (the discussion of Disruptive Technology). In my company, we have a big need to meet (software based). We also have a team of 6 members who have been attempting to meet this need, for the last 3 years, to the tune of 6 million (so far, and with limited results to date). Myself and a coworker came up with a solution in the equivalent of 3 months time, and even implemented it in a legacy system to prove it would work. It is much simpler, very elegant and flexible, and could be used by practically anyone in the company. In short, it works like Forth. I credit my discovery and beginning understanding of Forth to be able to see past the muck and layers of abstraction and come up with our solution. But alas, our solution has been squelched, and until today I really couldn't understand the reason why. But today, I saw many many parallels when reading about Distruptive Technology and products that don't fit the business model (Jeff Fox's essay), and I recognize the same struggle I've felt myself in recently. I also felt a good deal more peace, knowing that A) there are other guys out there recognizing this and struggling with it, and B) I at least understand the battle I'm in now. Us revolutionaries ;-)

I hear you, Harry! I'm with you!! But what I mean is, though I barely know Forth and am not sure if I'll even have the time to learn it (we're talkin' WAY to busy here and stealing time even to write this), I think I intuitively understand it's philosophy and nature and power, and I have a desire to see it thrive. I saw in Forth the very characteristics that I valued in my own programming skills, which is what attracted me so strongly to it. And if there is a second revolution coming, I desire to be part of it.

I also must say that I am happy to see how close the people in this discussion are to the original mind and vision behind Forth. I recognized immediately the layers of abstraction even in the current Palm OS, ANS Forth, and Quartus libraries, which though more simple than programming in Windows, still is a lot to grasp at first grappling. I am glad that there is some sort of anchor out there to the original vision, someone who is still going in the original direction ("simplify!", or as I read today, "Factor, factor, factor!").

So I don't know if I succeeded, but this was intended to be a "hear, hear!" cry of support for Forth and it's hoped-for revolution. And thanks for all the great discussion!

By **Harry Winter** on Sunday, July 1, 2001 - 04:18 am: Edit

Very late Letter to Darren Cook

I did not check this part of the Forum for a long time, because I believed the subject to be closed. Instead, I spend a lot of time trying to get Quartus Forth to generate a .PRC file for me. No success so far! --- Of course, I am blaming myself, my old age, causing incipient senility, and maybe a drop in my already low IQ of only 135. All these problems must have happened in the last 10 years, because I had no difficulty learning the Forth compiler for the RTX2000 in two weeks and winning in the Harris Semiconductor/ Embedded Systems Programming Magazine Contest in four weeks. The problem for me seems to be ---- COMPLEXITY ----, which might be caused by the tight

integration of Quartus Forth into the Palm operating system. When I type-in "WORDS", I find that I only recognize only about 10% of those printed out.

I am ready to give up the idea of writing any useful program on the Palm Computer and will find someone else to do it for me when the hardware design for the Star Trek Tricorder is finished. Interestingly, I am doing the "hardware design" with a "Forth-Codesign methodology" and a simple (no operating system) Forth from Newmicros Inc., running on the good-old Motorolar HC11. Where-in-Hell does Complexity come from? Einstein's equation don't have it, Van Neuman's theories don't have it, Charles Moore did not produce it and his Forth engines in silicon are "Simplicity-Incarnate" at highest performance. Ask me again in a few months; I am doing a literature search on "Complexity" and will find out where it comes from. However, I already have a strong suspicion that it actually originated in --- HELL!

For me, the author Robert Wright best describes the philosophy of Forth in an article about the Computer Scientist Edward Fredkin, who is the originator of "cellular automaton's". (Fredkin got rich selling his algorithm's to the military.) Robert writes:

"Nothing is so striking about a good cellular automaton as the contrast between the simplicity of the rule (algorithm) and the richness of its result. We have all felt the attraction of this contrast. It accompanies the comprehension of any process, conceptual or physical, by which simplicity accommodates complexity. Simple solutions to complex problems for example make us feel good. The social engineer who designs uncomplicated legislation that will correct numerous social ills; the architect who eliminates several nagging design flaws by moving a single closet; the doctor who traces gastrointestinal, cardiovascular, and respiratory ailments to a single, correctable cause --- all feel the same kind of visceral, aesthetic satisfaction that filled the first caveman who literally killed two birds with one stone."

Most problems we experience in life, because we don't understand them, appear not to be simple. To handle these problems we develop complex solutions, because that is all we can think of. (Because we are not thinking --- or don't have the time to.) Yes, life is this interplay between Heaven and Hell, good and evil, Ying and Yang, and Simplicity and Complexity, which certainly belongs in Hell! No wonder that one makes us feel good and the other one does not.

Harry

By **Kris Johnson (Kdj)** on Sunday, July 1, 2001 - 10:23 am: Edit

Almost all of the words you see when you type WORDS come from the ANS Forth standard--only a few are related to Palm OS programming.

Chuck Moore feels that the ANS Forth standard is too complex and too broad. I get the feeling you agree. However, there is no need to use all those words--you can write useful programs with just the core words and a few Palm OS API functions.

I agree that the simplicity of Forth gets overshadowed by the complexity of the OS when one tries to write a "real program" using Quartus Forth. There's a big difference between writing standalone code for a custom embedded system and writing code that integrates into a complex system.

One solution is to figure out what you want the OS to do, and then define a few simple Forth words that hide those details. The other solution is to eliminate the OS entirely and use or create a Forth that uses the hardware directly for everything. The latter solution may limit the market for your application, or require production of specialized hardware.

BTw, why have you selected Palm OS PDAs as the platform for your application? Maybe you don't really want to use the OS--you only want the hardware. If that's the case, you may be better off with one of the other small PDA hardware platforms, like iPaq or Agenda, that offer more features and more openness than the typical Palm OS hardware platform.

-- Kris

By **Neal Bridges (Nbridges)** on Sunday, July 1, 2001 - 11:51 am: Edit

Harry, I didn't know you were still having trouble. By all means, write me and we'll sort it out.

Neal

By **Harr Winter** on Tuesday, July 3, 2001 - 04:51 am:

You got me again Kris! I stand corrected.

Another prove of how old I am getting, and how much Forth has changed since 1990. At Bell Labs I never did any programming --- my field of expertise is Systems engineering and the hardware to build it. Of course I had to work together with the programmers, especially for the part of system designs for "fault tolerant" features. "Systems" today are always a close integration of hardware and software, and if Chuck's dream comes true, there will not be any hardware at all!

That's why you can't say >>> Maybe you don't want the OS--you only want the hardware. <<< (That's like saying: you don't want the girl, you just want the boobs.)

Why did I select the Palm OS PDA? <<< "Total System Concept" >>> 1.) The market, 2.) The performance of the product, 3.) The cost of manufacturing.

The Palm OS, I believe, has more than 60% to 70% of the PDA market compared to Windows CE, and the low priced units are all Palm OS. The Dragonball (68000-type) processor with 2 Mbytes of RAM has more than enough power to run any DSO job. It is estimated that this year alone some ~15 million PDAs units will sell worldwide with sales expected to grow to ~34 million units in 2004. No other "hardware" can compete in cost with these kinds of numbers.

Kris, I never intended to do the programming on the Visor myself, I just needed to find out if the Palm OS could accommodate the real-time requirements of a DSO. And it looks that way, because maximum interrupt latency at the "Springboard interface" is ok for loading strings of DSO data and the touch-screen presents a wonderful opportunity to "out design" the control methods used by the competition, Fluke and Tektronix. (Take another look at my updated paper "Star Trek Tricorder", on my web-site < http://www.msmisp.com/futuretest >. On page 6, click on the reference for < Virtual-front-panel >.)

Well Kris, I just printed out most of your tutorials from the sleepless-nights of Wiki. At my age one has to see things on paper to learn it, --- but I still have no intention to have my DSO designs programmed or manufactured in an "engineers geriatric ward", and I don't think you should target your tutorials for this audience --- no market!

Neal, let me first study some of the tutorials, --- takes month at my age.

--- Harry

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Windows NT/2000 contractor available

By **Neal Bridges (Nbridges)** on Tuesday, April 10, 2001 - 03:16 pm: Edit

Not looking to turn this forum into a career fair, of course, but nonetheless:

One of my colleagues in the Toronto area is a top-notch Windows NT/2000 contractor, skilled in architecture, implementation, migrations, conversions, support, project management, you name it.

He's in the market right now for a new position in the GTA area (though he's willing to consider relocation). I recommend him without hesitation. You couldn't have a better guy on your team.

If you're interested in contacting him, let me know and I'll hook you up.

Neal

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Forum bugs?

By **E.** on Sunday, April 1, 2001 - 12:17 am: Edit

After typing up a nice long message (I DO tend to ramble, don't I?), I said "Post". It gave me a 500 error (server-side brokenness). I backed up a page and tried again. It told me I had already posted an identical message. Since I had previously seen a 500 followed by my message being posted anyway, I went back and checked. It wasn't posted. I can get this error using Netscape (no JavaScript) or Lynx, but not systematically.

By **Kris Johnson (Kdj)** on Sunday, April 1, 2001 - 02:47 pm: Edit

I've seen this problem too. Usually my posts actually do end up in the forum, even though the error message indicates that it didn't work. But I have lost a couple.

I use Netscape on Linux. I don't know if that's relevant in any way.

-- Kris

By **Neal Bridges (Nbridges)** on Sunday, April 1, 2001 - 11:43 pm: Edit

Hi guys. Sorry about that… it's an occasional problem with the discussion board software and the hosting service I use for Quartus.net. They have a watchdog daemon that terminates any process that uses more than a set percentage of resources within a preset timeframe; occasionally the discussion board software hogs too many cycles, and the watchdog bites it. I'm working on it.

Neal

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Palms on the Underground

By **John Newell** on Monday, March 26, 2001 - 07:27 am: Edit

When I am on the London Underground I notice a marked slowdown in the performance of my Palm V/Vx. Presumably something to do with large magnetic fields, though what the actual physical affect is I don't know. Has anybody noticed anything similar? What about on other underground systems?

John

By **Neal Bridges (Nbridges)** on Monday, March 26, 2001 - 10:55 am: Edit

Are you sure it's not just a visual artifact caused by the fluorescent lighting?

Give Benchmark a try on the train, see if it registers a difference.

Neal

By **John Newell** on Monday, March 26, 2001 - 11:21 am: Edit

Nope, games definitely slow down - unplayable. I won't be on the underground for 6 weeks but I'll see if I can remember to try Benchmark then

John

By **Ron Doerfler** on Thursday, April 12, 2001 - 07:21 pm: Edit

Just ran across this in the tips section of PalmGear--might be the problem.

http://www3.palmgear.com/tips/showtips.cfm?sid=35099420010320151109&resID=10411

[quote]
I attended a meeting in a large presentation room and noticed that my Palm V seemed very slow to respond to input. You could see the individual icon paint in the application launcher where normally they just blink into place. After some troubleshooting I discovered that the system response would improve if I covered the IR port. I normally have the "Beam Receive" enabled in my preferences. If I disabled the "Beam Receive" the system response was normal. As you may have now guessed, the room was "full" of IR signals from various pointers and controls set up for the presentation systems. The numerous IR signals being sent around the room were causing the Palm to constantly be evaluating the signals as a beam from another Palm. Of course the signature was never right, but every signal needed to be checked. If you are every suprised by slow response of your Palm you might be in a high IR signal environment. Just disable the "Beam Receive" preference and you should have no problem.

By **John Newell** on Friday, May 4, 2001 - 10:00 am: Edit

Slow down update.

I tried Benchmark on my Palm Vx.
(Normally runs at 112%)

On the London underground (between Euston Square and Edgeware Road) I got these results:
Stationary (at a platform): 60%
Running (between stations): 70-80%
Under power (between stations): 102% (just the once)
Outside the station: 112%

Ron, I missed the your post (holiday) so didn't try disabling Beam Receive (though I shouldn't think there was that much in the way of IR signals flying around - I'll try again next time).

Anyway, as you can see, I got a significant slow down.

John

Some fluorescent lights have a strong effect on the IR sensor. I'll be interested to hear what happens when you disable Beam Receive.

Neal

I was on a Circle Line train and was getting 112% for my Palm Vx when I was expecting the 60% I got last time. Now what's going on?

On my return journey I was on a Hammersmith & City Line train and started getting 70% and lower. Covering the IR port or turning Beam Receive off returned the performance to 112%.

So it looks like it was stray IR causing the problem.
It seems that the two trains must use different lighting units.

By the way Neal, you seem to have a little bug in your Benchmark 2.0 program. When the relative timings got below 60%, the numbers on the This Unit line started moving left so that part of the first digit vanished:
e.g. This unit59% - the left hand pixels of the 5 were missing.
When I held the Palm nearer the lighting I ended up with:
This Unit9% - I don't think it was really 9% (the timing didn't feel like it) and I thought perhaps the first digit had been completely overwritten.

John

Thanks John; I have never tested Benchmark on devices that slow. I'll check that out.

Neal

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Moving a form

By **John Newell** on Thursday, March 22, 2001 - 08:58 am: Edit

I have created a form using RsrcEdit and I want to dynamically position the form within the window at run time. I can see how to position objects within a form but how do you position a form within a window? I just can't see how to do this. Can someone point me in the right direction? Thank you.

John

By **John Newell** on Friday, March 23, 2001 - 08:28 am: Edit

OK, I did it myself. For those interested:

FrmInitFrm
FrmGetWindowHandle
WinSetWindowBounds
FrmSetActiveForm
FrmDrawForm

Easy really - once you know how.

John

By **Neal Bridges (Nbridges)** on Friday, March 23, 2001 - 12:01 pm: Edit

John -- I'm glad you found it. I knew there was a magic sequence but hadn't gotten down to figuring it out.

Neal

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Einstein's Riddle in Forth - and the Palm?

Quartus Handheld Software: Discussion Forum: **Everything else!**: Einstein's Riddle in Forth - and the Palm?

By **Leo Wong** on Wednesday, March 21, 2001 - 07:27 am: Edit

I received this e-mail from Steve Graham about the "Einstein Riddle" problem he posed on newsgroups for several languages.

? BTW, I ran an earlier version of your program
> today on Win32Forth - It worked great. And
> fast, too. However, I have yet to get it to run
> successfully on my Palm with Quartus Forth. One
> thing I found was that the 2 Forths had
> different s". I'm sure there are other
> differences, too.

I had intended my solution to be portable.
I don't have a Palm. Could someone tell me what
the problem is?

A verions of my solution can be obtained at:

http://members.home.net/js.graham/einstein/

Leo hello@albany.net
http://www.albany.net/~hello/

By **Neal Bridges (Nbridges)** on Wednesday, March 21, 2001 - 09:53 am: Edit

I haven't tried your code yet, Leo, but Steve's problem with S" can be solved simply with:

needs file

This will include the FILE wordset version of S" -- the one that works while interpreting.

Neal

By **Kris Johnson (Kdj)** on Wednesday, March 21, 2001 - 10:12 am: Edit

Oh, no! Annoying threads from comp.lang.forth are migrating here! I thought my newsreader filters and the downfall of deja.com would keep me

safe, but now even Neal's forum is no longer a sanctuary.

Just kidding. It's good to see Leo's code. But please, let's not discuss whether Einstein actually created the riddle, or what population of the world can solve it, or the differences between cigars and cigarettes, or whether houses are numbered from left to right, or …

-- Kris

By **Neal Bridges (Nbridges)** on Wednesday, March 21, 2001 - 10:13 am: Edit

Leo's never annoying! 🙂

Neal

By **Mike Will** on Wednesday, March 21, 2001 - 10:20 am: Edit

You're going to need core-ext (for 2>r, value, etc). Also, that npermutations word looks weird the way it interrupts a CONSTANT statement mid-stream. Not sure if that's going to work. The rest doesn't look too bad.

Kris: I feel your pain 🙂
We Quartus users don't get no respect. I was wandering around Palm.com yesterday, and noticed that in the list of tools it's called:
Quartus Fourth. If only Chuck had had six letters to work with in his OS…

Mike

By **Neal Bridges (Nbridges)** on Wednesday, March 21, 2001 - 10:24 am: Edit

I didn't see that, Mike -- can you point me to a link?

Neal

By **Leo Wong** on Wednesday, March 21, 2001 - 10:43 am: Edit

npermutations can be taken out: it's just sugar, though I believe ANS Standard.

PForth has a problem with permute. Maybe it's the recursion - anyone have a different definition for permute?. I think Wil Baden does, but I can't find it.

I will say that the program works on: Win32Forth, GForth, SwiftForth.

Thanks for the responses so far.

Deja is dead?

Didn't know that, haven't been by there in a while. It does seem that Goggle is picking the service up.

Jim

Been that way a couple of weeks now. Looks like Google is slowly coming up to full speed.

Neal

Neal,
The Quartus Fourth listing shows up during signup for the "Palm Alliance Program". I keep signing up, but my account always disappears a few days later. The start of signup is at:

http://www.palmos.com/alliance/join/

Mike

I got a PForth version to work by alloting some space and calling it columns:

```
0 value temp
create columns 5 chars allot
: ,columns  ( a -- )  temp 0 ?do count [char] 0 - c, loop drop ;
: permute  ( a n -- )
   1- ?dup if
      2dup recurse
      dup 0 do
         2dup i pair trade
         2dup recurse
         2dup i pair trade
```

```
      loop 2drop
    else  ,columns  then ;
: parray
    create  ( a n -- )  dup c,  dup to temp  permute
    does>  ( n -- a )  count rot * chars + ;

: permutations  ( a n -- )
    >r columns r@ cmove columns r> dup npermutations parray ;
```

By **Leo Wong** on Thursday, March 22, 2001 - 09:46 pm: Edit

I received this e-mail from Steve Graham, who gave me permission to post it here:

> Leo,
>
> Thanks for checking into how to run this on the Palm. I
> ended up having to do the following:
> 1) Define cmove and a run-time s"
> 2) Include core-ext, facility-ext and string
>
> It runs in 1-2 seconds on my Palm IIIx. Have to go back and
> look at my MUMPS implementation on the VAX: 10 minutes
> is beginning to look a tad ridiculous.
>
> Steve

Leo

By **Neal Bridges (Nbridges)** on Friday, March 23, 2001 - 12:03 pm: Edit

That's great, Leo. Another successful implementation to add to your list.

Neal

By **Leo Wong** on Friday, March 23, 2001 - 03:22 pm: Edit

My current version doesn't use s" or cmove.

By **Leo Wong** on Friday, March 23, 2001 - 03:33 pm: Edit

oops! It does use s" : you still have to do:

needs file

Add a Message

Username:

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Use of DB records after DB Closed

By **John Newell** on Wednesday, March 14, 2001 - 07:35 am: Edit

Can anybody see a problem with this sequence.

OpenDB
DmQueryRecord
MemHandleLock
2dup RecPtr 2!
MemPtrUnlock
CloseDB
RecPtr 2@ …

I am using the record for pop-up lists, populating the list directly from the record when I get a ctlEnterEvent. I am using the pointer to the record AFTER the DB is close (because I didn't want to leave it open). Presumably DB records are in locked, non-moveable chunks so this should work - well, it does work. I am trying to think if it could cause any future problems. Yes/No?

Thank you.

John

By **Erwin Schomburg (Esc)** on Wednesday, March 14, 2001 - 05:11 pm: Edit

Well, in an POSE environment with all relevant debug options set, this should cause a warning or error, so maybe future versions of PalmOS will catch this and not let it pass silently.

/Erwin

By **Steve Bohrer (Skb)** on Wednesday, March 14, 2001 - 10:45 pm: Edit

Um, what do you mean by "db records are in locked, non-moveable chunks"?

I thought the entire point of the OS memory manager, and the reason that it returns handles not pointers, is so that the OS can move data around freely without breaking your program. The way you tell the OS that you don't want it to move a bit of data is to lock the handle.

In fact, if you are unlucky and the system needs to get some memory, your program can die if you reference the pointer after the call to MemPtrUnlock, even if the database is still open.

You can maybe take this a bit deeper if you figure out what calls might allocate memory, and then assume that unlocked pointers are safe as long as you don't do anything that might allocate memory. But, who knows what may happen behind your back. What if the system receives a beam while your app is running? I don't know. Do you?

By **John Newell** on Thursday, March 15, 2001 - 12:52 pm: Edit

I guess you are right. I didn't like it anyway.

What I was doing was opening a database and using the data in the record to populate a pop-up list when I got a ctlEnterEvent. I could have then unlock the record and close the database when I selected a row and got a popSelectEvent. The problem was that, if I didn't select a row, I didn't get a specific event to show that the pop-up was finished with. So I was trying to close the database immediately after populating the list.

I'll have to find another way to do it.

Thanks for setting me straight.

John

By **John Newell** on Friday, March 16, 2001 - 12:59 pm: Edit

You do get an event - a penUpEvent if the pen is lifted outside the bounds of the list. I could check at EVERY penUpEvent to see if I have left a database open. Bit over an overkill but there is only ever one pop-up list at a time.

John

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OT :-) good news/bad news

By **Wolfgang Allinger** on Tuesday, March 6, 2001 - 06:58 am: Edit

Good news: at this weekend my 4th niece was born.
The baby is in pretty good shape, mother (my sister) and the father are also happy. I'm too.
Bad news: my sister didn't want to name her 4th, Forth or quarta.

bye from germany
Wolfgang

By **Neal Bridges (Nbridges)** on Tuesday, March 6, 2001 - 12:39 pm: Edit

Congratulations, Wolfgang! That's good news indeed, on both counts. 🙂

Neal

Add a Message

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Password:

E-mail:

This is a public posting area. If you do not have an account, enter your full name into the "Username" box and leave the "Password" box empty. Your e-mail address is optional.

Agenda VR3 PDA

By **Kris Johnson (Kdj)** on Sunday, March 4, 2001 - 04:40 pm: Edit

I thought I should move the VR3 discussion in the "Everything else!" category. I don't want to clutter Neal's list with discussions of a "competitor". However, it is a PDA, and Quartus users might be interested in it.

For those of you who haven't heard, the Agenda VR3 is a PDA that runs Linux.

The official Agenda website (http://www.agendacomputing.com) hasn't been updated for several months, but the product is not dead. The mailing list archives are the best source of information.

Agenda is targetting the consumer market. I frankly don't see how they are going to cut into Palm OS's market share. I suppose that PalmOS might not scale well as the hardware gets more advanced and there are demands for new technologies (wireless networking, etc.), so maybe that's how Linux might "take over".

I think the VR3 is at least a year away from being a consumer product, maybe more. If you want a useful PDA, don't bother with it. But if you want to play with Linux on a PDA, it's a lot cheaper than an iPaq.

One important aspect of the Agenda is that it is really Linux. It's not a dumbed-down embedded kernel or "micro Linux". It has a real X server and window manager and all the capabilities of a desktop Linux machine, except for the small screen size and reduced storage. Most Linux software builds for it without change; you just have to tweak the makefiles a bit. Linux developers should have no problem developing software for it, as long as they know how to use the FLTK toolkit.

I'm in the process of creating a Forth environment for it. My project is called "guiForth", and you can get more information at http://guiforth.sourceforge.net

My initial goal is to be able to port my JacksOrBetter game from PalmOS to Linux, using guiForth.

I think guiForth can also fill the role of a "scripting language" for the Agenda. Several people are building Perl, Python, etc., and are finding that

they take up several megabytes. guiForth, on the other hand, needs less than 200K.

-- Kris

Here are some examples to illustrate the current state of development of the Agenda software:

- You can't change batteries without rebooting. It's unknown whether this is due to a hardware issue or a kernel bug.

- Handwriting recognition is not ready for prime time. (I consider it "completely unusable", but some other users are more forgiving.)

- For the past few months, the software has run very slow. They just developed a new ABI that takes care of this, but they have not completed re-creating the development tools to take advantage of it. They've also patched FLTK to reduce its use of floating-point calculations (VR3 does not have an FPU), further improving the speed. I haven't played with the newer, faster software myself, but those who have say it's amazing how much better it is than the original ABI.

- They have equivalents of the built-in PalmOS apps (schedule, to-do, contacts, etc.).

- They do not yet have a simple desktop-side application like Palm Desktop.

- IrDA is not working yet. The drivers are under development.

- They don't provide Windows versions of the gcc cross-compilers, so you can't do development from a Windows desktop unless you figure out how to build everything yourself.

The main point is that this platform is still "in development". Don't buy one of these things if you don't feel like re-building the kernel once in a while or dealing with bugs.

-- Kris

Thanks for that snapshot, Kris; that's a good overview.

Neal

Add a Message

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Disabling auto uppercase in Memo?

Quartus Handheld Software: Discussion Forum: **Everything else!**:
Disabling auto uppercase in Memo?

By **Ronny Svensson** on Friday, March 2, 2001 - 05:06 am: Edit

I'm getting tired of Memo switching to upper-case after every punctuation character. Is there some way to disable this behavior?

Ronny

By **Ron Doerfler** on Friday, March 2, 2001 - 07:11 am: Edit

ShiftHack--available at PalmGear, I believe.

Ron

By **Neal Bridges (Nbridges)** on Friday, March 2, 2001 - 10:36 am: Edit

Available at this site too -- it's a Quartus product.

http://quartus.net/products/shifthack

Neal

By **Doug Philips (Dgou)** on Friday, March 9, 2001 - 07:41 am: Edit

A great product (Gosh, I think I registered it, GULP). Actually, Neal has a number of cool Hacks, subcutaneously cooler 'cause of Quartus Forth. He He He.

-Doug

By **Steve Bohrer (Skb)** on Friday, March 9, 2001 - 02:46 pm: Edit

MiddleCaps Hack optionally disables the built-in Auto-shift, but its wonderful main function is to give upper case letters if you write in an adjustable zone of the graffiti area. Thus, you never (well, hardly ever!) need to use the shift stroke.

You can configure it so that it will capitalize characters that start on the edges of the text area, or letters that cross a specific vertical line. In either case, the position of the capital trigger is fully adjustable.

It is only 5k,is free, and it seems to work well. I've not noticed any slowdown or decreased sensitivity.

I use the line trigger, about 1/4 inch from the left of the graffiti box. In practice, this means that letters I write normally in the center of the box are lower case, and letters that I write towards the left are upper-case. But, the line is hard to hit with an "i", so I still use shift for "I".

Add a Message

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My Pilot bit the dust

By **E. Ross Helton** on Wednesday, February 7, 2001 - 09:09 am: Edit

Hi,

For some reason my Pilot doesn't want to recognize the full 2 mb anymore. I know the memory card is good, I tried it in a Pilot with a cracked screen and the full 2mb came up.

Was wondering if someone had a Personal or a Professional with 1mb or 512kb they wanted to sell?

It can have the full 2mb also.

If someone can help it would be appreciated

Make it a good day!
Ross

By **Neal Bridges (Nbridges)** on Wednesday, February 7, 2001 - 03:12 pm: Edit

Sorry to hear that, Ross. One place to check: http://usedpalmpilots.com

Neal

By **E. Ross Helton** on Wednesday, February 7, 2001 - 05:09 pm: Edit

Hi Neal,

Thanks for the information I will check it out. I had been hoping to upgrade to another newer Pilot, but right now I will settle to have a working one.

Again thanks for the Info, and I will check.

Make it a good day!
Ross

Add a Message

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This is a public posting area. If you do not have an account, enter your full name into the "Username" box and leave the "Password" box empty. Your e-mail address is optional.

Quartus discussion forum archives PDF index

By **Wes Matchett (Wesm)** on Monday, January 29, 2001 - 01:28 pm:
Edit

I have created an index using Acrobat Catalog which includes all three of
the forum archives. This allows me to search all of the archives in one
query. All you need to use the archive is the Acrobat Reader.

Would anyone else like a copy? Neal, would you like to put a copy in the
archive download area? It is about 4MB in size.

You must put the index.pdx file and and the index dir structure in the same
dir as the archive .pdf files in order to use it.

By **Neal Bridges (Nbridges)** on Monday, January 29, 2001 - 02:32 pm:
Edit

Send it along, Wes, and thanks!

Neal

By **Wes Matchett (Wesm)** on Monday, January 29, 2001 - 02:42 pm:
Edit

How do you prefer to receive it? email/ftp/other?

By **Neal Bridges (Nbridges)** on Monday, January 29, 2001 - 02:49 pm:
Edit

Email will be fine!

Neal

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Order of drawing controls (RsrcEdit)

By **John Newell** on Tuesday, January 23, 2001 - 12:55 pm: Edit

If you use RsrcEdit to create a form, the objects in the form are drawn in the order that they were defined. So, if you have a large bitmap as a background and it appears at the end of the list of form objects, then it overlays the previously drawn objects.
So:
1.) is there anyway of re-ordering the objects in RsrcEdit?
2.) can I do anything in Forth to overcome this problem?

John

By **Neal Bridges (Nbridges)** on Tuesday, January 23, 2001 - 04:42 pm: Edit

You could cut & paste the object in RsrcEdit, which might work. However, the drawing order isn't cast in stone; an OS update may well do it differently, and you can't depend on it. There's no 'background bitmap' object as such.

The safest bet -- break the bitmap down into bits, and position them where you need them.

Neal

By **John Newell** on Wednesday, January 24, 2001 - 06:47 am: Edit

I did a CtlDrawControl for the controls on the window. This worked for all except labels. I tried:

: DrawLabel (ctlid --)
GetObjectPtr 2dup CltGetLabel
2swap CtlSetLabel
;

to rewrite the same label but that didn't work. Any ideas?

John

By **Steve Bohrer (Skb)** on Wednesday, January 24, 2001 - 01:32 pm: Edit

John,
Sounds like lots of extra drawing in any case: First you draw the background bitmap into areas that will be covered with controls, and then you have to redraw the controls to be sure that they are on top of the bitmap.

Seems that extra work up front (as per Neal's note) to avoid this run-time work could be worth it.

By **John Newell** on Thursday, January 25, 2001 - 08:28 am: Edit

I wanted a picture background for the WHOLE form and used palmRI to import a bitmap from the PC and then put it into my resouce database. It wasn't really a case of "breaking the bitmap down". There were only half a dozen controls that needed re-painting when the form was first entered and that didn't take long. However, I had a problem with labels (and still do) as I said.

John

By **Ronny Svensson** on Friday, March 2, 2001 - 05:02 am: Edit

Have you tried to change the text of the labels? Making them empty in the resource file and then setting them programmatically…

Ronny

By **John Newell** on Friday, March 2, 2001 - 08:40 am: Edit

I haven't looked at this for a while. I haven't tried your suggestion but have a feeling that it is against the rules - you can't make labels bigger (wider) than the original definition.

John

By **Ronny Svensson** on Monday, March 5, 2001 - 02:44 am: Edit

No I think that's right. But you can try ta make them the same length and blank. You could also try to mark the labels NONUSABLE and then call FrmShowObject to draw the labels.

Ronny

Add a Message

Username:

Password:

E-mail:

This is a public posting area. If you do not have an account, enter your full name into the "Username" box and leave the "Password" box empty. Your e-mail address is optional.

Creating a resource bitmap.

By **John Newell** on Monday, January 22, 2001 - 01:03 pm: Edit

I would like to create a large bitmap image - e.g. 160 x 100 to include on the intro. form of an app. RsrcEdit (a very very useful app.) isn't very user friendly when creating large Tbmp's. Does anyone know of program where you can create a full screen bitmap and then load it into a Tbmp of a resource database? Or copy a PC .bmp file into a Tbmp in a resource database?

John

By **Neal Bridges (Nbridges)** on Monday, January 22, 2001 - 03:31 pm: Edit

I would use PilRC on the desktop to generate a Tbmp####.bin from the bitmap, and then Pila to create a .PRC containing that resource. Upload that to your Palm, and copy the bitmap into your own resource database.

Neal

By **Ron Doerfler** on Monday, January 22, 2001 - 04:01 pm: Edit

I used TealPaint to create the full-screen image for the title screen of my app, Expedition ES. After you create it, you use RsrcEdit, highlight the database you saved the image under (Pictures, by default), then select the RsrcEdit menu function "Open as TealPaint DB." This opens it in a special way that allows you to find and save your image. Then you exit that database, go to your database, and paste it in as a bitmap.

This is by memory, but the process worked. The menu function is not well-documented. Also, you might not get the extreme edges, so you may have to fill those in. My title screen that was generated in this way is the first graphic on http://www.eddiesoft.com/eddiesoft/products/ExpeditionES/docs/ExpeditionManual.html

Cheers,

Ron

By **Richard Chamberlain (Rac)** on Tuesday, January 23, 2001 - 07:07 am: Edit

Look up palmRI on palmgear, it's by the same people as rsrcedit.

The blurb from palmgear:

Windows or DOS tool to import color images (.bmp, .gif. .jpg, .ico, .emf, or .wmf) into prc or pdb Palm files. Can be used to create either Tbmp or tAIB resources.

I use it all the time,

Richard

By **John Newell** on Tuesday, January 23, 2001 - 12:27 pm: <u>Edit</u>

All good suggestions. Thank you.

John

By **John Newll** on Sunday, January 28, 2001 - 03:18 pm: <u>Edit</u>

In a prc (created by Quartus) I hsve a bitmap with a depth of two. If I use RsrcEdit to preview the form with the bitmap I get the four "colours" - white, light grey, dark grey, and black. However, when I run the prc I only get the first depth image - only black and white. Can you say what I am doing wrong? Thank you.

By **Neal Bridges (Nbridges)** on Sunday, January 28, 2001 - 08:43 pm: <u>Edit</u>

Hi John. Is it a 'family-mode' bitmap, with multiple images for different color depths? What class of Palm device are you using?

Neal

By **John Newell** on Monday, January 29, 2001 - 07:12 am: <u>Edit</u>

I'm afraid I am new to this bitmap game. I'll explain what I did. I'm developing on a Palm Vx. In RsrcEdit 1.014 I created a Tbmp with a depth of 1. I then chose 2 bit in the menu of the bitmap editor and copied the depth 1 image to the depth 2 image. I then filled in some of the areas on the depth 2 image with dark grey and light grey. I saved the image. In a form, I created a Bitmap control which referenced the Tbmp created. Using preview this showed the bitmap correctly including the dark grey and light grey areas. I then compiled, using Quartus Forth, the program which included the above mentioned form resource. However, when the program executed the form only showed a black and white bitmap image.

John

By **Jim Hendricks (Jimh)** on Monday, January 29, 2001 - 07:48 am: <u>Edit</u>

It sounds like you are not going into 4 color mode prior to display of the form.

Neal put together a library, probably in the contrib area called color. It contains the necessary words to work in various modes, including 4 color (grayscale).

Once you include the lib, you will need to call grayscale, then page to initiate grayscale mode. After this try your showform.

Hope this helps,
Jim

By **John Newell** on Monday, January 29, 2001 - 12:34 pm: <u>Edit</u>

Nearly, the bitmap displays OK but all the text, controls, etc. turn grey on the form.

John

By **Jim Hendricks (Jimh)** on Monday, January 29, 2001 - 12:52 pm: Edit

I suspect you need to set your foreground and background colors once in 4 color mode.

You can use set-colors (fore-rgb. back-rgb. --)
where fore/back-rgb. is a 3 cell value. The word gray can be used for setting up each of the available gray scales. There is also the predefined words black, dark-gray, light-gray, and white which put the proper numbers on the stack for that gray gradient. You can also use the background or foreground words for setting the background and foreground independant.

I seem to recall the last time I used these words that I needed to use the page command after setting up all my grayscale settings so that my display worked properly.

Let me know if this helps.

Jim

By **Erwin Schomburg (Esc)** on Monday, January 29, 2001 - 12:59 pm:
Edit

Yep, contrast goes boink when you switch display modes, plus OS3.5 tries to turn default display color to blue, which does not add up to a sufficiently dark shade of grey on monochrome devices. No consolation here I'm afraid.

/Erwin

By **Jim Hendricks (Jimh)** on Monday, January 29, 2001 - 01:04 pm: Edit

So Erwin, will the setting of fore/back prior to display of the form work?

I ask because I am using 16 color grayscale through the color module to display bitmaps that I dynamically generate through my modifications to Neal's bitmap lib which allow for multi bit depth bitmaps. In this case, I am drawing direct to the default form without any form controls. This seems to work fine, but didn't know how it would translate to controls drawn through the OS form drawing routines. BTW, I am using OS3.5 on a Vx so I have the color capable OS without the color capable HW.

Jim

By **John Newell** on Monday, January 29, 2001 - 01:44 pm: Edit

I tried various orderings of:
grayscale
white background
black foreground
Page
formid PopupForm

but to no avail. The bit map is nicely greyed but all text, etc. is light grey.

John

By **Jim Hendricks (Jimh)** on Monday, January 29, 2001 - 02:52 pm: Edit

Sorry, don't think I can help you then. All my grayscale work was done without using the built in GUI gadgets, it was all hand coded GUI, and therefore under my complete control.

Just a thought, is it possible that in the 3.5 OS, there are properties for the built-in GUI gadgets to set the color of the gadget? If so, then it would require a newer version of rsrcedit, or pilrc.

By **Neal Bridges (Nbridges)** on Monday, January 29, 2001 - 03:21 pm:
Edit

The colors of GUI gadgets are not set in the form, but rather accessed globally. Chrome is one app that lets you change them, but apps can override and change them also.

I'm not sure if that'd fix the problem, but it's one avenue to explore.

Neal

By **John Newell** on Monday, January 29, 2001 - 03:46 pm: Edit

Thanks for the ideas. As I indicated earlier, if the Form is previewed in RsrcEdit then it displays correctly - i.e. like I want it. I will try asking the IndiVideo people and see if they can help.
John

By **Erwin Schomburg (Esc)** on Tuesday, January 30, 2001 - 12:36 am:
Edit

Thats because in RsrcEdit you get the forms displayed in default mode, but inside your application you switch display mode. There seems to be no easy road around this. BTDTGTTPI.

/Erwin

By **John Newell** on Tuesday, January 30, 2001 - 07:01 am: Edit

Erwin,
I am afraid I didn't understand any of that last post. What is 'default mode' and 'display mode'? If RsrcEdit can use 'default mode' why can't the app.? What is BTDTGTTPI?

John

By **Erwin Schomburg (Esc)** on Tuesday, January 30, 2001 - 07:36 am:
Edit

Default mode is one or two bit (b/w or four grayscale) mode. To activate the 16 grayscale mode you have to explicitely (programmatically) set the color-depth to four (bits). Run in default mode is what the app would do if you let it, but stepping up display depth programmatically is exactly what you do to see your bitmap in all its 16 shades beauty. With the adverse effect that your controls and your forms title disappear in hazy gray. Been There Done That Got The T-shirt to Prove It. 8-)

/Erwin

By **Trevor Steele** on Tuesday, January 30, 2001 - 03:47 pm: Edit

I must say I always enjoy your posts Erwin! More to the point I found myself up against the same problem a few days ago and gave up in disgust. At least it seems I'm not alone :-)

Trevor

By **John Newell** on Tuesday, January 30, 2001 - 04:19 pm: <u>Edit</u>

JACPM. I only want 4 colour grayscale - 2 bit depth. That`s what the grayscale word does in the color library. So what am I doing wrong?
John

By **Erwin Schomburg (Esc)** on Tuesday, January 30, 2001 - 05:06 pm: <u>Edit</u>

Nothing. You are just trying to fight the OS3.5 windmills believing they are giants you have a chance to conquer. As soon as you touch screen display modes you are out of luck with system supplied controls and frames, if you want it nice you have to use hand crafted gadgets for controls, i.e. overlay black hollowed out rounded rectangles over your system generated in-form control buttons.

/Erwin

By **John Newell** on Thursday, February 22, 2001 - 10:50 am: <u>Edit</u>

I had this reply in response to a query I sent to the RsrcEdit people.

Hi John, Keithen

I've been trying to understand what's been happening here. I was able to create a 2-bit bitmap in RsrcEdit, preview it as John reports and then was able to have it displayed by an application - after setting the the screenMode to 4 color. From my reading of the thread you forwarded, John, it seemed as if you weren't able to get this to work? (I don't understand why the Quartus people thought it wouldn't work, so I'm guessing I don't really understand the issues...)

The bottom line is that RsrcEdit doesn't do anything special to preview the form, and it seems to me that it should all work just fine from an application, too.

-roger

I still didn't understand what Erwin was saying. There must be some way of doing it. I am going to play with it a bit more.

John

By **Neal Bridges (Nbridges)** on Thursday, February 22, 2001 - 01:14 pm: <u>Edit</u>

Wasn't your issue not with displaying a 2-bit bitmap, but rather with trying to work grayscale bitmaps in with standard GUI objects?

Neal

By **John Newell** on Friday, February 23, 2001 - 07:27 am: <u>Edit</u>

I still don't understand what's going on here.
As I said originally, in RsrcEdit I created a bitmap resource of depth 2. I created a Form
and defined a Bitmap control to use the created bitmap. In RsrcEdit, when I preview the
form, the bitmap displays OK (including greys) while other buttons, title, etc. are black
and white as required. Roger says he does nothing special to get this to happen.
When I popup the form from my app., the bitmap displays only in black and white. I
have been trying to get it to greyscale but so far all the other controls on the form turn
grey.
As far as I can see, the bitmap doesn't have its own color table so if RsrcEdit doesn't
have a problem, why do I?

John

By **Neal Bridges (Nbridges)** on Friday, February 23, 2001 - 12:13 pm:
Edit

Did Roger say how he is turning on grayscale mode? Is he using the Palm OS routines
provided for this purpose, or is he manipulating the LCD registers directly?

Neal

By **John Newell** on Friday, February 23, 2001 - 01:27 pm: Edit

I know no more than the message Roger sent which I posted earlier.
http://www.quartus.net/discus/messages/63/958.html?982948430#POST6708
"… then was able to have it
displayed by an application - after setting the the screenMode to 4 color."

I think he would have said if he was doing anything special.

John

By **Neal Bridges (Nbridges)** on Friday, February 23, 2001 - 02:30 pm:
Edit

…which is what you're trying, and what fails. There's more than one way to switch to 4
color mode -- one sanctioned way, via the ROM routine, and at least one other way, by
using some of the older 2bpp libraries or directly manipulating the registers.

The sanctioned ROM method establishes certain palette defaults, which, I believe, is
why the GUI elements are showing up in light gray for you.

Neal

Add a Message

Username:

Password:

E-mail:

This is a public posting area. If you do not have an account, enter your full name into the "Username" box and leave the "Password" box empty. Your e-mail address is optional.

Database Record Unique ID's

By **John Newell** on Thursday, January 18, 2001 - 01:49 pm: Edit

Does anybody know how "Unique" the database record Unique ID's are. Is that:
1. unique within the database?
2. unique on the Palm where the database was created?
3. unique to all Palm's worldwide?

Do the Unique ID's follow the database from Palm to Palm when it is copied? (i.e. if one database record had a field which held the unique ID of another record in the same database, and the database was copied to another Palm, would the second record still be retrievable using the unique ID held in the field of the first record?)

Thanks
John

By **Neal Bridges (Nbridges)** on Thursday, January 18, 2001 - 02:05 pm: Edit

Here's a relevant article:

http://oasis.palm.com/dev/kb/faq/1085.cfm

Neal

By **John Newell** on Friday, January 19, 2001 - 04:28 am: Edit

Just what I wanted thank you.

John

Add a Message

Username:

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E-mail:

This is a public posting area. If you do not have an account, enter your full name into the "Username" box and leave the "Password" box empty. Your e-mail address is optional.

Pocket PC Forth

By **George Battelle** on Wednesday, January 3, 2001 - 02:20 pm: Edit

Is anyone working on a Forth for the Pocket PC,
(iPAQ by Compaq)?

Would it replace Windows CE 3.0 or run on top of it?

By **Neal Bridges (Nbridges)** on Wednesday, January 3, 2001 - 02:34
pm: Edit

I did some work on a Forth for CE some time back; however the market
share for those devices, particularly as it overlaps the developer
community, is quite small, so I eventually shelved the effort and focused on
more successful platforms.

I daresay any Forth for CE would run as on top of the base OS; otherwise
you'd have to re-implement for all the different chipsets that CE runs on.

Neal

By **Kris Johnson (Kdj)** on Wednesday, January 3, 2001 - 03:24 pm: Edit

I did see a Forth for Windows CE devices. You'll hate me for saying this, but
I can't remember the name. It starts with a "D", I think. (Maybe
"Dela"-something?) I haven't seen it mentioned in any of the FAQs or lists
of Forth vendors.

Does anyone else out there know what I'm talking about?

Also, I think someone is working on a port of Win32Forth to CE, but I don't
know any more details.

You may want to ask the comp.lang.forth newsgroup.

-- Kris

By **Kris Johnson (Kdj)** on Wednesday, January 3, 2001 - 03:30 pm: Edit

I remembered: dsForth/2, available from http://www.delosoft.com

-- Kris

By **Neal Bridges (Nbridges)** on Wednesday, January 3, 2001 - 03:30 pm: Edit

Delosoft -- http://www.delosoft.com.

Looks like he's done some work on it lately; might be worth a look if you are developing for CE.

Neal

By **George Battelle** on Wednesday, January 3, 2001 - 03:52 pm: Edit

Thanks everyone. I am checking into Delosoft. I also found an additional but the website is not yet up.

http://forth.org.uk/4thres/systems.htm has a section for:
Forth for Windows (3.1x/NT/95/CE)
http://www.davidn.com/pforth.htm

By **Neal Bridges (Nbridges)** on Wednesday, January 3, 2001 - 03:54 pm: Edit

I'm afraid www.davidn.com is long dead.

Neal

By **Alan** on Thursday, January 4, 2001 - 09:41 pm: Edit

This is good information. Thanks everyone, I was looking for a WinCE version of FORTH. Still looking for one, though.

Add a Message

Username:

Password:

E-mail:

not have an account, enter your full name into the "Username" box and leave the "Password" box empty. Your e-mail address is optional.

An improved QUIT from my F-PC apps

By **Wolfgan Allinger** on Friday, December 22, 2000 - 10:41 am: Edit

Hallo all from ALL :-)

For some days I try to fight the Palm w/ QUARTUS.

I'm missing some options, one is a smarter QUIT

bye from germany and marry x-mas
Wolfgang Allinger (mailto All@business.kbbs.org)

```
\ -- the QUITnew.seq from 'my' F-PC appended: ----
\ sorry this is a fixed font formatted text :-)


\ QUITnew.seq  very smart QUIT                                    ALL20001222

\ ALL20001222 burp from xyzzy to QUITnew, improved comments
\ ALL980704 new 199quit special function ... XYZZYstart
\ ALL980704 new name QUITnew.seq...
\ ALL980630 FAST added
\ ALL980609 MULTIabort now recovers also from ABORT in any task!
\ ALL970626 1st try after a lot of cry

\ cry? If Bob Marley happened to be a programmer, he song:
\          ... NO WOMEN, NO CRAY ...


\ -----------
\ this QUIT has following features
\ - bulletproof for ABORT in any TASK of MULTItasker
\ - restores a defaultBASE
\ - BURPs (unpleasant tone) if something on stack
\ - XYZZY helps a despaired operator by starting over

\ on ABORT" ... we have the following chain...
\ (ABORT") ... (?ERROR) ... QUIT  ( which will be QUITnew )
\                \ now (?ERROR)'
\ -------------------------------------------------------------
\ this is the old one:

: QUIT            ( -- )
\ The main loop in Forth. Gets input from the terminal and Interprets it.
\ Responds with OK if healthy and repeats the process.
        SP0 @  'TIB !
        [COMPILE] [
        BEGIN   BEGIN   RP0 @  RP!
                        STATUS  QUERY  RUN
                        STATE @  NOT
                UNTIL
                ."  ok"
        AGAIN ;
\ -------------------------------------------------------------
\ no comes the new stuff:

{
\ next lines are normaly in MULTASKa.seq ....
```

```
\|u VARIABLE UP0    \ hold the initial UP pointing to user array...
\|u UP @ UP0  !     \ init it
\|u SINGLE    : SINGLE   UP0 @ UP ! ;    \ in MULTASK: disables RESTART ...

 DEFER defaultBASE    ' DECIMAL IS defaultBASE

\ ---- XYZZY for ADVENTURE fans ---                                     \ ALL98jul07
\ optional some magic for a despaired operator hitting several <ENTER>
\ I prefer to start over with the main application

 defer XYZZYstart    ' NOOP is XYZZYstart      \ after k empty lines      \ ALL980704
 2 value n<CR>              \ counter for empty lines                     \ ALL980704
 2 value k<CR>              \ init for empty lines count                  \ ALL980704

: (xyzzy)                              \ " nothing happend " :-)))        \ ALL980707
                #TIB @ 0= IF     \ we have an empty line
                     n<CR> IF                    \ something to count
                           decr> n<CR>       \ bump count
                     ELSE
                           k<CR> !> n<CR>  \ reload counter
                           XYZZYstart        \ expired
                     THEN
                ELSE
                     k<CR> !> n<CR>          \ reload counter
                THEN
 ;

 defer XYZZY              ' (xyzzy) IS XYZZY                              \ ALL98jul07

 defer APPLICATION        ' NOOP IS APPLICATION
\ start a users APPLICATION just before/instead of QUERY ... RUN         \ ALL980707

\ : BURP  110   100 TONE ;  \ 110Hz for 100msec \ unpleasant tone
\ FAST is a special F-PC function on text/graphic/colored output system

: QUITnew        ( -- )
\ The main loop in Forth. Gets input from the terminal and Interprets it.
\ Responds with OK if healthy and repeats the process.
\ BURP if stack is not empty                                            \ ALL970626
        MULTIabort        \ clear/init multitasker                      \ ALL980609
                          \   and the USER area pointer UP              \ ALL980531
                          \    because DOUSER... know about USER!       \ ALL980531
        SP0 @ SP!        \ init the SP stack                            \ ALL980531
        SP0 @  'TIB !    \ init TIB                                     \ ALL980531
        defaultBASE      \ init BASE                                    \ ALL970711
\       FAST    \ should be in EDITOR and in APPLICATION (û)     \ ALL980730
        [COMPILE] [      \ a 'STATE OFF' i.e. start interpreting \ ALL980707
\
        BEGIN    BEGIN    RP0 @ RP!       \ init RP
                         APPLICATION       \ do users stuff        \ ALL090707
                         STATUS   \ status does a CR or STATUS line \ akg92nov23
                         QUERY    \ read input stream ( one line?! )
                         SPACE    \ is SPACE always beauty?        \ ALL980706
                         RUN      \ execute what QUERY found...
                         STATE @ 0=
                 UNTIL   \ leave this loop if interpreting
                 XYZZY   \ some magic                              \ ALL980730
                 DEPTH IF   BURP   THEN         \ some NOISE   \ ALL970626
                 ."  ok" \ don't like mute systems               \ ALL970625
        AGAIN ;
```

```
@> QUITnew !> QUIT       \ PATCHING, so the next QUIT is the new one


\S
: newQUIT                    \ now we leave the old QUIT and enter the new QUIT...
        cr true ABORT"  a new QUIT is installed " ;

newQUIT
\ ---------- end of All's garbage ------
```

By **Neal Bridges (Nbridges)** on Friday, December 22, 2000 - 10:46 am:
Edit

I could certainly make a QUIT vector available, so you could change it to something non-standard as required. Would that suffice?

What other tools do you find you're missing?

Neal

By **Wolfgang Allinger** on Friday, December 22, 2000 - 12:33 pm: Edit

Hi Neal,

thanks for your fast response.

If there is a vector, where I can plug my beloved newQUIT, that would be good enough.

More things which I'm missing (most of them I have in F-PC. If you are not familiar with that, ask me) :

- prefixes for numbers bases, e.g. $61 emit will write a small 'a'

- better error messages if a 'file' is missed

- a word, which shows me all loaded files .loaded

- smart WORDS e.g. WORDS DUP will print all words containing 'DUP'

- WORDS would be better readable, if they are printed in some colums, not the nasty ANS style.

- VOCS showing all vocabulary

- SEE w/o code def. eg. DUP should be seen as DUP not as a mov reg,reg

- a DEBUG function

- shell out from QUARTUS to the notepad and returning to it, where I left

- a way to link some functions to the menu bar. Maybe I missed that on the docu.

- REF to show, which words use what or not.

- a menubar on top, which shows me stack depth, VOCS and more

Ok, these are some (small :-) wishes. I know, that some might be hard to implement.

In few days I'll contribute, what I have added to QUARTUS.

marry x-mas from germany

Wolfgang Allinger

PS: Yes I'm sure, that I will register very soon! Because QUARTUS ist worth it.

One quick point -- I'll talk about the others later:

The format that Quartus Forth uses for WORDS (a simple paginated list) isn't mandated by the ANS Standard -- in fact, the Standard says you can display them any way you wish. I used the simplest form, in part because I never use WORDS for any reason. Is it commonly used?

Neal

- prefixes for numbers bases, e.g. $61 emit will write a small 'a'

(hex), **(binary)**, **(decimal)** and **(octal)** are provided for this. Not as terse, but just as functional.

- better error messages if a 'file' is missed

Right now, if a file isn't found, it tells you the name, and lists the file that was looking for it, and the file that included that file, and so on. What else would you want?

- a word, which shows me all loaded files .loaded

Can do. This will work with the current Quartus Forth:

```
: show-included
  get-order
  1 1 set-order  words  set-order ;
```

- smart WORDS e.g. WORDS DUP will print all words containing 'DUP'

I don't have that facility yet -- would it really get much use?

- VOCS showing all vocabulary

With an ANSI Standard Forth, there really aren't vocabularies, as such. There are, however, wordlists, but they are not necessarily named. What sort of information are you looking for here? An implementation of VOCABULARY could certainly keep a linked list of all wordlists that it creates, with a simple word to display that list.

- SEE w/o code def. eg. DUP should be seen as DUP not as a mov reg,reg

That's there now, in disasm. Not all instructions translate directly to Forth words, but EXIT, 2DROP, CELLS, +, *, DUP >R, DROP R>, DROP R@, 2*, 2/ >BYTE, @, DROP, DUP, NIP, 1+, 1-, CELL+, NEGATE, OR, AND, INVERT, UNLOOP, and R> 1+ >R are all translated by name. Other Forth functions called as subroutines are listed by name.

- a DEBUG function

See Geert Bosch's recent work for this. I am of the opinion that debugging tools (such as single-steppers) are not terribly useful in Forth; good Forth requires short definitions, easily and interactively tested from the console; with that kind of coding, debuggers become distinctly less useful. However, as many novices come from a C background, they look for that sort of tool.

- shell out from QUARTUS to the notepad and returning to it, where I left

PopUp Note does this.

- a way to link some functions to the menu bar. Maybe I missed that on the docu.

Not quite sure what you mean; in your own apps, certainly you can have menus do whatever suits you.

- REF to show, which words use what or not.

Interesting. Inlining and optimization make that a touch more difficult, but I'll think about it.

- a menubar on top, which shows me stack depth, VOCS and more

Screen real-estate is quite limited on the Palm, hence my decision to hide the title-bar on the console. I did some work last month on a split-screen module; that might suit you.

Looking forward to seeing your contributions!

Neal

By **Wolfgang Allinger** on Friday, December 22, 2000 - 04:11 pm: Edit

Hi Neal,

```
- why smarter WORDS ?
    because I'm very dumb, I never can remember
    how some words are spelled nor can't remember
    all. e.g. looking for some multiply
    WORDS *  will answer something like
    * */ M* D* FM*/ SM*/
```

I use WORDS very often, because my brain remembers only the important things: beer enough? RPN :-)

- better error messages if a 'file' is missed

Right now, if a file isn't found, it tells you the name, and lists the file that was looking for it, and the file that included that file, and so on. What else would you want?

No, I killed one notepad entry and it didn't show, for which it's looking. Only said exeption in file blabla but I couldn't find out, where that happened.

- DEBUG
I'll look for Gerd Bosch's work.
But I need DEBUG sometimes (thanks good very seldom) Last week I had a F-PC application which runs for years at a customer, when I wanna look for some of my words there, it totally hangs the W98 with a BSOD, hard to find, where it happens. It was a DOS call deep inside the kernel. But it was no failure in my program. It was a bug in Norton AV V7.0 !!!

- REF XOUT in F-PC(ak) scans the whole application and shows, which words contain XOUT or that it's non used.

- a menubar on top, which shows me stack depth, VOCS and more

Screen real-estate is quite limited on the Palm, hence my decision to hide the title-bar on the console. I did some work last month on a split-screen module; that might suit you.

Ok, but I'm thinking to something like, similar to a very small F-PC screen :-)

```
123456789012345678901234567890 this is only for writing this message
DEPTH=3                     >FORTH
                  <ASSEMBLER
                    <HIDDEN
                    <FORTH
```

which shows, that's compiling to FORTH, searching in ASSEMBLER then HIDDEN than FORTH.

(oh I hate these proportional fonts! In the Revise your message Box, everything look fine, but not in the poesting itself. However these vocs... stuff should be on the right border)

Marry x-mas
Wolfgang Allinger

Add a Message

Username:

Password:

E-mail:

This is a public posting area. If you do not have an account, enter your full name into the "Username" box and leave the "Password" box empty. Your e-mail address is optional.

Microsoft Anti-Linux Propaganda

By **Mike Will** on Monday, January 29, 2001 - 09:46 am: Edit

Microsoft's next OS

http://microsoft-windo.ws/

By **Dave Bennett (Dbennett)** on Saturday, February 17, 2001 - 04:10 am: Edit

I like the latest one from Microsoft- "Linux stifles innovation". This is even more hilarious coming from a company that has never innovated anything!

By **Mike Will** on Saturday, February 17, 2001 - 08:31 am: Edit

I, for one, do not wish to see Microsoft fade away into oblivion. The gut-wrenching laughter that ensues whenever Bill stumbles through another disastrous roll-out is very therapeutic. That goofy, nerdish smile on his face, the sweat pouring from the forehead of the pathetic minion who will be terminated immediately after the failed, blue-screened demonstration. Even the dorky table cloth used on the computer desk for a man who is worth $$$Billions. It all serves as proof that the universe does indeed have a sense of humour :-)

Mike

By **E.** on Monday, February 19, 2001 - 10:28 pm: Edit

Personally, I owe a huge debt to Microsoft. Without them, I'd still be using various UN*X flavors on blazing fast 10MHz processors with, were I LUCKY, 512K RAM. Now? Oh dear lord. The power is overwhelming. Thanks, MS!

By **Neal Bridges (Nbridges)** on Monday, February 19, 2001 - 10:31 pm: Edit

We got a lot done on those old boxen, though. Constrained environments bring out the best in some of us.

Neal

By **E.** on Monday, February 19, 2001 - 10:38 pm: Edit

And if one is skilled in coding in a nice tight language such as Forth (I'm

sure not), it's really easy to wow the mortals, innit? 🙂

Personally, I shoot for compact (if inefficient and unreadable) code in perl. [Yeah, yeah, like that's difficult. I know.] One-liners a specialty. Pure aesthetics.

By **Neal Bridges (Nbridges)** on Monday, February 19, 2001 - 10:40 pm: Edit

I find the uninitiated are seldom impressed with the concise and efficient; they seem more frequently 'wowed' by the large and unwieldly.

Neal

By **E.** on Tuesday, February 20, 2001 - 08:59 am: Edit

Well, that's just because The Masses like things shiny, IMAO. Once you have a clue, you begin to look INSIDE, and see what's actually going on. Please q.v. Windows, Rolls-Royce, et al.

By **Mike Will** on Tuesday, February 20, 2001 - 01:56 pm: Edit

Well, I'm not sure about the huge debt owed to Bill.

In the early 80's I worked for a large auto manufacturer. We ran an entire plant (communications, monitoring and control, engineering, document management, CAD/CAM, etc etc) with a single VAX computer that serviced many concurrent users and had 256K of RAM (yes, K). Those years were the most profitable in that corporation's history.

Today, it takes 1,000 X as much computer power to do the same thing, along with an entire staff devoted to supporting complexity instead of producing cars. Bill got rich, but did his customers?

I'm not a Forth expert, but many of the most brilliant, creative and productive people I've ever known are. They're the ones I owe a debt to.

Mike

Add a Message

Username:

Password:

E-mail:

This is a public posting area. If you do not have an account, enter your full name into the "Username" box and leave the "Password" box empty. Your e-mail address is optional.

Broke my !#@$!* screen, AGAIN!

By **John newell** on Wednesday, January 17, 2001 - 04:57 am: Edit

3pen'th
I have a Palm V and a Palm Vx. I keep and use both in a stainless steel brushed case (which although relatively expensive I thought was worth it because I KNEW I would drop the PDA sometime).

The Palm V is about 13 months old. I sent it back for replacement after 6 months because a flake of glass had chipped off the graffiti area leaving a rough spot (I hadn't dropped it or anything to cause that to happen - it just happened). I said there must have been a fault with the screen and it was replaced.
I have dropped the Palm V several (or even more) times (onto hard flooring). It survives to work but the graffiti recognition is getting pretty poor - I guess the screen is out of alignment or something.

I have had the Palm Vx about 6 months. It also has been dropped (in its case) but survives. The Graffiti recognition doesn't seem as good as when I first got it but that may be me. Now guess what - a flake of glass has chipped off the graffiti area of this PDA.

Has anybody else had this problem of flakes of glass chipping off the screen? (I don't mean just a scratch in the glass - I mean a shallow flake of glass about 2mm is size out of the surface so that there is a rough spot.)

I asked a jeweller if he could polish it out but he seemed to feel that the high-speed polishers develop a lot of heat that could damage the screen.
Regards
John

By **Neal Bridges (Nbridges)** on Wednesday, January 17, 2001 - 09:47 am: Edit

I've never seen that happen or even heard of it, John. Are you sure the device isn't being subjected to any kind of stress, either physical or thermal?

Neal

By **Jim Hendricks (Jimh)** on Wednesday, January 17, 2001 - 11:06 am: Edit

I have a Vx, and have no problem with the glass chipping, but do have the regocnizer problems. I have been using the palm keyboard, and also using the palm fingernail massage to improve the recognizer.

My problem with the Vx is with the buttons. The power button no longer works on mine, the datebook and notepad buttons have come unanchored. All of this has happened in the past 2 weeks, just 1 week after the warranty is up. What's frustrating is that the case is glued together, and I have no clue how to open it up without damaging the case! Any suggestions from anyone?

Jim

I've seen a Vx with digitizer trouble -- the case was bent, and was pressing on the screen edges.

Do you play games on yours? That would be hard on the buttons, but I haven't managed to make mine fail during normal (non-game) use.

Neal

The digitizer trouble has to do with how much graffiti I do (on board programming does have a downside 😬), as well as to how I write. I tend to write very hard, this leads to faster wear & tear on the digitizer. My problems only seem to be in the graffiti area, since this is where the digitizer gets the most amount of use.

The power button has always been tough, but it has gotten worse to the point I can't even use it to turn the unit on/off, or the backlight. The application buttons happened on a fall, approx 3 feet to a carpeted floor. It landed straight down (ie. as if I were holding it in my hand). After the fall, the outermost buttons were unanchored.

The biggest suggestions I need is how to get into the case without damage so that I can repair the buttons myself.

That might account for it. I do more than the average amount of Graffiti myself, as you might imagine, but I don't write with a heavy hand. I work with a Cross pen with a PDA stylus refill -- it is more accurate than a plastic

stylus and encourages a lighter touch.

I have also managed to avoid hurling the device at the ground 🙂

Neal

I to do a lot of onboard programming on the Palm Vx (and previously on the Palm V) so use the Graffiti area extensively. Maybe it can't take it and just wears out.

I remember reading about people who offer to upgrade Palm V's to 8Mb of memory. The decriptions mentioned opening the glued together Palm and putting it back together. Maybe there is something (or someone) there to help Jim in getting his case appart.

John

I do quite a bit of on-board programming myself; a gentle Graffiti touch is recommended.

The Palm V and Vx case is glued shut. A judicious application of warm air might soften the glue enough for separation, but I wouldn't advise attempting it.

Neal

John, thanks for the tip, was already looking for that kind of info (mem upgrades, but all I can find is where they do it for you and therefore do not provide the technique).

Neal, thanks for the warm air suggestion, you don't advise it, but I might have to do it since it is a major anoyance to be without the power button, and the application buttons keep getting stuck down because they are floating free inside the case. Getting the case open, I can at least see if I can jury rig a fix.

It might be cheaper in the long run to just pay the refurbishing fee through

Palm -- $100 USD as I recall. They send you a replacement and a mailer, you sent the broken one back to them.

Neal

Jim
PalmTree have lots of strange stuff.
http://www.thepalmtree.com/hardware.htm
Follow Hardware Hacks->Palm Do it yourself memory upgrades->Palm V Adventures Page

You end up at:
http://www.palmary-toys.com/v8caseremoval.html

John

OK, I have successfully taken off the front of the Vx case without damage, and without the glue running.

For the application buttons, it's as I suspected, the plastic extending from the button that acts as a spring has broken away from the base plasic mount. I will try and use crazy glue or something to see if I can't glue it back.

The power switch on the other hand is complete crap. The actual switch is a thin piece of spring metal over a thin plastic (like the ribbon wiring) set of contacts. The button you push has a nipple on it that hits the switch dead center. For some reason, the dead center of the switch is dead, but all around it works fine. I'm thinking of trying to mount something on the plastic button to offcenter the nipple so it hits the switch offcenter.

Any suggestions would be helpful, I'll keep you all up to date on the surgery.

If the power-button can't be saved, you could resort to turning the unit on with one of the application buttons, and using the simple 'Off!' app from the File Area to turn it off.

Neal

By **Jim Hendricks (Jimh)** on Thursday, January 18, 2001 - 09:58 pm:
Edit

Well, operation complete.

I took a small chip of wood, glued it next to the nipple on the power-button, and that solved the power problem.

The application buttons weren't so cooperative. I tried gluing them, but because the break is on the moving part, it broke again immediately. Instead I formed some soft spounge foam to put below the button to support it in the up position while still having some resistance when pressing it.

The real challenge was getting the case all back together again. I tried heating it again, to no avail. I tried hot melt glue, but it was hardening before I could rim the whole case & then close it. I finally had to crazy glue it shut. Works well now, just won't be able to get back into the case.

By **Neal Bridges (Nbridges)** on Thursday, January 18, 2001 - 11:34 pm: Edit

No spare parts left over I hope?

Neal

By **Jim Hendricks (Jimh)** on Friday, January 19, 2001 - 07:58 am: Edit

Dang it, I was suppose to put all the parts back in? It's so much lighter without them!

By **Neal Bridges (Nbridges)** on Friday, January 19, 2001 - 11:31 am:
Edit

Hey, if it still runs, you're good to go 🙂

Neal

Add a Message

Username:

Password:

E-mail:

This is a public posting area. If you do not have an account, enter your full name into the "Username" box and leave the "Password" box empty. Your e-mail address is optional.

Two questions and a trick

By **Bob Ryan** on Wednesday, March 28, 2001 - 02:53 am:

Question 1:
The online manual warns against using ' in a standalone application, but in the Struct library the sizeof operator is defined as:

```
: sizeof ( "structname" -- s)
  ' >body @ ;
```

Shouldn't it be?:

```
: sizeof ( "structname" -- s)
  ['] >body @ ;
```

Question 2:
In the facility-ext library:

```
create time  7 cells allot
: TIME&DATE
  ( -- sec min hr day mo yr)
  time >abs  TimGetSeconds
  TimSecondsToDateTime
  6 0 do  i cells time + @  loop ;
```

Here 7 cells are alloted, but only 6 are used. Or am I missing something?

Trick:
Most implementations of C have an offsetof macro defined, which gives the offset in bytes from the start of a struct to the start of a member.

With the current definition of struct it's easy to write offsetof:

```
offsetof    sizeof ; inline
```

Example:

```
struct
  2 cells field ->DBID
  6 cells field ->DateTime
```

```
  16 chars field ->FirstName
  16 chars field ->LastName
  16 chars field ->PhoneNumber
end-struct record
```

offsetof ->FirstName . 16 ok
offsetof ->LastName . 32 ok

By **Dave Ruske** on Wednesday, March 28, 2001 - 10:06 am: Edit

1) The sizeof definition is correct. If you used **[']** in the definition of **sizeof**, the execution token of **>body** would be placed on the stack when **sizeof** executes, but what is desired is the runtime behavior of **'** --- look at the next word in the input stream (the defined structure) and put its execution token on the stack. Then **>body** will return a pointer to the structure's data area (or PFA or whatever it gets called in ANS), and **@** will fetch the structure size that's stored there.

What you don't want to do is use **'** in a standalone app and compile the returned execution token into your code. You could, for instance, store this off in a variable or a table. But without getting really complicated, QF wouldn't know whether the number you've stuffed in a variable or table was an execution token or just some magic number, so it wouldn't know it needed to be relocated when compiled to an optimized executable. **sizeof** is safe because it doesn't store off the execution token anywhere, it just uses it in a calculation to find where the structure size is stored.

Hmm, did that explanation make things better or worse?

2) The structure filled in by TimSecondsToDateTime is seven cells in size. Here's the structure from the C header:

```
typedef struct {
  SWord second;
  SWord minute;
  SWord hour;
  SWord day;
  SWord month;
  SWord year;
  SWord weekDay;   // Days since Sunday (0 to 6)
  } DateTimeType;

typedef DateTimeType * DateTimePtr;
```

The **TIME&DATE** word isn't making use of the weekday field.

By the way, another way you could define offsetof is:

```
: offsetof 0 ;
```

Each **field** you define is actually a word that takes the address on top of the stack and adds the offset into the structure to it. Hence, putting a zero on the stack then executing the field name will result in the offset in bytes into the structure.

By **Bob Ryan** on Wednesday, March 28, 2001 - 11:31 am: Edit

1) So its OK to use ' as long as I don't try to store the returned value? There is no dictionary in a standalone app, so how does ' find the word?

2) Ahh, I don't have the C header files. Are they available somewhere? A lot of this info isn't in the SDK.

3) Geesh, I should have seen that :-\

By **Neal Bridges (Nbridges)** on Wednesday, March 28, 2001 - 01:11 pm: Edit

Bob -- **sizeof** is used outside of a definition, during compilation. There's no practical use for it at runtime.

Usually it's used like this:

```
sizeof mystruct constant mystructsize
```

and then **mystructsize** is referenced in the app itself.

The header files are available for download from http://www.palmos.com.

Neal

By **Dave Ruske** on Wednesday, March 28, 2001 - 01:32 pm: Edit

1) Yes, ' is still a useful word for building other words such as **sizeof**. As designed, **sizeof** isn't meant to be compiled into a standalone app… instead, it's a word that gets interpreted while you're building your application, and its resulting value gets compiled. That's why in a colon definition you'll generally see it used like so:

```
struct
    1 cells field ->color
    1 cells field ->food
end-struct Prefs:

Prefs: favorite
Prefs: default
    0 default ->color !
    0 default ->food !

: set-default-prefs  ( -- )
    default favorite  ( addr1 addr2 )
    [ sizeof Prefs: ] literal
    move ;
```

(Disclaimer: I typed that in off-the-cuff without testing, so there may be typos…)

The **sizeof** word gets bracketed so that, in the middle of compiling the colon definition **set-default-prefs**, it gets interpreted. The size of the **Prefs:** structure gets put on the stack, smack in the middle of building the definition. The word **literal** takes that value off the stack and compiles it into the definition of **set-default-prefs**. Later, when **set-default-prefs** is run (perhaps in a standalone executable), the code compiled by **literal** will place that same value on the stack for the use of subsequent code. The important thing to notice is that the words between the square brackets don't compile a thing… they were just used to calculate the structure size while the definition of **set-default-prefs** was being constructed. So **sizeof** never runs in your standalone app, and never even gets compiled in to it.

Forth's state (compile or interpret) is one of the trickier things to get a handle on, largely because most other languages don't have such distinctions. It's very useful --- unlike the preprocessor of C or C++, you have the full power of the language at your disposal even while you're compiling. But it does take some getting used to, and understanding the difference between **'** and **[']** takes some time.

2) I have a copy of MetroWerks CodeWarrior that my employer was generous enough to drop on my desk, but there are a set of free gnu tools available which must also include the C header files. You should be able to track these down from Palm's developer tools area (try [here](#)).

By **Bob Ryan** on Wednesday, March 28, 2001 - 04:15 pm: Edit

Many thanks Neal and Dave for your help!

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Bug with SEARCH ?

By **Wade Carlson** on Tuesday, March 27, 2001 - 01:54 pm: Edit

A while back I mentioned that there was a bug with COMPARE. Neal came up with a quick workaround for me using quartus code, which seemed to work well. Now I am finding that there seems to be something wrong with SEARCH as well (maybe related?)

Documentation on SEARCH I have found is as follows:
SEARCH (ca1 u1 ca2 u2 -- ca3|ca1 u3|u1 true|false)
Searches ca1 u1 for the string specified by ca2 u2. If found, returns address ca3 of first match, characters remaining u3, and true, else returns ca1 u1 false.

So, try these examples:
: test s" what is up" s" is" search .s ;

Which returns true, as it should. But,
: test2 s" is" s" what is up" search .s ;

also returns true, which it should not. It doesn't always return true. In fact, how I am using it in searching long strings, it seems to always return false!

I have created a workaround withing Quartus, but it is too slow for the large amount of searching I need to do. I can't use the Palm OS StrStr because it won't search through NULL values (which my data contains). Anyway suggestions on how to fix this or to rewrite SEARCH in assembly? Basically, I need to search a large amount of memory for a short string and find the location of that short string.

By **Neal Bridges (Nbridges)** on Tuesday, March 27, 2001 - 02:22 pm: Edit

Hi, Wade. I'm not in front of the source code at present, but I believe I've addressed this in the latest beta. Drop me a note and I'll send it to you.

Neal

By **Steve Bohrer (Skb)** on Thursday, March 29, 2001 - 01:25 am: Edit

If **search** has a real bug, and/or a documentation error, please add a note to the known problems thread with details.

Will do, Steve; it's on my list. 😊

Neal

I can post it there, but I kinda was just waiting for someone else to confirm it. If it's just a problem here, it is either a mistake on my part or something peculiar to my TRG Pro only (which has happenend in the past).

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Hard keys and EvtGetEvent

By **krokodil** on Monday, March 26, 2001 - 09:13 pm: Edit

I am writing small game and trying to
implement hard keys handling.

I do KeySetMask with mask of hard
keys I want to receive. For example
for hard key 1 it have bit 4 set to 0.

When, I catch events with EvtGetEvent.

I get pen up and down events OK,
but for some reason, hard keys do
not pass through.

Do I miss something obvious?

Vadim

By **Wade Carlson** on Tuesday, March 27, 2001 - 01:31 pm: Edit

Erwin Schomburg seems to have worked this out for us all a while back (helped me greatly). Here is the pertinent link:
http://www.quartus.net/discus/messages/23/507.html?ThursdayMay2520000715am

By **krokodil** on Tuesday, March 27, 2001 - 02:16 pm: Edit

Wade, in fact I used this posting as
prototype for my code. It works fine.
When I tap on the screen, even is generated.
However, when I press hard key, no event is generated.

By **Wade Carlson** on Tuesday, March 27, 2001 - 02:51 pm: Edit

I had to download the source to his Quintominoes game to figure it out. It does work. Download his source and look at it. It is quite helpful. If you get stuck, I could dig up some of my sources for you, but I basically just copied his method.

By **Erwin Schomburg (Esc)** on Wednesday, March 28, 2001 - 04:55 am: Edit

I'm too busy on the job to participate much with postings to the forum lately, but if you have a specific problem in understanding how my code works, feel free to mail me directly.

/Erwin

Hard keys handling approach from Erwin code works fine for me.
It is different from one suggested in Palm
tech note on programming animation: they suggest not to process events, but to check keys state.
For not I will use event-based code and will
see how will work for me.
Thanks everybody for suggestions!

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Question I do not need answered.

By **E.** on Monday, March 26, 2001 - 08:42 pm: Edit

Yes, asking just for the hell of it, because even if this is Bad Form, I've never been bitten by it. (Hi, Murphy!)

So in my… peculiar programming style, which is a cross between useful tidbits I've picked up here and certifiable stuff that I've made up on my own, I respond to events by THROWing their resource ID and then changing forms (or whatever I need to do) based on what I CATCH. And yet, in events.txt, I find this:

32767 constant firstUserEvent

Does this mean that I shouldn't try to THROW anything less than that, or does it mean something else (which will probably be so far over my hear that I won't even hear it pass)?

By **Neal Bridges (Nbridges)** on Monday, March 26, 2001 - 08:51 pm: Edit

That's an event type, nothing to do with CATCH or THROW.

Neal

By **E.** on Monday, March 26, 2001 - 08:55 pm: Edit

So we can define our own events? Dare I ask how? [If it's too complicated, skip it, since this is only informational.]

By **Neal Bridges (Nbridges)** on Monday, March 26, 2001 - 08:58 pm: Edit

Yes, you can send yourself an event with any event type you like; not horribly complicated, but not worth detailing here unless you have a specific need. Let me know.

The 32767 is the Palm OS's way of saying that it will never itself create an event with a type higher than 32767.

Neal

By **E.** on Monday, March 26, 2001 - 09:05 pm: Edit

No thanks. I may ask later, because I like to overwork things, but not right now. :/

FWIW, I think many would consider it bad form to use THROW as a means of responding to events. The THROW…CATCH mechanism is intended for error-handling; using it for anything else is not "the Forth way".

But hey, if it works and you like it, the Exception Police aren't gonna stop you.

-- kris

It may or may not be bad form but I've found Throw … Catch to be a handy way to return "up" several levels of event handlers without the overhead of deal that possibility in each handler.
Or just returning the program to a known state (like when the "New Game" option was selected from a menu). It helps if that known state includes an empty stack.

It's the only thing that I could find which was

A) Easy for my then-Forth-newbie brain to understand (yeah, like I'm SO much more advanced NOW).

B) Easily scalable.

C) Not prone to me stepping all over the OS.

I am certainly amenable to learning what "the Forth way" (and no, I'm not being sarcastic) is. I've examined a few apps' source code, and didn't see much that I could easily use to replace it, especially multi-form apps. Perhaps I was looking at the wrong apps. Any pointers would be most appreciated.

It's an interesting approach. There are circumstances where CATCH/THROW are great ways of transferring control, but I've never seen an app where events were directly THROWn to a handler. Off the top of my head, there's no particular reason not to do it, but it is curious.

Neal

Heh. Mark it up to my lack of knowledge.

Sometimes a bonus, other times, well, not.

One cool thing about Forth is that you're free to break the rules and make your own as needed… whatever it takes to best describe your solution to the machine.

Personally, I think that the number of "Forth ways" is approximately equal to the number of Forth programmers. 🙂

The "badness" of the technique is that any sort of non-local jumping is an additional level of complexity of the code. It can lead to spaghetti code.

It can encourage sloppy programming. But there's admittedly a fine line between "sloppy" and "easy".

And it can hide bugs. You may have a routine that is not properly maintaining the stack balance. As CATCH "fixes" the stack, you wouldn't notice the problem.

Maybe "bad form" is an overstatement. But it's "not what people usually do".

-- Kris

Oh. Well, I've gotten bitten by unbalanced stacks before, so I take special care to avoid that in my code. Hell, I'm three weeks into my current project, and it's only NOW starting to be, you know, a nice happy GUI program. I test the BEJESUS out of my code. And hey, I've never done what people usually do. Again, sometimes a bonus, sometimes not. :/

And my offer still stands. If someone wants to take it upon themselves to hold forth on how it "should" be done, I'm sure that I will not be the only avid student.

Of course, if nobody does, that's cool. I'm not the boss of you. 😀

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Dynamic lists

By **E.** on Sunday, March 25, 2001 - 08:28 pm: Edit

I now have need (creeping featurism, hooray) to populate a list at runtime.

Can I do this without resorting to a full-blown "dynamic list"? I am worried about going such a route because I'm reading that I have to provide a custome list draw routine for each dynamic list I make. Naturally, I'd like to avoid this.

Can I just create a list in RsrcEdit with blank entries, and then use LstSetListChoices to populate it and treat it normally?

By **Steve Bohrer (Skb)** on Sunday, March 25, 2001 - 09:25 pm: Edit

The "dynamic list" is the best choice if your data is coming from the records of a database, as it avoids the memory and time overhead of copying the data into a chunk for the list to display.

A dynamic list is a particular win if there are many items. With the dynamic list, items are fetched and drawn only as they are paged to by the user. With a fixed list, you need to read and copy the entire database at the start, even if the user only needs the first page.

The "custom list draw" routine is straight forward: it gets the list item number, and a recangle that shows where to draw it. Here is sample code that shows a "dynamic list" of items from the ToDo database. The actual list setup and drawing is pretty small; most of the example is just the scaffolding for reading the toDo items.

(One uglyness: my word **allocCbStack** now takes the stacksize as an arguement, rather than having it as a built-in constant. So, change the above sample to have "2048 allocCbStack" rather than just "allocCbStack")

Here is the current version of the callbacks code, which is also now in the Contrib files area.

By **E.** on Sunday, March 25, 2001 - 10:08 pm: Edit

Okay, please tell me if you think that, in my situation, a dynamic list is still a win.

I have an X-item list (X< 10). Depending on which item on that list is picked, a different Y-item list is displayed on a different form (again, Y< 10). All of the many possible lists are, indeed, read from databases.

Given tiny lists such as this, is it still worth it?

By **E.** on Sunday, March 25, 2001 - 10:40 pm: Edit

I'm sorry, upon rereading, that sounds a bit snippy. Please believe that this is unintentional. I am, honestly, asking questions that I want serious answers to, not being argumentative.

By **Steve Bohrer (Skb)** on Sunday, March 25, 2001 - 11:31 pm: Edit

I have not tried the "non dynamic" approach to lists, so I can't directly say if it is worth it for < 10 items. In my app, I needed the list draw code first for a database with many items. Later, I needed a "file select" list, which typically has just a few items. But, since I had the list code already, I make a temporary database on-the-fly that contains the file names I care about, and then to use the same dynamic list code to draw it.

It seems you could use the same list draw routine for both the X and Y cases above, as long as other code opened the proper database before the list was drawn.

The old PalmOS tutorial (the tutorial text is at http://www.palmos.com/dev/tech/docs/palmos_tutorial.zip, but I'm not sure where to find the cooresponding sample code) has two list examples:

Phase 7 makes a list of memos by copying the first line of each memo into a block of memory, making a block of pointers with SysFormPointerArrayToStrings, and then passing the above to LstSetListChoices.

Phase 8 of the tutorial replaces all that code with the "dynamic list" version. The tutorial text and sample code give you a good side-by-side comparason, if you are comfortable reading C code. My take on it is that the dynamic list is more straight forward, even for small numbers of items.

Perhaps a third option is to update the list resource with your strings on-the-fly. I've no experience with this path.

By **E.** on Monday, March 26, 2001 - 01:02 pm: Edit

Thanks anyway, folks. Since time is of the essence, I have opted to scrap lists altogether.

Since I know the maximum number of entries in each list, I can just create a form with that many buttons on it, and hide/show them as necessary. And, of course, CtlSetLabel on them.

Sorry to waste your (plural) time.

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Callbacks in OS >= 3.3 vs 3.1

By **Steve Bohrer (Skb)** on Monday, March 19, 2001 - 12:09 am:

"Pre-assembled" version of callbacks fix.

Here are versions of **installCbStack** and **removeCbStack** that are preassembled to avoid the dictionary space overhead of asm68k. Avoiding the assembler also gives faster compiles.

The downside is that the code is now even more opaque. The original source is a separate memo, callbacks-asm.

```
\ callbacks  01.3.17 skb
\ setup a temporary stack for
\ callback routines to use
\ Now "pre-assembled"
\ See callbacks-asm for source

\ NOTE: Works w/ Quartus v1.25
\ and v1.26. May break w/ new vers

\ USAGE:
\ In main program, before any
\ callbacks:
\     stackSize allocCbStack
\
\   (stackSize must be even!)
\
\ In each callback function:
\     installCbStack  callback
\     [... body of function]
\     end-callback  removeCbStack
\
\ At main program exit, or when
\ done with callback code :
\      freeCbStack

2variable cbStackBase \ stack chunk
0. cbStackBase 2!
2variable cbSp        \ callback stack ptr
1. cbSp 2!   \ bus err if not inited

-256 constant noMem
```

```
: allocCbStack ( u -- )
  0 2dup memPtrNew
  2dup cbStackBase 2!
  2dup OR 0= if  noMem throw then
  D+ cbSP 2!  ;

: freeCbStack
  cbStackBase 2@ 2dup OR if
    memChunkFree
    0. cbStackBase 2! 1. cbSP 2!
    throw
  else 2drop then ;

base @ hex

\ See callbacks-asm for source
: installCbStack
  [ 2f07 cs, 2f0c cs, 284f cs, 7e00 cs, ]
  cbSp  \ get addr of stack buffer
  [ 2875 cs, 7800 cs, 291f cs, 291f cs, ]
  ; inline

: removeCbStack
  [ 2e1c cs, 285c cs, ] ; inline

base !
```

Note that the initialzation word, **allocCbStack** now requires the stack size as an arguement.

Here is the source for the two "hard-coded" words above. This is for reference only; do not include this in your project if you use the above!

```
\ callbacks-asm 01.03.17 skb
\ asm68k "source" for installCbStack
\ and removeCbStack

needs asm68k

code installCbStack
\ save SP & TOS, setup temp stack
\ call this in callback func before
\ using datastack or calling any words
\ after this, call "callback"
  prefix
  move .l tos rp -) \ preserve regs
```

```
    move .l sp rp -)
    move .l rp sp            \ both stacks @ rp
    moveq .l 0 tos
    ] cbSp [                 \ offset of temp sp
    move .l 0 tos ds di) sp  \ install sp
    move .l rp )+ sp -)  \ orig sp
    move .l rp )+ sp -)  \ orig tos
end-code inline

code removeCbStack
\ Call this after "end-callback"
\ Restore OS regs from cbStack
    prefix
    move .l sp )+ tos
    move .l sp )+ sp
end-code inline
```

Good stuff!

Neal

Very nice work Steve.

Trevor

I'm virtually ignorant of 68k assembly language, so I may be missing something here... but the new 3.1 version of POSE gives me a funny error when populating a list, even without debug ROMs. It warns me that my code is writing to memory below the stack pointer.

After looking at it a bit, I think that its complaint may be legitimate.

Just before **installCbStack** pushes **cbSp**, **rp** and **sp** are both pointing to the A7 stack. During the push, **sp** will be pre-decremented, the contents of **tos** will be stuffed in the memory pointed to by **sp**, and finally the address of **cbSp** will be moved into **tos** (I'm talking this through so you can point out the fault in my logic if I'm misunderstanding something here). Now since **sp** was pre-decremented for the push, it points to memory just below **rp** and tries to write the zero that was in **tos** to that location.

Apparently, POSE is watching the stack area and A7, sees the write and

displays a warning.

Now I think I understand how this is working, but my question is this: what's going to happen if an interrupt happens to hit just after we write to the stack via the decremented **sp**? Won't it try to save state on the A7 stack and clobber the values we've just written there?

Obviously this would be an infrequent (and hard to reproduce!) error, but if the above is correct we may want to recode **installCbStack** to close the loophole.

Please let me know if I've misunderstood the situation. Thanks!

By **Neal Bridges (Nbridges)** on Tuesday, April 3, 2001 - 02:28 pm: Edit

Interrupts use their own stack and stack pointer, so there's no worries there, Dave. No chance of a conflict.

Neal

By **Dave Ruske** on Tuesday, April 3, 2001 - 03:38 pm: Edit

That's cool; one less thing to worry about.

Still, if I can get a handle on the 68K I may take a crack at recoding this to keep POSE from complaining. I can turn off the low stack memory check, of course, but then I could hide a real problem somewhere else...

Thanks for the education!

By **Steve Bohrer (Skb)** on Wednesday, April 4, 2001 - 01:34 am: Edit

If POSE tracks A7, it certainly should complain about the callback stack fix: we point A7 to an arbitrary chunk of RAM. If POSE has saved the proper stack bounds some place, our stack will be outside of those bounds, because it is an entirely different chunk.

On the other hand, if POSE is just concerned about us using memory just below A7, you could decrement A7 a bit after it is copied to A4, to reserve space for the Forth push via A4, and then restore A7 after the temporary Quartus stack is set up.

By **Steve Bohrer (Skb)** on Wednesday, April 4, 2001 - 09:45 am: Edit

InstallCbStack patched to reserve space at A7 before using the system stack as a Forth data stack via A4. This should silence POSE 3.1, but I have not upgraded yet, so I have not confirmed that it will be happy.

I have also sent Neal a revised version for the contrib area; the file header date is 01.04.04 .

Precompiled Version:

```
\ See callbacks-asm for source
: installCbStack
  [ 2f07 cs, 2f0c cs, 284f cs,  598f cs,
    7e00 cs, ]
  cbSp  \ get addr of stack buffer
  [ 2875 cs, 7800 cs, 588f cs,
     291f cs, 291f cs, ]
  ; inline
```

Assembly Source (new code marked with **):

```
code installCbStack
\ save SP & TOS, setup temp stack
\ call this in callback func before
\ using datastack or calling any words
\ after this, call "callback"
  prefix
  move .l tos rp -) \ preserve regs
  move .l sp rp -)
  move .l rp sp          \ both stacks @ rp
  subq .l 4 rp      \ ** space for push
  moveq .l 0 tos
  ] cbSp [                 \ offset of temp sp
  move .l 0 tos ds di) sp  \ install sp
  addq .l 4 rp \ ** restore rp
  move .l rp )+ sp -)  \ orig sp
  move .l rp )+ sp -)  \ orig tos
end-code inline
```

By **Dave Ruske** on Wednesday, April 4, 2001 - 11:26 am: Edit

That keeps POSE 3.1 happy. Good fix Steve, thanks!

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Real newbie question(s)

By **Paul Johnson** on Sunday, March 25, 2001 - 03:31 pm: Edit

I'm a longtime programmer (c, pascal, asm) with zero experience with Forth (ok, I played with it a bit in '83). I have some "getting started" questions:

1. I play with Quartus Forth mostly when I'm away from my desk, ergo I have no documentation with me. The ANSI standard, available for DOC readers, is a bit too dense for learning Forth. Is there any documentation about learning Forth in general and Quartus in particular that I can put on my Palm?

2. When I switch away from Forth and then switch back, it appears to do a cold start. While learning, this is a disadvantage. Is there any way to modify this behavior, so I can check a reference and return to what I was working on?

3. How do you work with Forth? Do you edit in memo pad, then switch to Quartus, then include what you edited then test, then return to memo?

4. If so, that's a lot of "typing," which tends to be slow (at least in my case). It would be great to have a pop-up list of common Forth words that could be pasted into Quartus. Does such a thing exist?

Thanks in advance,

Paul

By **Neal Bridges (Nbridges)** on Monday, March 26, 2001 - 12:11 am: Edit

Hi, Paul.

1. Sections of the Quartus Forth manual can be converted to Doc format, for reference.

2. Yes, the dictionary-reset is by design. There's a neat program called "PopUp Note" that lets you modify memos from another app; that might help you here.

3. Yes, that's exactly how I do it.

4. I use the built-in shortcut facility of the Palm OS quite extensively; speeds things up a great deal.

Neal

By **Paul Johnson** on Monday, March 26, 2001 - 12:42 am: Edit

I should have done my homework before asking these questions. I found that there was quite a bit of information available. Thanks for the confirmation that I'm on the right track.

I find that Forth has quite a steep learning curve. I have no trouble with the basic concepts, but putting it all together (and learning all the standard words) is taking quite a while. I hope this isn't an altzheimer thing.

Thanks,

Paul

By **Neal Bridges (Nbridges)** on Monday, March 26, 2001 - 12:44 am: Edit

Happy to help with any questions that come up, Paul. Take small steps and you'll get there -- after awhile it'll 'click' and you'll be off to the races.

Neal

By **Barry Ekstrand (Ekstrandbb)** on Monday, March 26, 2001 - 10:38 am: Edit

One utility that is really handy is Pop App by Rick Bram. A double tap brings up a user-editable list of words/phrases to insert.

Barry Ekstrand

By **Tammy Cravit (Tammycravit)** on Monday, March 26, 2001 - 12:21 pm: Edit

I thought I'd mention my DieRoller app, which comes with full source code as well as a "code at 50,000 feet" document that highlights the lessons I learned as I was (slowly and laboriously) developing it. DieRoller was my first Forth application, and I learned a lot about both Forth and the Quartus environment writing it.

You can download the full version with source code from its SourceForge page. You want to download the DieRoller_Source file to get the source and executable.

Tammy

By **Ian Perrin** on Tuesday, March 27, 2001 - 11:16 am: Edit

Don't forget you can create yourself a memo called "\ startup.quartus" which is fired by Quartus each time it cold starts. This way, if you are working on a particular project you can have this memo save you all the donkey work of typing in each include…

Add a Message

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Mastery of the pop-up keyboard?

By **E.** on Friday, March 23, 2001 - 12:05 pm: Edit

It has come to the point where I must let my users use the popup keyboards (abc/123).
Unfortunately, I can't allow the input to be echoed to the screen. As Neal has pointed out previously, the popup keyboard only shows up if there's an active field. Obviously, this will echo the characters, which I cannot do. Some experimentation with RsrcEdit did not provide me with a solution.

Anyone have any advice?

By **Neal Bridges (Nbridges)** on Friday, March 23, 2001 - 12:11 pm: Edit

Even if there's some tricky way to use a hidden field to do this, the input will still show on-screen while the pop-up keyboard is displayed, and the user will need to tap [Done] to enter the character or characters they've typed. Does that fit in with what your app needs?

Neal

By **Mark Beckman (Mbeckman)** on Friday, March 23, 2001 - 12:17 pm: Edit

I've seen this discussion on the PalmDev list and the usual answer is to create your own keyboard from and emulate the palm keyboard popup. This gives you complete control without the use of Hacks. As a side benefit you can customize the keyboard to fit your app. There was some discussion also on the pros/cons on making the controls on the keyboard individual controls or just a big gadget. As I recall the gadget is better if you need LOTS of "keys" but the controls work fine if you just need a few (like a 10 key for instance).

By **E.** on Friday, March 23, 2001 - 12:35 pm: Edit

Okay, thanks, guys. I'm just going to make a field inside a black rectangle. Simplest (but unfortunately ugliest) solution. Argh.

By **Jim Hendricks (Jimh)** on Friday, March 23, 2001 - 01:09 pm: Edit

If you make the field in a black rectangle, won't you still get the keyboard echo in the popup keyboard's echo area?

I would think that a simple popup with a graphic of the keyboard and a simple tap event handler would be all you need to create a custom handler. I have somewhere here the game of lights out that I half programmed when I first got started with Quartus, it used the approach of drawing the "buttons" to the screen, then handling the tap by translating x,y into which button was tapped.

By **E.** on Friday, March 23, 2001 - 01:47 pm: Edit

You're right, it would. But I've been told to include the pop-up keyboard. *shrug*

I think I'm going to play with changing the foreground color to the background color temporarily.

By **E.** on Tuesday, March 27, 2001 - 12:53 pm: Edit

Okay, I'm stumped. Yes, again.

```
:displaymain
  currentform @ showform
  get-colors
  origbg 2! origfg 2! \ both 2variable
  origbg 2@ foreground
  myfield fieldfocus
;
```

The text still shows up in black on white. "No problem", think I, "I'll just make the field very narrow. That hangs the OS, necessitating a soft reset. "Okay, I'll make it wide but very short." Works fine, but hitting backspace brings the field back to its original height.

I HAVE to let the text show up in the pop-up keyboard, but I'd like not to do it on my form. This is looking less and less likely. Any ideas?

By **E.** on Tuesday, March 27, 2001 - 01:37 pm: Edit

Please ignore me until further notice.

Changing the font of the field (RsrcEdit's FntSetFont equivalent) has solved the problem. And if I leave it just wide enough for one character to show, it won't crash.

Sub-optimal, but given the time crunch, acceptable.

FldSetFont is, of course, what I meant. As a bonus, the keyboard looks fine, but its field only displays boxes.

An interesting solution to a peculiar problem, E. 🙂

Neal

I'm just going to make a keyboard widget. It looks much cleaner, and the end-users *spit* will be happier.

Sorry, I don't mean to dis on those who may or may not be less technically clued than me, but when they-as-a-class make me go through more effort, I am not kindly disposed toward them. Grah.

Add a Message

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Password:

E-mail:

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Where did I come from?

By **Mike Will** on Friday, March 23, 2001 - 09:27 am: Edit

Is there any way to get the xt of the calling word? Or even *any* address within its body?

eg.

```
: test1 callerXT ;
: test2 test1 ;
```

I played around with the return stack without much luck. Also, is the Quartus facility of going to the last error available as a word? I notice that after running some forms, then dropping back into quartus' blankform, the quartus menu disappears completely.

Obviously, what I'm looking for is some way of determining from where an error was thrown. This becomes useful in large apps where interaction with the PalmOS defeats my best intentions regarding proper Forth coding conventions like factoring, incremental development and throw-catch error handling.

Thanks in advance, Neal (and anyone else)

Mike

By **Neal Bridges (Nbridges)** on Friday, March 23, 2001 - 12:05 pm: Edit

If you use **MainForm** to switch back to the Quartus Forth console form, the menu will be available and you can jump to the last error.

It's possible to interrogate the return stack and determine an address from inside the caller, but it isn't simple to trace that back to a function name.

Neal

By **Mike Will** on Friday, March 23, 2001 - 05:33 pm: Edit

In some cases (the ones that matter) **MainForm** fails to 'take'. My existing form stays active and visible. An intermediate **FrmCloseAllForms** doesn't help. **BlankFormID ShowForm** works (but I don't get the Quartus menu).

In simple tests, **MainForm** works fine. The only real difference between the simple world and my program is that I have multiple **THROW**s in play. Any thoughts?

On the second point, why isn't the address of the point I just left in the calling word on the top of the return stack when I'm in the called word? I've dug ten items deep into R, and there's nothing even close to the dictionary address of the caller.

Thanks

Mike

By **Mike Will** on Friday, March 23, 2001 - 05:37 pm: Edit

Oh, one more thing. All my code is wrapped up in a single **['] main catch** error trap, if that makes any difference.

Mike

By **Neal Bridges (Nbridges)** on Friday, March 23, 2001 - 08:01 pm: Edit

The only reason MainForm would not 'take' is if your application has another form numbered 1000. Stay away from 1000, and the MainForm will always be available.

The address of the location that just called your function is in fact on the return stack, but you'd have a hard time recognizing it -- it's a 32-bit absolute address that bears little visual resemblance to a 16-bit xt.

Neal

By **Mike Will** on Friday, March 23, 2001 - 09:40 pm: Edit

stay away from form 1000 ..... Doh !

don't want to give up on the address question, here's a shot

```
: t1 2r> 2dup >rel u. 2>r ;
: t2 t1 ;
t2 27726
' t2 u. 54992
```

What am I missing?

Mike

>REL and >ABS don't work on codespace addresses, only dataspace addresses. You'll get meaningless results trying to translate a 32-bit codespace address using >REL.

Neal

Add a Message

Username:

Password:

E-mail:

This is a public posting area. If you do not have an account, enter your full name into the "Username" box and leave the "Password" box empty. Your e-mail address is optional.

Problems with Qaurtus

By **John Newell** on Monday, March 19, 2001 - 07:17 am: Edit

Neal,
I was looking at codespace (for callback without using \ asm68k) and hit a few problems.

1) (find) and ['] gave different results for the xt address of the same word (installCbStack). (find) returned -4008 3. ['] returned -3990. Feeding the (find) version of xt into xt>name returned 0. Feeding the ['] version of xt into xt>name returned -4005 14 -1.

2) The codespace address returned by xt>name was an ODD number. cs@, recommended for use in the description of xt>name, caused the Palm to crash. After I had turn off the low order bit of the returned codespace address I got the correct result.

Also,
TblGetItemPtr is missing from the list of supported systrap words.

John

By **Neal Bridges (Nbridges)** on Monday, March 19, 2001 - 12:04 pm: Edit

1) (FIND) doesn't return an XT, it returns the header address; slightly different beast.

2) Yes, it'll be odd -- use CSC@ to fetch 8-bit values from odd addresses.

3) I'm adding the newest OS calls as we speak.

Neal

By **John Newell** on Monday, March 19, 2001 - 01:07 pm: Edit

You're suggesting that the find definition should be:
(find) (c-addr u -- 0 | lfa flag)

I'm afraid your documentation is wrong then. The section on "Documentation for Words Specific to Quartus Forth" says:
(find) (c-addr u -- 0 | xt flag)
Works just as does the Standard word FIND, but takes a standard string as

a parameter, rather than a counted string.

```
I guess this is how to use (find).
z" installCbStack" (find) if
  lfa>xt xt>name
  if
    1+ + (hex) FFFE and cs@ etc.
  else
    ." Invalid"
  then
else
  " Not found"
then
```

By adding u+1 to the cs-addr returned by xt>name and then masking bit 0 of the address off, this would always give the start of the code. Is that right?

John

By **Neal Bridges (Nbridges)** on Monday, March 19, 2001 - 04:00 pm:

Edit

You're right; that manual page needs updating. Have a look at this thread: http://www.quartus.net/discus/messages/23/846.html?

To calculate the xt from the address returned by (FIND), it's best to use LFA>XT, or simply FIND itself.

Neal

Add a Message

This is a public posting area. If you do

Username:

Password:

E-mail:

not have an account, enter your full name into the "Username" box and leave the "Password" box empty. Your e-mail address is optional.

Empty stack musings

By **Mike Will** on Sunday, March 18, 2001 - 08:03 pm: Edit

I had a bit of trouble with empty stack behaviour (the stack was empty due to a runtime error in my code). The following observations were made:

S>D right after a cold start gives -1
S>D at all other times gives 0
MS causes an immediate departure for the 3rd moon of Saturn

Why not a normal error, such as stack underflow or Fatal? Using OS 3.50, 1.2.6R
Thanks

Mike

By **Neal Bridges (Nbridges)** on Sunday, March 18, 2001 - 08:06 pm:
Edit

Hi, Mike. At the console, the stack depth isn't checked until after a given function is executed. S>D converts whatever rubbish is just below the stack into a double, leaving either a 0 or a -1 on the stack; at that point the stack isn't underflowed, so there's no error.

Neal

Add a Message

Username:
This is a public posting area. If you do not have an account, enter your full

Password:

E-mail:

name into the "Username" box and leave the "Password" box empty. Your e-mail address is optional.

New Quartus App--TeachFile

By **Ron Doerfler** on Friday, March 16, 2001 - 12:17 pm: Edit

Hi everyone,

Just a note that I've just released my new app, TeachFile, to PalmGear at:
http://www.palmgear.com/software/showsoftware.cfm?sid=91672120010316103759&prodID=13350

TeachFile is an extension of my earlier TeamFile app to provide classroom management specifically tailored for teachers. For more details you can view the description and online manual at http://www.eddiesoft.com

Thanks very much to Neal and the others here for their help, and particularly to Jim Purdy who gave me offline help in getting my first two-module Quartus app fully functional.

Cheers,

Ron

By **Neal Bridges (Nbridges)** on Friday, March 16, 2001 - 10:23 pm: Edit

Congratulations yet again, Ron!

Neal

Add a Message

Username:

Password:

E-mail:

This is a public posting area. If you do not have an account, enter your full name into the "Username" box and leave the "Password" box empty. Your e-mail address is optional.

Another question about app preferences

By **chris bucsko** on Thursday, March 15, 2001 - 09:53 am: Edit

I have a quick question about using app preferences. I've read through most of the strings in the forum and have the Swatch source code, but I can't seem to figure out how to initialize the prefs area of the database when it's first created. I want to save the list numbers from all my forms, so when a user chooses a form it goes back to the state it was left in using PrefSetAppPreferencesV10. But I don't know how to detect whether the app prefs have been written to initially. Anyone have any ideas? Also please correct me if I'm wrong, but prefsize is counted in bytes, not cells right? thanks.

By **krokodil** on Thursday, March 15, 2001 - 02:53 pm: Edit

I try to read it and it it fails
I assume they are not there and initialize
them.

By **Tammy Cravit (Tammycravit)** on Friday, March 16, 2001 - 01:16 am: Edit

Chris,

PrefGetAppPreferencesV10 returns a flag indicating whether the preferences were already present or not. Here's what I do in my DieRoller application (I've snipped only the relevant parts:

```
here constant prefs-base
variable ndice
variable nsides
here prefs-base - constant prefs-size

: >prefs ( -- )
    \ Get the preferences
    prefs-size prefs-base >abs
    1 [ID] diE#
    PrefSetAppPreferencesV10 ;

: prefs> ( -- flag )
    \ Get the preferences
```

```
    prefs-size prefs-base >abs
    1 [ID] diE#
    PrefGetAppPreferencesV10 ;

: app-init ( -- )
    prefs> 0 = if
        3 ndice !
        6 nsides !
        >prefs
    then ;
```

Then, in the startup word of my application, I execute the app-init word to load the preference values, initializing them with default values if they're not present.

The prefsize value is indeed counted in bytes; the references to "here" in my code sample take care of things for you.

Tammy

Thanks to both of you. I wondered what that flag meant, and I couldn't figure it out from the PalmOS docs. That's an interesting use of 'here'. I've never seen anyone declare it as a constant. How does this code calculate prefs-size? It looks really interesting.

"here" isn't being declared as a constant in the code above. In the first line of code, "here" puts the current pointer in the dataspace on the stack, then "constant prefs-base" stores that value in a constant named prefs-base.

After the variable declarations (which bump up the value of "here" by two cells, since each variable will take a cell in dataspace), the value of "prefs-base" is subtracted from "here", which gives the size of the data (the two variables) in bytes. Finally, that value gets stored in a constant named "prefs-size".

This works in QF because the dataspace and codespace are separate --- "here" only returns the space actually occupied by the variable's data. With a different implementation, other stuff (such as the variable's names) may also be stored in the memory referenced by "here", and the code might save and restore things it shouldn't. In a sense it's a non-portable practice, but unless you're porting to something else it's not an issue.

Hope this helps! :)

yep, that explains it. Thanks this helps a lot.

I have a question regarding Tammy's example:

```
here constant prefs-base
variable ndice
variable nsides
here prefs-base - constant prefs-size
```

Isn't that a dangerous construct? If I am reading the ANS Forth standard correctly, it looks like prefs-size can be wrong if here is misaligned at prefs-base computation time, because ndice will get aligned. I think that a best construct would be

```
create prefs-base
...
```

which ensures that prefs-base is cell-aligned. Or did I miss something?

I wouldn't call it "dangerous" -- the worst thing that can happen is that an extra byte or so gets saved and restored with the preferences. Remember, the data space is only set up when the app is compiled, not each time that it's run.

--Travis

That's not what I meant: from one version to another, that extra byte can get your preferences wrong. In version V1, it may be saved because of alignment problems, while in version V2 preferences won't be correctly read because the alignment problem doesn't happen anymore.

It would be unusual for HERE to be misaligned-- and you can deliberately align it --, but I'd be inclined to use CREATE myself, Sam. Simpler that way.

Neal

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Floatlib updates, and other contribs

By **Chapman Flack** on Wednesday, March 14, 2001 - 09:57 pm: Edit

Neal,

Did my email get through? I (think I) sent you recently some updated files for the floatlib,
plus another little contrib to keep a current stack display at the top of the screen while working interactively.

Please let me know if it didn't come through.

Cheers,
-Chap

By **Neal Bridges (Nbridges)** on Thursday, March 15, 2001 - 09:14 am: Edit

I got the update yesterday, Chapman -- if my thanks didn't make it through, here they are again -- thanks! I'll post them ASAP.

Neal

By **Barry Ekstrand (Ekstrandbb)** on Friday, March 30, 2001 - 01:09 pm: Edit

Neal,

Did Chapman's update get posted? The file in the Contrib section of the File Area looks like the old version - or am I just missing it somewhere else?

By **Neal Bridges (Nbridges)** on Saturday, March 31, 2001 - 01:46 am: Edit

I thought it made it up, Barry, but if it's not there I'll have to post it Monday.

Neal

Add a Message

Username:

Password:

E-mail:

This is a public posting area. If you do not have an account, enter your full name into the "Username" box and leave the "Password" box empty. Your e-mail address is optional.

^1

By **E.** on Wednesday, March 14, 2001 - 09:05 pm: Edit

[I feel like a real lame-ass asking this, but actually testing it at the moment would be problematic, for arcane reasons. Sorry. Also, I can't search for the string "^1" with the site's search engine for some reason.]

I have a need to use ^1 (and friends) in a popup form. FrmCustomAlert, if memory serves. What exactly does &s1. mean?

myzstringaddr s>d MyPopupFormNum FrmCustomAlert

?

I think that the & is automatically handled with how Forth does zstrings and s>d handles the . part of it. Am I close?

By **Steve Bohrer (Skb)** on Wednesday, March 14, 2001 - 10:31 pm: Edit

You are correct that a zstring returns the address of the string, but it is a 16-bit offset into the Forth data segment. You need >abs to make it a 32-bit address, not just s>d. (s>d sign-extends a 16-bit value to a 32-bit value. To get a global address from a "local" 16-bit address, you have to add the upper word of the data segment address.)

Plus, a z-string gives the length of the string, which you must drop.

So, try (untested)
```
  myzstringaddr drop >abs
  MyPopupFormNum FrmCustomAlert
```

The manual page http://www.quartus.net/products/forth/manual/datatype.htm gives examples of Forth and Quartus-specific stack notation and shows that (&name.) is a 32-bit pointer to some item in memory.

For zstrings, the comments from the lib file are
```
\ Compiles a zero-terminated string:

: z" ( ...<"> -- runtime: c-addr u )
```

'c-addr u' shows that a string created with z" will leave the address of a character and an unsigned number on the stack. I guess you need to be familiar with s" to guess that these numbers are the start of the string and the length.

By **Kris Johnson (Kdj)** on Wednesday, March 14, 2001 - 10:34 pm: Edit

&s1. means "absolute address of a null-terminated string". You can use the zstrings library module to create null-terminated strings, and you need to use the >abs word to convert a 16-bit relative address to an absolute address.

Here are some utility words for calling FrmCustomAlert with 1, 2, or 3 strings:

```
\ Return zero-terminated string
\ consisting of nothing
create zemptyBuf   0 c,
: zempty ( -- zadr u )
  zemptyBuf 0 ;

\ Custom alert with substitutions
\ for ^1, ^2, and ^3
: custom-alert3 ( zadr3 u3 zadr2 u2 zadr1 u1 frmID -- u )
  >r drop >r drop >r drop
  >abs
  r> >abs
  r> >abs
  r>
  FrmCustomAlert
;

\ Custom alert with substitutions
\ for ^1 and ^2
: custom-alert2 ( zadr2 u2 zadr1 u1 frmID -- u )
  >r drop >r drop >r
  ( R: u1 zadr1 zadr2 )
  zempty drop >abs
  r> >abs
  r> >abs
  r>
  FrmCustomAlert
;

\ Custom alert with substitution
\ for ^1
: custom-alert1 ( zadr1 u1 frmID -- u )
```

```
    >r drop >r
    zempty drop >abs
    zempty drop >abs
    r> >abs
    r>
    FrmCustomAlert
;
```

Example usage:

```
needs zstrings
1001 constant frmAlert  \ Contains "^1 ^2 ^3"

: one ( -- zadr u )  z" One" ;
: two ( -- zadr u )  z" Two" ;
: three ( -- zadr u ) z" Three" ;

: test1 ( -- )
  one frmAlert custom-alert1 ;

: test2 ( -- )
  two one frmAlert custom-alert2 ;

: test3 ( -- )
  three two one frmAlert custom-alert3 ;
```

-- Kris

Steve: Yeah, I'm familiar with s", just not familiar with the idiosyncracies of the Palm OS. Thanks.

Kris: Beautiful. Thanks a lot. 🙂

Hm. Now that I finally get around to testing it, I am having another problem.

\ foo

needs zstrings
needs ids
needs resources

```
(ID) XXXX (ID) rsrc use-resources

-257 constant ByeThrow
2000 constant mypopupfrm

create zemptybuf 0 c,
create pp 16 chars allot

variable count
variable done
variable isright
variable currentform
variable secs

: zempty
zemptybuf 0
;

: customalert1
>r drop >r
zempty drop >abs
zempty drop >abs
r> >abs r>
FrmCustomAlert
;

: getstring
z" Test."
;

: mainscreenturnon
getstring
mypopupfrm customalert1 drop
;
```

If I comment out the line

```
create zemptybuf 0 c,
```

It fails because it doesn't know what zemptybuf is. I understand that. The part that confuses me is that if I don't comment out that line, I get a fatal exception. However, if I type that line into the Quartus Forth console, it works fine. Obviously(?), the problem lies in the code above that line. If I comment out that line and replace it with

```
.s cr
```

I get a "Stack empty" message.

Is this another case of my QF going insane (see earlier post entitled "Invalid registration code") on something that works for everybody else?

Okay, you know what? Never mind. I snip everything (in my program) that is after the code I pasted above, and it works just fine.

This oughta be fun. *scowl*

Well, I've traced down the problem. By using a whole series of

page .(Got to X) cr

lines, I've managed to find where the problem lies, and it makes no sense.

```
: mainhandler
dup menuevent = if
checkmenus \ defined as : checkmenus ;
else dup ctlselectevent = if
checkbuttons \ ditto
else dup penupevent = if
\
else dup pendownevent = if
\
else dup keydownevent = if
checkkeys \ defined and working
then then then then then
drop
;
```

I know that this code work, because I've used it in previous apps. Yes, I know that my style is weak. Any idea why that would cause problems, though?

Okay, never mind. I retyped the program and it works now. I have no idea.

E. -- glad you got it sorted. My guess: a missing THEN. This is where cond/thens comes in handy, it takes care of all the THENs for you.

Neal

I retyped it while looking at the screen (where I had MemoPad open), and that part, mainhandler, is copied from a template anyway. I am puzzled, but (once again) moving on.

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Expense DB

By **Vadim Zaliva (Krokodil)** on Wednesday, March 14, 2001 - 08:20 pm: Edit

Hi!

I decided to share my code for reading/writing
Expense database. It is not perfect, but works
for me.

I am still learning Forth, so any criticism
and suggestions are very welcome. I plan eventually to improve it.

ftp://ftp.crocodile.org/pub/pilot/forth/expense10.zip

It was deveoped to allow my BillSplitter app. to write expense records. Here
is link to BillSplitter page: http://www.crocodile.org/pilot/

Sincerely,
Vadim

Add a Message

Username:

Password:

E-mail:

This is a public posting area. If you do
not have an account, enter your full
name into the "Username" box and leave
the "Password" box empty. Your e-mail
address is optional.

Simple Tables?

By **Vadim Zaliva (Krokodil)** on Wednesday, March 14, 2001 - 03:35 pm: Edit

I just read tables tutorial from Files Area
and it is very good.

In my application I do not need custom cells.

Does that mean I can use tables without using callbacks?

If there is any sample code showing table
handling without custom cells?

By **Trevor Steele** on Wednesday, March 14, 2001 - 04:37 pm: Edit

Vadim, you can indeed use tables without callbacks if you are using any of the built in formats allowed in tables. Unfortunately it's not something I've done much work on so you'll have to examine the header files to get the formats and experiment a little. I would hope that it would not be too difficult. Also remember there is an alternative way of doing tables without using callbacks included in the tutorial zip file, so if all else fails you can use bits of that.

Best regards

Trevor

By **John Newell** on Thursday, March 15, 2001 - 01:36 pm: Edit

I have been working in this area recently and came up with this:

```
\ JNTable+ 5-3-01 10:02 jrn
\ Draws a table
\ Table is scrollable

: TblSetRowMasked ( m row tblP. -- )
(hex) A3D1 systrap 2drop 2drop ;

8 value MaxVisiblerows  \ Param.
5 value numcols  \ Param.
0 value ICxt  ( col -- usable style ) \ Init columns callback
```

```forth
0 value IRxt ( col row -- false|x true ) \ Init rows callback

0 value Visiblerows
0 Value numrows
0 Value Datarows

0 Value MaxNumrows
create TblBounds 4 cells allot
 : tblleft TblBounds @ ;
 : tbltop TblBounds 1 cells + @ ;
 : tblwidth TblBounds 2 cells + @ ;
 : tblheight TblBounds 3 cells + @ ;
: rowheight
  tblheight MaxVisiblerows / ;

0 Value currrow
0 Value currcol
0 Value toprow

5 array colwidth
5 array colstyle

0 TO toprow

\ Table
2variable _tableptr
: TablePtr ( -- ptr. )
_tableptr 2@  ;

\ Scroll
2variable _scrollptr
: TableScrollPtr ( -- ptr. )
_scrollptr 2@ ;

variable sclpage
variable sclmax
variable sclmin
variable sclval

: InitTableScrollbar ( sbctrl -- )
\ Set scrollbar variables based on
\  the  total number of rows and
\ visible rows
GetObjectPtr _scrollptr 2!
0 sclmin !
0 sclval !
Datarows  visiblerows - sclmax !
```

```
Datarows visiblerows min sclpage !
sclpage @ sclmax @ sclmin @ sclval
@ TableScrollPtr SclSetScrollbar
( page max min v )
 \  TableScrollPtr SclDrawScrollBar
;

: DrawTableCell ( col row -- flag )
TO currrow TO currcol
\ ( col row -- false|x true )
  currcol currrow IRxt execute  if
  currcol currrow toprow -
  currcol colstyle @ CASE
    3 OF rot >abs 2swap
      TablePtr TblSetItemPtr ENDOF
    4 OF
      TablePtr TblSetItemInt ENDOF
    \ Otherwise
    2drop drop
  ENDCASE
  true
else
  false
then
;

: EraseTable ( -- )
\ TablePtr TblEraseTable
TablePtr TblDrawTable
;

: DrawTable ( -- )
EraseTable
\ toprow
Datarows 0 ?do
  false i TablePtr TblSetRowUsable
loop
\
toprow visiblerows + Datarows min
 toprow ?do
  true i TablePtr TblSetRowUsable
  i TablePtr TblMarkRowInvalid
loop
TablePtr TblReDrawTable
;

: LoadTable ( -- )
```

```
0 TO Datarows
0 TO toprow
MaxNumrows 0 ?do
  false
  numcols 0 ?do
    i j DrawTableCell
    or
  loop
  if
    Datarows 1+ TO Datarows
  then
loop
MaxNumrows Datarows min TO Numrows
MaxVisiblerows Numrows min TO Visiblerows
\ DrawTable
  ;


: ScrollTable ( -- )
\ Get the sclval and set = toprow
sclpage >abs sclmax >abs sclmin
 >abs sclval >abs TableScrollPtr
SclGetScrollbar sclval @ TO toprow
DrawTable
;


: InitColumn  ( usable style -- )
currcol TablePtr TblGetColumnWidth currcol colwidth !
dup currcol colstyle !
>byte currcol currrow TablePtr TblSetItemStyle
currcol TablePtr TblSetColumnUsable
;
: InitTable  ( IRxt ICxt visiblerows  numcols tblctrl -- )
GetObjectPtr _tableptr 2!
TO numcols
TO MaxVisiblerows
TO ICxt
TO IRxt
\
\ TablePtr TblDrawTable
TblBounds >abs TablePtr TblGetBounds
TablePtr TblGetNumberOfRows
TO MaxNumrows
\ Init. table
MaxNumrows 0 do
  i TO currrow
  rowheight i TablePtr TblSetRowHeight
  false i TablePtr TblSetRowStaticHeight
```

```
      false i TablePtr TblSetRowMasked
      true i TablePtr TblSetRowSelectable
      numcols 0 do    \ columns 0->
         i TO currcol
         i ICxt execute ( col -- usable style )
         InitColumn
      loop
   loop
   ;
   \ Calls:
   \     IRxt ICxt visiblerows  numcols tblctrl InitTable
   \    LoadTable
   \    DrawTable
   \    sbctrl InitTableScrollbar
   \ In event loop:
   \    ScrollTable
```

* *

Here is an example which makes use of the TableRsrc resource database:

```
\ tteg - test tables 15-3-01 15:22 jrn

needs core-ext
needs Events
needs facility
needs Resources
needs toolkit
needs zstrings
needs case
needs forms
\
needs JNTable+
\
(ID) p4ap (ID) ABCD use-resources
1100 constant Table_tFRM
2000 constant Table_tTBL
2001 constant Table_tSCL

\ Set column usable & style
\ column 0 style = 3 (label)
\ column > 0 style = 4 (int)
: IC ( col -- usable style )
true
4 rot 0= +  \ 0=3 else 4
;
```

```
\ Set cell data
\ x=c-addr for column 0
\ x=int for column > 0
: IR  ( col row -- false|x true )
over 0= if
  2drop
  z" Col 0" drop
else
  10 * +          \ 10 * row + col
then
true
;
: go
page
Table_tFRM PopupForm
\
\ 9 visible rows, 3 columns
['] IR ['] IC 9 3 Table_tTBL InitTable
\
LoadTable
\
DrawTable
\
Table_tSCL InitTableScrollbar
\
begin
ScrollTable
BEGIN
  EKEY DUP nilEvent =
WHILE DROP
REPEAT
keyDownEvent =
until
Mainform
;


***************************
\ Do the calls in this order:
IRxt ICxt visiblerows numcols tblctrl InitTable
LoadTable
DrawTable
sbctrl InitTableScrollbar
\ In event loop:
ScrollTable

***************************
```

Definitions:
['] IRxt is the xt of a word use to supply the data for a cell:
(col row -- false|z-addr true|x true)
col: column
row: row
false: No data for entire row
z-addr true: zero terminated string for a style 3 column
x true: integer value for a style 4 column
***
['] ICxt is the xt of a word used to initialise each column of the table:
(col -- usable style)
col: column
usable: true if column is displayed, false if not
style: 3 (labelTableItem), 4 (numericTableItem)
***
InitTable (IRxt ICxt visiblerows numcols tblctrl --)
IRxt: is the xt of a 'callback' which is called to load data into the table.
ICxt: is the xt of a 'callback' which initializes the columns of the table.
visiblerows: is the number of rows of the table visible on the screen.
numcols: is the number of columns in the table (I couldn't work out a
legitimate (using a systrap) way of retrieving this from the table structure,
even though it is held in them)
tblctrl: is the resource ID of the table
***
LoadTable (--)
***
DrawTable (--)
***
InitTableScrollbar (sbctrl --)
sbcrtl: is the resource ID of the associated scroll bar.
***
ScrollTable (--)

* *
Caveats:
1) It doesn't use Quartus callback - just some supplied xt's to do some
table setup.
2) Table is display only (although you can use TblGetSelection, at the
tblSelectEvent, to detect which cell was selected).
3) Only styles 3 (labelTableItem) and 4 (nmericTableItem) are used. You
could probably use 0 (checkboxTableItem) and 2 (dateTableItem) but I
haven't tried. Others would need proper callback processing.
4) Because of the way I hold table and scrollbar pointers, only one table per
form can be used.
5) Other I have forgotten.

It works for me. Good luck

John

Thanks John!
I think your code is excatly what I need.
I will give it a try.

John,

I am planning to use your code to browse
simple database. I could not keep it in the
memory, because of size (it could be up to 500 records), so I will have
to fetch data directly from DB.

Your code ask data cell by cell, while
you usually read database by record.

I can probably implement some caching of
last read record. But it might be good
idea to be able to supply information
by row, not by cell.

Or, maybe, my approach of reading it
from DB on request is not good.

I have not decided yet how I will deal with
categories. I will keep in DB records
with different categories, so when
displaying, I need to skip
ones in wrong category, which will break
absolute records indexing.

I feel that this is pretty common type of Palm
code and there is well established way showing
database with categories in table. I want to code
something similar to build-in address book
application.

Couple of things.

Credits: I forgot to say that the code is heavily based on Steve Bohrer's

excellent table implementation.
http://quartus.net/files/PalmOS/Forth/Contrib/

This works well but I noticed that it didn't really use table functions - for example it used (indirectly) WinEraseRectangle to clear the table area from the screen. What I did, partly as an exercise, was to modify Steve's files and implement tables using the Tbl… functions. In doing so I find that there are limitations to tables and it is difficult to format one usefully without using callbacks. For instance, style labelTableItem is always in the system font, right justified, with a colon on the end (WHY?). For instance, style nmericTableItem is alway in bold font.

Secondly, the OS Companion says:
Quote:
Palm OS Resource Selection: List or Table?
Many developers find it difficult to decide whether to choose a list
or a table for certain components of their application.
Use tables when you need quality text handling (including editing
in place). Be careful if you work with non-text items in some of the
columns, the selection region may be smaller than you need.
Use lists when users select from a predefined list (e.g. categories) or
if the application determines the information to be displayed on the
fly (based on previous user selections). Remember that you are
responsible for scroll button handling and that editing can be
non-trivial.
Unquote:

Perhaps a table is not what you want for your application?

John

By **Steve Bohrer (Skb)** on Friday, March 16, 2001 - 08:11 am: Edit

Credit where due: Trevor Steele wrote the excellent table code and explaination in the contrib library.

By **John Newell** on Friday, March 16, 2001 - 12:08 pm: Edit

You are absolutely correct. Apologies all round.

John

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Newbie needs advice

By **Molly Stone** on Tuesday, March 13, 2001 - 01:13 pm: Edit

I have a project to write our application for the Palm into the Palm's flash memory. I'd rather not use FlashPro for this; I'd rather just write the code to do it. I just found out about Quartus yesterday. I would like to know [exactly how to do it!] if Quartus would be a good choice for this, and if anyone has any other thoughts on how to get an application into flash. I've read arguments against writing into flash but this is the task I have been assigned. Thanks for any ideas.

Molly Stone
molly@pointsix.com

By **Neal Bridges (Nbridges)** on Tuesday, March 13, 2001 - 05:38 pm: Edit

Molly, that's a tricky bit of work. If I were tackling it, I'd use FlashPro -- they've taken care of all the hard parts.

If for some reason I had to re-invent the wheel, I'd expect to completely ruin several Palms during the learning process. Also, if I recall correctly, different Palms have different flash chips, and require different techniques.

Neal

By **Molly Stone** on Wednesday, March 14, 2001 - 09:49 am: Edit

FlashPro--that's what I ended up using. Worked like a charm in 30 seconds or less. I was distracting myself with Quartus Forth because it looked so cool. I appreciate your advice, Neal (Himself!) and good luck to you and everyone.
--Molly

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Trivial question

By **Joe Sypniewski** on Tuesday, March 13, 2001 - 11:57 am: Edit

Dear Expert,
Recently I've acquired my Palm computer and I'm trying Quartus software. Before I'll move a full steam into this program, I have a couple of questions:

- I think it is a neat idea to maintain whole development on Palm, but I cannot give up my 19' 1.6kX1k monitor. Can I develop my Quartus software on a PC platform (as well), emulate or simulate it and than compile it on Palm?

- I'm new to Palm OS, what is the best reference (book) on Palm's API functions. Should I print 1.2k page manual from www.palm.com?

I would appreciate your help.

Joe

By **Tammy Cravit (Tammycravit)** on Tuesday, March 13, 2001 - 02:11 pm: Edit

Joe,

As for your first question, I do some development on my PC, and some on my PalmPilot. The PalmOS Emulator, available from Palm, enables you to run Quartus on your PC in emulation. I know this has been discussed in more detail on the forum, so you might try searching the archives.

The best reference book I've found is "Palm Programming: The Developers Guide" (or something like that), published by O'Reilly (www.ora.com). It's a good tutorial, and I supplement it with the PalmOS docs in PDF format and the Quartus documentation.

I also have my POSE session set to use the same HotSync name as my PalmPilot, so I can test compiles on my PC before compiling on my Palm. (Neal, is this okay, or am I violating Quartus's license agreement this way?)

Quartus is a great tool -- my DieRoller app (http://sourceforge.net/projects/palmdieroller) was written in Quartus, and is released with full source code, which might be helpful to learning how a

Quartus app is structured. I'm also now rewriting my BatteryInfo application (which was originally about 800 lines of C) in Quartus, and adding a bunch of features along the way.

Tammy
Tammy

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Can Forth and PeditPro coexist....

By **Porter235** on Tuesday, March 13, 2001 - 02:21 am: Edit

Hi.. I am currently trying the eval of Quartus Forth... (haven't really started learning the lang yet 😵) but, it appears that PeditPro doesn't like it... I have done extensive testing.. (disabling all hacks) and if peditpro is installed quartus forth crashes while initializing the workspace.. with...

Fatal Error
MemoryMgrNew.c,
Line:4165, NULL handle

and then requires the old pin in the back of the machine to reset it. This concerns me a bit as i like peditpro. If this is unresolvable, what editor (other than the basic Memo Pad) do people find usefull?

By **Vadim Zaliva (Krokodil)** on Tuesday, March 13, 2001 - 03:45 am: Edit

Works fine for me...

By **Jim Purdy** on Tuesday, March 13, 2001 - 04:41 am: Edit

I have been using this configuration "forever",
and it works great.

Does this happen when you open a memo or load QF?

By **Kris Johnson (Kdj)** on Tuesday, March 13, 2001 - 06:14 am: Edit

PEditPro and Quartus work fine for me, and I know lots of people are using both.

Do you have a memo called "\ startup.quartus"? If so, what does it contain?

Also, weird question, but have you deleted the Memo Pad application? Maybe Quartus dies if that's gone.

-- Kris

By **porter235** on Tuesday, March 13, 2001 - 12:51 pm: Edit

i don't have a "\ startup.quartus" file...

do i need one? if so, what does it need to contain..

as for when it crashes...
if i have peditpro loaded on the palm
and then try and start QF.. crash!

i delete peditpro and start QF... everything is fine..

also.. it will crash with evedit's undo feature active..(i don't mind disabling this)

By **Dave Ruske** on Tuesday, March 13, 2001 - 01:54 pm: Edit

The startup.quartus memo is automatically loaded and interpreted when QF starts... but if it isn't there, QF doesn't seem to mind (just tried renaming it). For the registered version, the serial number from this file enables the ability to create standalone apps. If something was wonky in startup.quartus, I could see how this could keep QF from coming up... though I don't see how that would relate to the presence or absence of PEditPro.

Is it possible that your Palm is short on memory, and that loading PEditPro pushes it close to the edge?

>>>If this is unresolvable, what editor (other than the basic Memo Pad) do people find usefull?<<<

I've been using WordSmith to edit source memos. Seems to work pretty well most of the time, though once or twice it has crashed during a Paste operation. Truthfully it doesn't do much more for me than memopad as a source editor, but it's a great little word processor that I have mapped to the memo button...

By **porter235** on Tuesday, March 13, 2001 - 11:40 pm: Edit

>>>Is it possible that your Palm is short on memory, and that loading PEditPro pushes it close to the edge?<<<

BINGO! Thanks for your lateral thinking...
Got it up and running...

Tutorials under way!

1 2 3 .s swap rot .s

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Pop-up keyboard handling?

By **E.** on Monday, March 12, 2001 - 02:04 pm: Edit

I'm either blind or an idiot. Perhaps both. I cannot figure out how to make it so that my program won't crash when someone hits the abc/123 buttons.

I've done it in 2 previous apps, but it was sheerly accidental.

I've read the library files, the contributed files and the snippets, and I can't find anything useful.

I would check the archived discussions, but that's not possible given my computing environment right now.

Even a pointer to a useful snippet of code would be appreciated. Many thanks.

By **Neal Bridges (Nbridges)** on Monday, March 12, 2001 - 02:09 pm: Edit

There's nothing special required -- no code. Any field will automatically allow the keyboard to pop up.

One thought -- does your app even have its own form? If you had an app that never brought up any form (or even MainForm), it might crash when you tried to pop up the keyboard. But then, with no form you'd have no field, and the popup keyboard would never activate.

Neal

By **E.** on Monday, March 12, 2001 - 04:12 pm: Edit

So that's one vote for "an idiot".

1001 showform

Problem solved. Thanks, Neal. Now if I can just chase down the sporadic edit menu bug... 🙂

By **Neal Bridges (Nbridges)** on Monday, March 12, 2001 - 06:53 pm: Edit

Glad it's working. Let me know if I can help with your edit problem!

Neal

By **E.** on Tuesday, March 13, 2001 - 03:04 pm: Edit

Actually, the edit problem fixed itself when I changed forms. It was sporadic, but since it hasn't shown up in N test runs, I'm sure it's gone.

Although now that I think about it... How do I get the popup keyboards to actually show up? I will most likely need that.

By **Neal Bridges (Nbridges)** on Tuesday, March 13, 2001 - 05:35 pm: Edit

Popup keyboards are automatically available whenever there is an active field on your form. There's a way to completely disable them, if you choose, but there's nothing you need to do to make them available.

Neal

By **E.** on Wednesday, March 14, 2001 - 08:56 pm: Edit

So if I'm trying to get keyboard input without echoing to the screen, I need to have... what? An active but unusable field?

By **Neal Bridges (Nbridges)** on Wednesday, March 14, 2001 - 10:39 pm: Edit

The keyboard only pops up for active fields, E -- never tried to scare it up any other way. What you suggest might work; it sounds like it's worth an experiment or two.

Neal

By **E.** on Wednesday, March 14, 2001 - 11:23 pm: Edit

Okay. See my other post about lack of ability to experiment. Will try later. Thanks.

By **Neal Bridges (Nbridges)** on Wednesday, March 14, 2001 - 11:26 pm: Edit

Sorry E. -- I've never tried to get the popup-keyboard to be useful in a non-field context. Maybe somebody else will chime in.

Neal

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Records and memory handles

By **Vadim Zaliva (Krokodil)** on Monday, March 12, 2001 - 12:55 am:
Edit

I've seen in quartus library files
and in this forum code similar to this:

: new-record
(len. index-a-addr. dbref. -- recptr.)
DmNewRecord MemHandleLock ;

It returns pointer to locked memory chunk
allocated for new database record.

Isn't that chunk have to be unlocked
or RmReleaseRecord does that for me?
Of course, handle could be recovered back
from pointer to do unlocking.

What is correct sequence:

1. DmNewRecord MemHandleLock … DmReleaseRecord
2. DmNewRecord MemHandleLock … MemHandleUnlock DmRelease record
3. DmNewRecord MemHandleLock … DmReleaseRecord MemHandleUnlock

Thanks!

By **Wade Carlson** on Monday, March 12, 2001 - 07:04 am: Edit

Here is a good example for you (seems to work well for me):


```
variable index
2variable dbr

: Write New ( z-addr u -- )
0 index ! s>d 2dup index >abs
dbr 2@ DmNewRecord
MemHandleLock 2>r
rot >abs 0. 2r@
DmWrite throw
2r> MemPtrUnlock throw
true index @ dbr 2@
DmReleaseRecord throw ;
```

It requires an open database assigned to dbr.

By **Wade Carlson** on Monday, March 12, 2001 - 07:05 am:

Sorry, there should be no space between the initial WriteNew.

By **Dave Ruske** on Monday, March 12, 2001 - 03:54 pm:

Wade, might there may be a problem in that WriteNew definition with very large records (>32K)? s>d is going to do a sign extension of the record size, but needs to be an unsigned 32 bit value. Replacing s>d with u>ud would take care of that, where u>ud is defined as:

```
: u>ud  ( u -- ud )   0 ;  inline
```

Also, might you want to check for a 0 returned from DmNewRecord before going ahead with MemHandleLock?

Sorry if these are naive questions, but I'm still earning my bruises learning the Palm OS.

By **Wade Carlson** on Monday, March 12, 2001 - 07:35 pm:

Yes, I believe you are right on both accounts. I had never been writing a segment that big that I needed to worry about it, so you method should work. And yes, you should probably check for a zero from DmNewRecord as well (although I'm not sure why you would get a zero unless your palm ran out of memory).

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Password:

E-mail:

address is optional.

Anothe Quartus Forth App!

By **Jim Purdy** on Sunday, March 11, 2001 - 12:35 pm: Edit

ProStats (formerly PalmStats) hase been released
may be seen at PalmGear.com or the following link:

http://members.home.net/seisupport/index.html

Quartus Forth is mentioned in the Documentation
linked from the address below
http://members.home.net/seisupport/BetaRelease.html

Again, many thanks to all here

Jim

By **Steve Graham (Steve)** on Sunday, March 11, 2001 - 01:27 pm: Edit

Neal,

So, he used QF to develop his apps, right?

Regardless, that is quite a recommendation.

Steve

By **Neal Bridges (Nbridges)** on Sunday, March 11, 2001 - 03:53 pm: Edit

ProStats is indeed written using Quartus Forth, and is a first-rate piece of work. If you haven't had a look at Jim's app, do so!

Neal

By **Dave Bennett (Dbennett)** on Monday, March 12, 2001 - 06:04 pm: Edit

I tried to get to the app the first time it was posted, but the website never responds to the network I'm on. It just endlessly spins on "contacting members.home.net".

By **Neal Bridges (Nbridges)** on Monday, March 12, 2001 - 06:51 pm:
Edit

Just tried the first link -- http://members.home.net/seisupport/index.html -- works fine from here.

Neal

By **Kris Johnson (Kdj)** on Tuesday, March 13, 2001 - 09:54 am: Edit

The page takes a while to load for me. It's all big images. But it does eventually load.

-- Kris

By **Dave Bennett (Dbennett)** on Tuesday, March 13, 2001 - 06:28 pm:
Edit

That's probably my problem. I usually give a page 10 seconds, maybe 30 seconds to load and then I'm out of there. ;)

By **Kris Johnson (Kdj)** on Tuesday, March 13, 2001 - 10:29 pm: Edit

Yeah, I think it took more than 30 seconds the first time I went there. After the first time, it's much faster when everything's cached.

And BTW, don't even think about going to the Screenshots page unless you have high bandwidth.

I'd suggest to Jim that he make the home page a little less image-intensive. I'm sure Dave's not the only one who gives up after ten seconds.

-- Kris

By **Jim Purdy** on Wednesday, March 14, 2001 - 08:36 am: Edit

Sorry about the bandwidth. I must have got a
little carried away with the "photoshop".

Anyway, here is a download link

http://members.home.net/seisupport/ProStats.zip

Best to all

Jim

By **Dave Ruske** on Wednesday, March 14, 2001 - 10:37 am: Edit

Jim, just curious… has Palm compelled you to change your app name in some way? Looking at the news items on PalmGear.com this morning, I couldn't help noticing that there's a lot of name changing going on.

By **Andrew Kearns** on Wednesday, March 14, 2001 - 09:34 pm: Edit

You guessed it. PalmGear is getting their library put directly on the Palm website. So now all program and company names cannot have Palm in them. Well they can, but you then don't get put on the Palm website.

Andrew

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Using Forth and C code in the same project?

By **Vadim Zaliva (Krokodil)** on Sunday, March 11, 2001 - 06:15 am:
Edit

Hi!

Is it easy to use C code (libraries) in
Quartus Forth project. For example,
is it feaseable to use this library:

http://palmzlib.sourceforge.net/

Vadim

By **Neal Bridges (Nbridges)** on Sunday, March 11, 2001 - 10:07 am:
Edit

That appears to be a shared system library, so yes. You can interface to it as you can to any shared library, such as the Serial lib, or MathLib.

Neal

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This is a public posting area. If you do not have an account, enter your full name into the "Username" box and leave the "Password" box empty. Your e-mail address is optional.

Agenda Status?

By **Steve Graham (Steve)** on Saturday, March 10, 2001 - 11:04 pm: Edit

Kris,

How about a report on the Agenda? What are your impressions? Have you got Forth running on it? Have you talked Neal into porting QF? To what use are you going to put it?

Steve

By **Kris Johnson (Kdj)** on Sunday, March 11, 2001 - 01:21 am: Edit

There's a topic called "Agenda VR3 PDA" in the "Everything else!" area that covers this.

-- Kris

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Backhanded Compliment

By **Steve Graham (Steve)** on Saturday, March 10, 2001 - 10:59 pm: Edit

Neal,

Picked up a copy of the March Issue of Pen Computing today. On page 55 appeared an ad for AppForge in which was pictured a Palm Vx with the following on the screen:

PALM APPS
PROGRAMMER.
must know Forth,
C, C++, JAVA,
Visual Basic.

Neal -- You got first place!!!

Steve

By **Neal Bridges (Nbridges)** on Saturday, March 10, 2001 - 11:19 pm: Edit

An honoured spot. They'll even accept Quartus Forth as a 'trade-in' -- generous folks!

Not only that, they gave me a t-shirt:

http://www.quartus.net/discus/messages/29/857.html?#POST5456?

Neal

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This is a public posting area. If you do not have an account, enter your full name into the "Username" box and leave the "Password" box empty. Your e-mail address is optional.

Systrap documentation

By **Simon Langley** on Saturday, March 10, 2001 - 01:24 pm: Edit

I am relatively new to Forth and Palm OS and I am finding that the various aspects of Palm systraps
are mystifying me.

I know how to call systraps and have done so successfully for simple ones such as HwrBacklight where documentation isn't really necessary.

However, I am having a lot of trouble tracking down any documentation. Many systraps listed in at URL
http://www.quartus.net/products/forth/manual/specific.htm are not listed in the palm SDK documentation (eg HwrCursor). I know that some systraps are deliberately not documented, but the SDK documentation doesn't refer at all to some systraps that are in the Quartus forth list and vice versa.

Can someone please explain the relationship between the routines listed in the SDK docs and the abovementioned list of systraps (which corresponds perfectly to the sytraps.h file include in prc-tools)?

TIA

By **Neal Bridges (Nbridges)** on Sunday, March 11, 2001 - 10:09 am: Edit

There are a few new systraps in OS 3.5 that aren't part of Quartus Forth yet, and a few systraps in Quartus Forth that are officially undocumented. I'm updating Quartus Forth with the 3.5 list.

Is there a specific new OS call you're looking for that isn't there? I can provide you an implementation immediately.

Neal

By **Simon Langley** on Sunday, March 11, 2001 - 12:47 pm: Edit

How's that for customer service…

Perhaps I should have gone into slightly more detail, my problem is more to do with the lack of documentation for Palm systraps (not your fault I know).

I am actually programming on a Visor, which uses Palm OS 3.1 (as you

obviously know) so the issue is not really availability of particular systraps. My current specific problem is finding documentation for HwrCursor.

However, I don't know if that is even the systrap I want. What I am trying to do is to display a cursor while my program is waiting for a character to be entered at the keyboard (I am using the "key" word to do this), and HwrCursor seemed the most likely when the only documentation I had that appeared to relate to the systraps was your list of Quartus Forth supported systraps (which only lists the names and parameters).

By **Neal Bridges (Nbridges)** on Sunday, March 11, 2001 - 06:39 pm:
Edit

HwrCursor is in fact undocumented. You might have better luck with some of these functions:

InsPtEnable
InsPtGetHeight
InsPtGetLocation
InsPtEnabled
InsPtSetHeight
InsPtSetLocation

Neal

By **Steve Bohrer (Skb)** on Monday, March 12, 2001 - 08:02 am: Edit

For fundemental info, visit http://www.palmos.com/dev/tech/docs/palmos/. The Palm OS SDK Companion gives an overview of how to use the OS. The Reference gives a call-by-call list of the details of each systrap.

(The fact that you have the headers makes it likely that you have the above already, but your questions suggest otherwise. Sorry if I am suggesting something too obvious.)

By **Simon Langley** on Monday, March 12, 2001 - 03:57 pm: Edit

Thank you both for your suggestions. I shall look up the InsPt functions at http://www.palmos.com/dev/tech/docs/palmos/.

BTW I am impressed at your responsiveness. I haven't registered yet (one of the main reasons being that I was concerned about being on my own if I hit problems using what is a relatively unusual language/platform combination) but you have convinced me.

By **Neal Bridges (Nbridges)** on Monday, March 12, 2001 - 04:21 pm:
Edit

Glad to hear it, Simon!

Neal

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Quartus Forth Reviewed

By **Neal Bridges (Nbridges)** on Friday, March 9, 2001 - 09:50 pm: Edit

Dave Ruske has written a review of Quartus Forth at this link:
http://www.palmguru.com/pageView.php?tmp=1&id=86

Neal

By **Steve Graham (Steve)** on Friday, March 9, 2001 - 10:57 pm: Edit

Neal,

I think that was a fair, balanced review. On the things that you can control, it was quite positive.

Steve

By **Neal Bridges (Nbridges)** on Friday, March 9, 2001 - 11:45 pm: Edit

Indeed -- a nice review. Thanks, Dave!

Neal

By **Vadim Zaliva (Krokodil)** on Sunday, March 11, 2001 - 07:38 pm:
Edit

I was to Frys Electroincs to-day, big
computer store here in San Francisco Bay Area.
I was playing with Sony Clie on the display
and it had Neals Benchmark application installed on it.

By **Dave Ruske** on Monday, March 12, 2001 - 12:11 am: Edit

You're quite welcome, Neal. I believe the product earned it fairly.

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Checking when it's ok to write to the screen

By **Ronny Svensson** on Thursday, March 8, 2001 - 01:07 pm: Edit

I have a vague recollection about some word that checked if it's ok to write to the screen. But I can't remember in what thread I saw it. I need to check so that I don't write to the screen when the menu or some other window is on top of my active form.

Ronny

By **Neal Bridges (Nbridges)** on Thursday, March 8, 2001 - 01:53 pm: Edit

EMIT? is the function you want.

Neal

By **Ronny Svensson** on Monday, March 12, 2001 - 05:21 am: Edit

What does it do and where is it documented?

Ronny

By **Neal Bridges (Nbridges)** on Monday, March 12, 2001 - 09:19 am: Edit

It's a Standard function, so it's documented in the ANSI/ISO Forth Standard document that ships with Quartus Forth. For an online version, consule the "Online Resources" section of the manual.

EMIT? returns a flag that lets you know if writing to the screen will be successful.

Neal

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Retrieval of value & newValue of sclExitEvent

By **Shawn Garbett** on Thursday, March 8, 2001 - 12:39 pm: Edit

I've captured a sclExitEvent in the main Loop. I wish to compute the amount of scroll desired.

If I execute 'event >abs itemid' it gives me the correct itemid.

Since itemid is ': itemid 8 M+ @a ;', I figured that the computing the equivalent offsets into the event structure would yield the value and newValue.

Here's the C struct of sclExit Event:

```
struct sclExit {
UInt16 scrollBarID;
struct ScrollBarType *pScrollBar;
Int16 value;
Int16 newValue;
} sclExit;
```

I figure a pointer is a 32-bit value. So I use

```
: computeLines
event >abs 16 m+ @a
event >abs 14 m+ @a - ;
```

to compute newValue-value for this event. Problem is the result is always zero. If I move the offsets back or forward by 2, then the result is huge and constant. The values retrieved by each of these are reasonable, but always equal.

Does sclExitEvent just return the current value in both value and newValue, Never updating to reflect the original value?

By **Steve Bohrer (Skb)** on Friday, March 9, 2001 - 12:01 pm: Edit

Event is a local Quartus variable. >abs was needed for the old form of Neal's event handling. Otherwise, just deal with everything as a single rather than a double.

Here are some short words I use for getting stuff from events. They only cover the cases I have used, and there is some key event stuff that may not be generally useful, but the idea is trivial to extend.

```
\ moreEvents  4.24.00 skb
\ post events, get event data
\ w/o >abs

needs events

24 constant SizeofEvent

\ Event struct has a union 8 bytes
\ into event record. This field is the
\ "item id" for many types of events

event 8 + constant EventDataOffset

: id@ ( -- id )
   EventDataOffset @ ; inline

: (eventOffset)  ( n -- eventData )
\ return the word n bytes into
\ event data union
   EventDataOffset + @ ; inline

: lstSel@ 6 (eventOffset) ;

: setEventType ( eventType -- )
\ clear event record, set type
   event SizeofEvent 0 fill
   event ! ;

: postEvent ( -- )
   event >abs EvtAddEventToQueue ;

: postKeyEvent ( charVal -- )
   keyDownEvent setEventType
   EventDataOffset !
   postEvent ;

: postStopEvent ( -- )
   appStopEvent setEventType
   postEvent ;

\ Key event stuff
```

```
: keyCode@ 2 (eventOffset) ;

: keyMods@ 4 (eventOffset) ;

8 constant cmdKeyMask
(hex) 0100 constant powerOnMask

(hex) 0b constant upBtnKey
(hex) 0c constant dnBtnKey

: (hwBtn?)  ( key -- flag )
  keyMods@ cmdKeyMask and
  if id@ =
  else drop false
  then ;

: upBtn? ( -- flag )
\ true if key event is hw up button
  upBtnKey (hwBtn?) ;

: downBtn? ( -- flag )
\ true if key event is hw down btn
  dnBtnKey (hwBtn?) ;

: poweredOn? ( -- flag )
  keyMods@ powerOnMask and ;
```

By **John Newell** on Friday, March 9, 2001 - 12:15 pm: Edit

Shawn,
I get the same result as you do. I think you will have to remember the
previous value and use:
event >abs 16 m+ @a
(or SclGetScrollBar) to get the NewValue.

Quartus doesn't return sclRepeatEvents nor sclEnterEvents. I only ever get
sclExitEvents.

I am guessing that sclRepeatEvents would probably give Value and
NewValue correctly. Presumably the OS is updating Value and NewValue as
you move the scroll bar and because we can only trap sclExitEvent, then
Value and NewValue are the same when you lift the pen.

John

By **Neal Bridges (Nbridges)** on Friday, March 9, 2001 - 12:20 pm: Edit

That phrase can be shortened, John:

event 16 + @

Neal

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Exceptions

By **krokodil** on Tuesday, March 6, 2001 - 10:22 pm: Edit

Hi!

```
s" EXCEPTION" ENVIRONMENT?
```

returns 0. Is this correct?

By **Neal Bridges (Nbridges)** on Tuesday, March 6, 2001 - 10:29 pm: Edit

Yes, it's correct. From the Standard:

"If the system treats the attribute as unknown, the returned flag is false."

The environment library module is there only to satisfy basic Standard requirements -- it has little practical value. You can certainly add all of the different flags yourself, if you choose; the mechanism for doing so is available in the environment library module.

Neal

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Password:

the "Password" box empty. Your e-mail
address is optional.

E-mail:

TSTR? undefined word

By **Shawn Garbett** on Tuesday, March 6, 2001 - 12:18 pm: Edit

I'm trying to compile an app and I get the following error:

Exceptino in file: make-jargon
tSTR? undefined word

The code's only reference in this file to tSTR is the following:

```
: copy-strings ( u u -- )
0 do dup i + (ID) tSTR CopyRsrc
loop drop ;

1000 16 copy-strings
2000 16 copy-strings
3000 16 copy-strings
```

Is this an xt issue?
What am I doing wrong?

By **Neal Bridges (Nbridges)** on Tuesday, March 6, 2001 - 12:38 pm: Edit

Hi, Shawn. Use **[ID]** inside a definition, instead of **(ID)**. That'll fix it.

Neal

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This is a public posting area. If you do not have an account, enter your full name into the "Username" box and leave the "Password" box empty. Your e-mail address is optional.

Loading individual resources from a Resource databases

By **John Newell** on Tuesday, March 6, 2001 - 07:10 am: Edit

Can someone help with this problem?

I have a main resource database which I load using :

```
creator Type use-resorces
```

I now wish to (re-)use a resource from a second resource database, some of whos resources have the same resource ID as in the main resource database. I (presumably) can't use use-resources because I would end up with different resource with the same ID.

So, if I want to load an individual resource from a resource database how would I go about it?

John

By **Neal Bridges (Nbridges)** on Tuesday, March 6, 2001 - 12:43 pm: Edit

Not sure I understand, John. For the resources to be of use in your final application, they will have to have different ID numbers.

However, you can have multiple instances of **use-resources** in the same app; the resource databases will be searched backward from the most-recently opened to the earliest.

Neal

By **John Newell** on Tuesday, March 6, 2001 - 01:41 pm: Edit

Thank for that Neal.

To explain, I have a application consisting of a suite of programs including FredA and JimB.

I have a resource database which goes with program FredA and contains e.g. tAIB 1000, tAIB 1001, tFRM 3000, tFRM 4000, tFRM 5000 etc.

I am creating a new program JimB that contains it's own tAIB 1000, tAIB 1001, tFRM 2000 etc. (but no tFRM 5000). Now, I want JimB to include tFRM 5000 from FredA's resource database so that if it changes I don't have to make the change in two places. Thus I wanted a way to just load FredA tFRM 5000 from FredA's resource database.

From what you say though, if JimB does use-resources for FredA's resource database followed by use-resources for JimB's resource database the the duplicate ID's in JimB will override those from FredA but allow me to access the resources of FredA whose ID's are not duplicates. Is that about right?

Are there any other overheads in all of this?

John

By **Neal Bridges (Nbridges)** on Tuesday, March 6, 2001 - 03:46 pm:
Edit

You have it right. Should work fine with no additional overheads. I do something similar in one of my apps, where the registered and evaluation versions have different resources but also share a common set of unchanging resources.

Neal

By **John Newell** on Wednesday, March 7, 2001 - 04:28 am: Edit

Makes sense. Do you think you can explain a bit more about how resources are loaded. All the the use-resources word seems to do is open a resource database. How does the Palm OS (Quartus?) find a control by resource ID? Does the Palm OS look for open resource databases? What does the OS do with dynamically created resources? Can you load a single resource from a resource database?

John

By **Neal Bridges (Nbridges)** on Wednesday, March 7, 2001 - 11:59 am:
Edit

The Palm OS searches open resource databases from the most-recently opened backward. I'm not sure where dynamic resources fall; my guess is that in case of conflict, they're found first.

You can certainly use CopyRsrc to copy only one selected resource from a resource database -- is that what you're asking?

Neal

Thanks Neal. That clears up a few things. I understand that CopyRsrc is used to copy individual resources from the resource database into the PRC.

What I was thinking was, rather than having an open resource database from which only one or two resources are required, to open the database, load the required resources as if they were dynamic ones, and then closing the resource database. Perhaps it's not worth the effort though.

John

That's not possible, but even if it were, how would that advantage you when writing apps?

Neal

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Output redirection to memopad

By **Wolfgang Allinger** on Tuesday, March 6, 2001 - 06:44 am: Edit

I'm looking for output redirection. I would like to have words like:
>console all output goes to display
>file all output goes to memo
>both all output goes to memo and display

However I would need also some functions like
openMemo (c-addr u -- ?) opening a memo
closeMemo (c-addr u -- ?) closing it
…

bye from germany
Wolfgang

By **Neal Bridges (Nbridges)** on Tuesday, March 6, 2001 - 03:53 pm: Edit

Hi, Wolfgang. There's no way at present to redirect all output. You can certainly redefine EMIT, TYPE, and so forth, but those will affect only your application, and not system output; however, that may be sufficient for your purposes.

There is code in the File Area for writing to memos.

Neal

By **Wolfgang Allinger** on Tuesday, March 6, 2001 - 07:05 pm: Edit

What a pitty, but I had a problem last night, that I couldn't find for some hours while making a PRC. I put in redefine.txt modified needs and include to show, what's going on, but there were so many messages on this small display, that I got lost. By redirecting also all system messages to a 'log' file, it would help me a lot.

I found out, that I had a doubled 0prelude memo.
0prelude memo is the 1st and only file, which is included from startup.quartus
0prelude handles patches e.g. the
: word dup skip word ; patch and then gave control to my other (project) utilities.

So it would be very helpful in future releases having some redirection words.

bye from germany, Wolfgang

I recommend using needs wherever you're presently using include -- this ensures that your files will only be included once.

Neal

Add a Message

Username:

Password:

E-mail:

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App creation date

By **John Newell** on Monday, March 5, 2001 - 04:30 am: Edit

Is there any way of setting the creation date of the PRC created using Quartus? I get 16-5-96.

John

By **Wade Carlson** on Wednesday, March 7, 2001 - 07:04 am: Edit

I'll chime in here since nobody else has yet. I have noticed the same thing - the application creation date is set to March 16, 1996. Does this affect anything?

By **John Newell** on Wednesday, March 7, 2001 - 08:55 am: Edit

I don't suppose it does. However, products like SoftTrack! and DB Explorer display it. Also, other resource and non-resource databases get it right when they are created. I just thought it might be worth getting right for the application program.

John

By **Neal Bridges (Nbridges)** on Wednesday, March 7, 2001 - 12:32 pm: Edit

That date has no effect on the operation of the device or your apps. It is, however, a noteworthy date -- it's the date of the final production build of the original Pilot OS, version 1.0.

Neal

By **John Newell** on Thursday, March 8, 2001 - 12:32 pm: Edit

Neal,
Since you don't answer my original question I assume that the answer is no (not from within Quartus anyway).

John

By **Neal Bridges (Nbridges)** on Thursday, March 8, 2001 - 01:52 pm: Edit

I believe the date can be modified, John, using a correctly structured

DmSetDatabaseInfo call.

Better would be a general-purpose utility for setting that date, though it would have little practical use.

Neal

By **Mike Will** on Thursday, March 8, 2001 - 06:02 pm: Edit

Some programmers seem to use that date as a tamper-detector since it only shows up in places like DB Explorer as John mentioned. For example, one of my favourite utilities is _OFF!.PRC, which has a creation date of 13 April, 1934. I believe it was developed on the original vacuum-tube version of the Palm (PALMIAC ☺)

Mike

By **Hans Nordstrom** on Tuesday, March 27, 2001 - 04:56 pm: Edit

I´ve found a utility that might offer some help, if you need it.
At Palmgear HQ there is an application called Filez. It´s a successor to Z´Catalog.
With this application you´re able to modify the creation date, and more.
Filez utility at PGHQ
Btw it´s w/o charge.

By **John Newell** on Wednesday, March 28, 2001 - 11:46 am: Edit

That works pretty well Hans. Thanks for bringing it to my attention.

John

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8 bit vs 16 bit

By **Dmitry Yakimov** on Saturday, March 3, 2001 - 07:16 pm: Edit

While I preparing parameters for palmAPIs:

for example number 3:

long 0x00000003
word 0x0003
byte 0x0300 ???

Is there word like?:

: >8 DUP 8 RSHIFT SWAP 8 LSHIFT OR ;

eh, motorola... 🙂

By **Neal Bridges (Nbridges)** on Saturday, March 3, 2001 - 07:21 pm: Edit

Your definition seems to be swapping the low and high 8-bit parts of a 16-bit cell. No Palm API requires that, as far as I know.

Neal

By **Kris Johnson (Kdj)** on Sunday, March 4, 2001 - 12:06 am: Edit

If you do need to rotate bits (to swap low and high bytes, for example), look at the "M68K-specific Words" topic in this forum.

-- Kris

By **Dmitry Yakimov** on Sunday, March 4, 2001 - 07:22 am: Edit

No swap, but shift:
: >byte 8 LSHIFT ;
: byte> 8 RSHIFT ;

to Neal:
If I write in pila:
systrap XXXXXX(#3.b)

Pila put 3 into stack (a7), then call function XXXXXXX. And when I see at

the stack content, I see 0x0300.
When I use #3.w, I see 0x0003.

The following functions require 8 bit params:

BitmapType* BmpCreate (Coord width , Coord height , UInt8 depth ,
ColorTableType* colortableP , UInt16* error) 0xA3DD

UInt16 DateTemplateToAscii (Char* templateP , UInt8 months , UInt8 days
, UInt16 years , Char* stringP , Int16 stringLen) 0xA3CD
---
void DateToAscii (UInt8 months , UInt8 days , UInt16 years ,
DateFormatType dateFormat , Char* pString) 0xA266

Err DmSet (void* recordP , UInt32 offset , UInt32 bytes , UInt8 value)
0xA047

Could you say what's wrong?

By **Neal Bridges (Nbridges)** on Sunday, March 4, 2001 - 11:24 am: Edit

Nothing is wrong. Quartus Forth provides **>byte** for massaging 8-bit
parameters for the API functions that require it. This is all documented in
the Quartus Forth manual.

Neal

By **Dmitry Yakimov** on Sunday, March 4, 2001 - 01:25 pm: Edit

Thanks

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Invalid registration code

By **E.** on Saturday, March 3, 2001 - 03:15 pm: Edit

Okay, I've already been over this with Neal, and neither he nor I can find anything wrong. I'm throwing this out to the forum in hopes that somebody will come up with a suggestion.

I had a 3x. I registered Quartus Forth, and things worked just fine. I compiled several things. Later, I got a 3c, and moved everything over. Suddenly, I get an invalid registration code error every time I try to compile (or use any of the other reg-only words). We've double-checked the HotSync name and the registration code, and they match.

I've deleted and recreated my startup.quartus memo. I've deleted the Workspace. I've deleted Quartus Forth and installed it from the original (1.2.1R) zipfile. I've done a soft reset. I've HotSynched on both Windows and Unix. Many times, for all of the above.

The only thing I haven't done is a hard reset, and to be honest, I'd rather not, but I don't see anything else left to try.

Anyone have any insane ideas that I could give a shot?

By **E.** on Saturday, March 3, 2001 - 03:36 pm: Edit

Okay, I got impatient, and decided to do a hard reset. I went through the Welcome crap, set my HotSync name, installed Quartus, created a startup.quartus memo, and then did the following:

' page 0. 0. makeprc dammit

Invalid registration code error again.

Okay, I have officially given up. Anyone?

By **Neal Bridges (Nbridges)** on Saturday, March 3, 2001 - 03:38 pm: Edit

Hi, E. I'm still wondering what could cause such a problem.

I'll send you the latest build to install and try.

Neal

By **E.** on Saturday, March 3, 2001 - 04:16 pm: Edit

Indeed, that worked. Well, except for the fact that makeprc crashed my Palm. I'm guessing that that's because I wasn't compiling a real program. Thanks, Neal. I wish I understood why this happened.

By **Neal Bridges (Nbridges)** on Saturday, March 3, 2001 - 04:18 pm: Edit

Me too! As far as I know, nobody has ever run into it before. Glad it's resolved.

Let me know if you have any other trouble!

Neal

By **Erwin Schomburg (Esc)** on Sunday, March 4, 2001 - 12:01 pm: Edit

A similar situation once turned out to be damn duplicate startup.quartus memos, one of them with no reg in it....

/Erwin

By **E.** on Monday, March 5, 2001 - 09:55 am: Edit

Since I still have everything backed up, I can confirm that this is not the case.

I'm going with a fresh install and the beta+regcode that Neal was good enough to send me.

This is one problem I'm much happier to work around than to solve.

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name into the "Username" box and leave
the "Password" box empty. Your e-mail
address is optional.

Compile-Time Init Revisited

By **Dave Ruske** on Friday, March 2, 2001 - 04:06 pm: Edit

I've thought about storing off execution tokens at compile time as discussed recently, i.e.:

```
: foo ;
variable bar
' foo bar !
: go  bar @ execute ;
```

It makes sense to me that it'd be a complex task to fix up **bar** to the correct address when a standalone app was compiled. With select/xt/end-select 90% of these needs are handled, and the remaining 10% aren't difficult to contend with.

I'm doing something now which involves a nested structure, and I'm wondering if I can get away with some compile-time initialization. To simplify, I'm wondering if the following practice will bite me:

```
variable foo
123 foo !
variable bar
foo bar !
: go  bar @ @ . ;
```

In other words, can building a standalone app cause dataspace to shift around? I've built a little "hello" standalone to test this and it seems to work, but I'm wondering if I may be setting myself up for some surprises in my larger app.

By **Neal Bridges (Nbridges)** on Friday, March 2, 2001 - 05:24 pm: Edit

No surprises -- the technique you describe is perfectly safe. Dataspace addresses remain the same in stand-alone apps.

Neal

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New Quartus App: WealthBuilder

By **Barry Ekstrand (Ekstrandbb)** on Friday, March 2, 2001 - 10:40 am:
Edit

Just a note to announce that I have released my latest app, WealthBuilder. It is an investment / savings / retirement calculator program, written entirely using DF variables. It takes into account the effect of commissions, management fees, and taxes on the overall return to the investor, and also looks at the effect of inflation to give a 'real value' in today's money of the calculated future net balance. It is online at PalmGear.

Barry

By **Neal Bridges (Nbridges)** on Friday, March 2, 2001 - 12:03 pm: Edit

Congratulations on your new product, Barry!

Neal

By **Vadim Zaliva (Krokodil)** on Friday, March 2, 2001 - 12:16 pm: Edit

Just and Idea: what about page somewhere
on Quartus site with links to all
apps written with it?

Add a Message

Username:

This is a public posting area. If you do not have an account, enter your full name into the "Username" box and leave the "Password" box empty. Your e-mail

Password:

E-mail:

address is optional.

Drawing in Color

By **Jim Hendricks (Jimh)** on Friday, March 2, 2001 - 08:01 am: Edit

Found an interesting one here:

I modified my clock code (old version posted in the files area) to attempt to add color. I added a color word which functions identical to the grayscale word except setting the bitdepth to 8. I then proceded to use the following lines:

55 >byte WinSetForeColor SysTrap
....
255 >byte WinSetForeColor SysTrap

where WinSetForeColor is a Constant of 41880 (obtained from the OS3.5 header files)

This properly set my color from the index into the System pallet, but it then causes certian parts of my display to draw in the wrong places, as well as to cause parts of my display to no longer update. I then changed the code to the following:

0 0 255 >rgb foreground
...
black foreground

It then works. When I examine the foreground word, I see that it uses the WinSetColors system call which I can't even find documentation in the 3.5 SDK.

So what's up here? I would rather use the indexed pallet rather than rgb since the rgb calls need to be translated to the nearest pallet color anyway.

Thanks, Jim

By **Neal Bridges (Nbridges)** on Friday, March 2, 2001 - 12:06 pm: Edit

Using WinSetForeColor shouldn't cause your display to go haywire, Jim. I'd like to test that here; can you post a snippet that reproduces the problem?

Neal

By [Neal Bridges (Nbridges)](#) on Friday, March 2, 2001 - 12:15 pm:

Jim, because you're calling the systrap yourself, there would be no automatic cleanup of the arguments. You'd need to do a DROP afterward. Could that be throwing things off in the rest of your app?

Neal

By [Jim Hendricks (Jimh)](#) on Friday, March 2, 2001 - 12:26 pm:

In the words of Homer Simpson:

Dooh!!!!

The Drop did it. Since My drawing is based on positions on the stack, the left over items on the stack was leading to stuff being placed at the wrong places. Surprised I didn't overflow the stack.

So, where is the docs for WinSetColors anyway?

Jim

Add a Message

Username:

Password:

E-mail:

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Find vs Find (sysTrapFind)

By **Dmitry Yakimov** on Thursday, March 1, 2001 - 03:52 pm: Edit

How can I use find and sysTrapFind without their coincidence? Is there a solution?

By **Neal Bridges (Nbridges)** on Thursday, March 1, 2001 - 04:03 pm: Edit

There is a name conflict there -- it's never come up as an issue before. I imagine that systrap is rarely used.

Here's a solution:

```
: systrapFind ( &gotoP. -- )
  (hex) 0A269 systrap 2drop ;
```

Neal

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Math

By **krokodil** on Thursday, March 1, 2001 - 02:26 pm: Edit

Hi!

I am writing some financial calculations in
forth. Currently I work with amounts in cents.
When I need to calculate percents, I represent
them in 1/1000 of percent (to get 3 digits after decimal point of precision).
All calculation is done in 2-cell int values.

Unfortunately, on some operations I am running
out of double integer range. I considering several solutions:

1. Switching to floats. - I am afraid that rounding errors will be visible to
user.

2. Switching to doubles. - I've looked at contrib
area and found several related modules:
floatlib, doubleasm,
Which one I should use: I need multiplication, division, addition, subtraction
and conversion to double cell int (with rounding or just truncating) and from
double cell int. I do not want to ask user to install MathLib.

3. Look for some arbitrary precision integer lib
in forth. I believe there is something in scientific lib on forth.org

4. Any other option I am missing?

And by the way, if there is any way to test
if overflow occurred during double cell int operation? I believe there is
process flag
I should be able to check...

By **Neal Bridges (Nbridges)** on Thursday, March 1, 2001 - 02:31 pm:
Edit

I recommend the built-in floats. For the precision you want, you should
never see rounding errors.

Neal

By **Barry Ekstrand (Ekstrandbb)** on Thursday, March 1, 2001 - 02:48 pm: Edit

From my perspective, it depends on the type of financial equation and (of course) the size of the values you are using. The project that I am very near to finishing (with any luck, the next day or so) is an investment / savings / retirement calculator program. I had to go to IEEE double precision floats (DF variables) in order to maintain acceptable accuracy with large values. On the other hand, when I wrote LoanPayment I was able to use standard Quartus floats and maintain acceptable accuracy. It really depends on what you are calculating.

Barry

By **Neal Bridges (Nbridges)** on Thursday, March 1, 2001 - 02:50 pm: Edit

Right -- Barry's doing the fancy stuff 🙂

Neal

By **krokodil** on Thursday, March 1, 2001 - 03:12 pm: Edit

Well, sample task I am trying to solve,
is calculating how much percent will
be $200 out of $120,000 with upd to 3 digits
after decimal dot. And vice versa, taken
calculated percent value and 120,000 get
$200 back with precision up to 1 cent.

By **Neal Bridges (Nbridges)** on Thursday, March 1, 2001 - 03:49 pm: Edit

In that case, the built-in floats will do just fine.

Neal

By **Vadim Zaliva (Krokodil)** on Friday, March 2, 2001 - 12:18 pm: Edit

I am started to switch my code to floats
and it simplified things alot.

By **krokodil** on Friday, March 2, 2001 - 09:49 pm: Edit

How do I inspect current floating-point stack?
Something like '.s'?

By **Neal Bridges (Nbridges)** on Friday, March 2, 2001 - 11:14 pm: Edit

There's an implementation of F.S here:

http://www.quartus.net/files/PalmOS/Forth/Snippets/floatstack.txt

Neal

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Lists and Popups

By **krokodil** on Wednesday, February 28, 2001 - 07:47 pm: Edit

Hi!

I've made List associated with Popup trigger.
I can set current selection with LstSetSelection
and LstMakeItemVisible. However this does not change screen appearence of popup. I also
tryed GetSelectedText and SetLabel with no effect. This document:

http://www.dtek.chalmers.se/groups/pilot/doc/pptdg/ch05.htm#P408_18824

says:

"When a list item is chosen, the pop-up label is set to the chosen item. These actions occur automatically; no code needs to be written"

Maybe I need to dispatch events to the trigger
somethow?

I researched this forum archives and all online
documentation I have.

By **krokodil** on Wednesday, February 28, 2001 - 08:09 pm: Edit

I think I made it work.
code looks like:

```
itemn listId GetObjectPtr 3dup
LstSetSelection
LstGetSelectionText
popupID SetLabel
```

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Dictionary space and Callbacks

By **John Newell** on Wednesday, February 28, 2001 - 08:49 am: Edit

Steve Bohrer's callback libraries look very useful. However, \ callbacks includes the asm68k library which takes up 6k or so of dictionary space. I ended up writing my own database sort, just to save space which the app. couldn't afford.

I am not a 68000 programmer and have not tried to define ;code words in Forth. I am now wordering if \ callbacks could be written without having to include asm68k, thus reducing the dictionary space required?

John

By **Neal Bridges (Nbridges)** on Wednesday, February 28, 2001 - 01:37 pm: Edit

Certainly it could; a direct translation from the assembly to the generated hex codes would do the trick.

Neal

By **John Newell** on Thursday, March 1, 2001 - 04:21 am: Edit

Would it just be a matter of looking at the code generated when asm68k is included and doing a direct copy of the hex? I mean, are all addresses relative for example, so that the hex doesn't have to be manipulated in some way?

John

By **Neal Bridges (Nbridges)** on Thursday, March 1, 2001 - 02:52 pm: Edit

John -- without examining the disassembly, I'll guardedly say yes, it's a direct copy of the hex. That's the starting point, anyway. Any complications are dealt with as they arise 🙂

Neal

By **Steve Bohrer (Skb)** on Friday, March 2, 2001 - 01:34 am: Edit

Please post a hex-only version if you get it -- even for small apps, the

asm68k slows the compile. (Of course, soon enough I hope we'll have a new Quartus rev with a built-in fine-tuned callback fix from Neal.)

Just to say I probably won't attempt this until I have a need for it (which I don't at the moment).

John

Pointer to "hex only" callbacks code:

I have posted a version of my callbacks code that does not use asm68k. As suggested above, it just cs commas in the required opcodes from the original version.

By the way I found Palms desciption of our call back problem at
http://www.palmos.com/dev/tech/docs/palmos35/topissues.html

(so you don't have to scan the whole document here is the "interesting" part)

Problem Symptom:
Callbacks written in assembly, or by a version of gcc which relies upon register A4 being set automatically, now crash.

Problem Cause:
Some applications were written in such a way that they assumed that the A4 register, or some other register, was preserved or set to a particular value by the system when invoking a callback routine. In short, they were getting lucky since nothing was guaranteeing this behavior, and in newer versions of the OS the register may have been used for some other purpose by the routine calling the callback.

Solution:
A5 is the register reserved for global variable access. The other registers are not guaranteed to be preserved. Change the code to get the information via reliable methods. (Sometimes the Feature Manager may be appropriate.)

I just spent the weekend doing the same as Steve - producing a no asm68k

version of callbacks. Never mind, I'll use Steve's version.

For you information, the no asm68k version saves 7080 bytes of codespace - that's a lot.

John

The Palm OS3.5 Top Issues FAQ is what got me on the track of the A4 callback fix. Unfortunately, unlike a constant pointer to a block of variables (which might be accessable via the Feature Manager, as Palm suggests) the Forth stack pointer changes dynamically. I couldn't think of a way for callback code to find the "current" top-of-data-stack value to restore A4. My solution was to dedicate a separate chunk of stack memory, so that the callbacks can always use the fixed address of this new stack.

The downside, of course, is that we need an extra few K of memory to be the stack during the callback, even though we already have a perfectly good stack allocated.

However, since it seems callbacks only happen after an OS call, it might work to just save the current Quartus A4 value during the "systrap" setup. But, you'd have to save this value every systrap, because you can't know if a callback might be used. Thus, even programs that did not use callbacks would pay a slight overhead. The extra-stack method puts the expense only on programs that actually use callbacks.

John -- More accurately, it saves 7K of workspace; the assembler wouldn't wind up in the codespace of your finished app.

Neal

Considering the penalty to pay for saving a4 around any systrap call, I was wondering whether
an indirect jump to a systrap routine could not be the solution. Is it the case that the penalty for an indirect call is very low as I suspect?

Something like: (even if this code may not be written in Forth in Quartus Forth itself, you will get the idea)

```
2variable systrapRoutine
```

```
: systrap systrapRoutine 2@ execute ; inline

: regularSystrap  ... \ code for regular systrap here
: callbackSystrap ... \ code that preserves a4 and calls systrap

: useCallbacks ( -- )
  callbackSystrap xt>abs systrapRoutine 2! ;

: noCallbacks ( -- )
  regularSystrap xt>abs systrapRoutine 2! ;
```

with noCallbacks called during system startup (or something that has the same effect).

That way, one could call useCallbacks before starting using callbacks in an application. Moreover, if an application doesn't use callbacks anymore, it is enough to call noCallbacks to remove the penalty.

The callback and end-callback words would then use the preserved a4 value to setup the stack correctly.

Even the "systrapRoutine 2@ execute" could be hand-optimized to be one or to assembly instructions.

By **John Newell** on Monday, March 19, 2001 - 01:17 pm: Edit

Neal,
You are right about the Assembler not being in the finished app. However, I wasn't concerned about that. The problem was I was running out of codespace at Forth compilation time when the assembler does take that space.
It may be a silly question because I don't understand word-lists etc., but could all the assembler words be removed from the dictionary and codespace after \ callbacks has made use of the ones it wants?

John

By **Neal Bridges (Nbridges)** on Monday, March 19, 2001 - 04:02 pm: Edit

John --

The current model doesn't support removing code from the dictionary, except via MARKER -- but that won't let you pull a subset of old functions out from under newer ones.

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Missing redefined warning

By **Wolfgang Allinger** on Wednesday, February 28, 2001 - 06:00 am:
Edit

I'm used in having 'is redefined' messages and the name of the redefined word in forth system.
But didn't find that in Quartus. So it's sometimes hard to find when a general word is redefined by accident. However I would like to disable these messages whith a special word:

off> redefinedMSG?

bye from germany, Wolfgang

By **Neal Bridges (Nbridges)** on Wednesday, February 28, 2001 - 01:35 pm: Edit

Here's the solution:

http://www.quartus.net/files/PalmOS/Forth/Library/redefine.txt

Neal

By **Wolfgang Allinger** on Monday, March 5, 2001 - 05:51 pm: Edit

THX, but strange things are happening :-(

include redefine early (in startup…)
then

include core-ext

a sharp eye will see, that there is one message containing only 'is redefined' but no name!

If you do another
include core-ext
you will see, that exactly one line ist again without a name before 'is redefined'

That's the definition of C"
There are 2 spaces between : and C"
If you put additional spaces between any : and the name, this word will

also not show up.

I have looked in redefine.txt, but I think it's correct, because 'bl word' should skip leading spaces. But I can't see the bug.

bye from germany
Wolfgang

By **Neal Bridges (Nbridges)** on Monday, March 5, 2001 - 06:06 pm: Edit

Thanks, Wolfgang. That's a bug alright; it seems that WORD is not skipping the leading delimiters. I'll check on that.

In the meantime:

```
: word  dup skip word ;
```

Neal

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Debugging technics

By **krokodil** on Tuesday, February 27, 2001 - 09:28 pm: Edit

Hi!

When debugging technics are you using?

For example, I suspect that one of words
which is executed with event handling loop
corrupts my stack. I am thinking about writing
word which would remember stack depth befor
call, compare it to one after call and if they
do not match will show popup.

So far, I am using 'beep' to debug things,
but this is far from most convinient method. 🙂

By **Neal Bridges (Nbridges)** on Tuesday, February 27, 2001 - 09:30 pm: Edit

If I want to check for a stack imbalance, I do this:

```
needs graphics

: go
  ...
  begin
  0 0 at .s  \ this is the debugging line
  ekey ...
  again ;
```

This displays a stack diagram at the top of the screen; I can see if its static.

Neal

By **wolfgang Allinger** on Wednesday, February 28, 2001 - 05:52 am: Edit

Also beeping would help a lot. I recomanded some time ago to have
something like

DEPTH? IF beep THEN

inside of the quit loop.

bye from germany

I use beeping all the time, using:

```
: beeps ( u -- )
500 ms 0 ?do
   250 ms beep
loop 500 ms ;
```

so I just put "2 beeps" here and "3 beeps" there, etc. and just listen to the flow of the code.

Also, and I've found this to be invaluable, my main form has the depth of the stack displayed in the upper right hand corner throughout the entire development process, even through POSE testing. You can tell immediately when it changes value, so you know right where the stack imbalance happens. I also sometimes display the value of a variable. I use:

```
: int>disp ( u -- u )
\ Echo integer to window.
dup 0 <# #s #> swap >r
0 130  \ fixed location along top.
rot r> >abs WinDrawChars ;
```

so I can insert it anywhere to show the top value on the stack without affecting anything. For stack depth, then, you have to enter "depth int>disp drop".

Ron

If you want a traditional breakpoint mechanism, you can use brute force like this:

```
needs fonts

: BRK ( -- )
   \ drop back into Quartus
   StdFont font drop
```

```
BlankFormID ShowForm cr
\ print program status at BRK
." stack: " .s cr
." Fstack:" cr
 fdepth 0 ?do fs. loop cr
true abort" BREAK" ;
```

You then simply insert a BRK into your code where you're having problems (often an iterative process like successive approximation). The downside is of course that there's no way to resume from that point (usually).

Of course, you could also add some variable looksee's too. You've got the whole screen to use, so DUMP is also an option. I find .SM (print stack to memo) helpful for particularly nasty bugs [read: callbacks].

I like the idea of always displaying the stack top and/or depth. Perhaps it would also be useful to show the current word being executed.

Mike

Yes, the display of the stack depth is very nice, I'll try that too.
But I prefer an additional beep from QUIT, if anything is on stack.
That's very handy while not looking at the display: when I use a Forth system as a remote control to adjust an external system, a number wouldn't help me, but a small noise helps me to remember that/when it happened.

bye from germany

Wolfgang

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>NUMBER

By **krokodil** on Tuesday, February 27, 2001 - 07:55 pm: Edit

I do following:

```
: ttt decimal 0 s" 123" >number ;

ttt ok
.s <3> 0 543 0
```

Am I doing something wrong again?

By **Neal Bridges (Nbridges)** on Tuesday, February 27, 2001 - 07:58 pm: Edit

That 0 needs to be a double-cell 0:

```
: ttt
  0.
  s" 123" >number
;

.s -> <4> 123 0 529 0
```

Neal

By **krokodil** on Tuesday, February 27, 2001 - 08:15 pm: Edit

Thanks Neal,

I was confused because ANS document uses
different from Quartus notation of double
arguments. (they use 'd' while you use '.').

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TVER

By **krokodil** on Tuesday, February 27, 2001 - 05:19 pm: Edit

Hi!

I've added 'tver' resource to my PRC
generated with quartus. Is that all I have
to do for Memory App to show correct version number? It does not work.

By **Neal Bridges (Nbridges)** on Tuesday, February 27, 2001 - 05:51 pm: Edit

What's the resource number? It needs to be '1' to work.

Neal

By **Barry Ekstrand (Ekstrandbb)** on Tuesday, February 27, 2001 - 06:04 pm: Edit

Neal,

Am I remembering right from somewhere way back that there was a reason to have two tver resources in the file, one with resource number 1 and another with resource number 1000? It's kind of fuzzy, but that is my recollection (though darned if I remember why).

Barry

By **krokodil** on Tuesday, February 27, 2001 - 07:46 pm: Edit

Setting id to 1 helped. Thanks for a hint.

By **Neal Bridges (Nbridges)** on Tuesday, February 27, 2001 - 09:59 pm: Edit

I remember that too, Barry. I think it was ID 1000, for some ancient version of a launcher.

Neal

By **John Newell** on Wednesday, February 28, 2001 - 08:17 am: Edit

This is from UIResources.h

```
//----------------------------------------------------------
// App Version Constants
//----------------------------------------------------------

#define appVersionID 1 // our apps use tver 1 resource
#define appVersionAlternateID 1000 // CW Constructor uses tver 1000
resource
// so we'll look for ours first, then try theirs
#define ainID 1000

#define oemVersionID 10001 // Per-DB version provided by OEMs
```

John

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not have an account, enter your full
name into the "Username" box and leave
the "Password" box empty. Your e-mail
address is optional.

Ending a program

By **Wolfgang Allinger** on Monday, February 26, 2001 - 12:58 pm: Edit

I'm still working on terminating from a form, where an ABORT" happened deep inside my application.

```
\ main entry
: go
  showPanel
  ['] event-loop CATCH     \ [1]
  dup -2 = over -1 = or
  IF
     dup ." catch: " .
\ here I want to show the abort message string [2]
     ."  any key to terminate "
     key drop
  THEN
  throw \ [3]
  ;
```

However after the throw it will not return, because [3] throw …ABORT goes to QUIT and didn't show the message…
So I need the buffer address, where ABORT" stores the message, so I could print it myself at [2]

If I didn't catch the abort at [1] I will run in the 'Object not in Form …" caveat. Also after an ABORT the system is reset or the program is terminated whithout any chance to see the abort message.

Hope it's clear what I'm trying

bye from germany

Wolfgang

By **Neal Bridges (Nbridges)** on Monday, February 26, 2001 - 01:09 pm: Edit

Here's a redefined ABORT" that will give you what you want. I found it in the archive9.pdf Forum message archive:

```
\ myabort"
```

```
2variable abortmsg

: myabort"
  postpone if
  [char] " parse
  s" sliteral 2dup abortmsg 2! type"
  evaluate
  s" -2 throw" evaluate
  postpone then ; immediate

: .abortmsg
  abortmsg 2@ type ;
```

Neal

myabort" isn't a general solution because all applications must be editted and when any abort" is missed, the problem still is lurking.

In F-PC there is a temporary buffer(not PAD, AFAIR it's named $buf) holding the last system message. In my case it would be the abort message while entering quit or catched…, I'm shure, that quartus has something equivalent.

So it's better to disclose this buffer.

Sorry not for starting 'Hi Neal'… I wouldn't be unpolite but the first words show up in the postings summary and so it gave some more info on browsing these messages.

THX from germany

Wolfgang

Wolfgang, I named it **myabort"** only by way of example. By all means, name it **abort"** and load it first; it'll override the built-in.

Neal

No, that wouldn't help really, because deep in the Kernel there might be

also lurking abort"
So I think, I must knew the buffer address or patch abort" (which I didn't like)

Wolfgang

By **Neal Bridges (Nbridges)** on Friday, March 2, 2001 - 10:34 am: Edit

No ABORT" are lurking in the kernel.

Neal

By **Wolfgang Allinger** on Sunday, March 4, 2001 - 02:10 pm: Edit

Thanks, so I can redefine abort"

bye Wolfgang

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Emulator project in forth

By **jeff** on Monday, February 26, 2001 - 10:36 am: Edit

First, Neal, sorry if this isn't appropriate here, but I think you won't mind 🙂

Okay, everyone -- it's time for us to band together. As some of you know last week was me using QF to emulate a piece of hardware I have at work. I was very pleased with the speed with which I could do this....

....This weekend, I decided to sit down, and in QF, I completely (except for 2 things -- see below) emulated the 6502 cpu. This is the CPU which powers the Atari 2600 (the famous one) and the NES.

Now what I am curious, is that if I were to make this open sourced, here at QF, would anyone here be interested in helping to contribute to creating an Atari 2600 emulator for the Palm (GPL licensed of course)?

To let you know what i have:

* The full instruction set of the 6502 is emulated perfectly, running at approx. 4000 instructions per second, the CPU stack, memory, etc. Just not DECIMAL mode or RTI (return from interrupt) -- because the Atari 2600 doesn't use decimal mode and disables interrupts.

* A quick MS-DOS program written which will take an Atari 2600 ROM file (.BIN) and create a palm .PDB file with 1 record, containing the ROM instructions in it.

* The ability to run 'n' instructions, debug the emulator (dump registers to screen, etc.)

What needs to be done:

* Optimizing the CPU emulator code -- I'm hardly a great Forth programmer... 🙂

* Writing the TIA -- this is what would emulate the TV.

* UI, and everything else.

I need to know how many people would be interested in helping to finish up this project. For those of you who every wondered how an emulator works,

this is a great chance to learn.

Neal, if this is something that would like to be done, I'd like to keep the main version of the emulator here, on your site for everyone to have access to. All I'd ask is that I be remembered at the writer of the 6502 emulator in Forth ;)

Well, let me know!

Jeff

By **Neal Bridges (Nbridges)** on Monday, February 26, 2001 - 11:55 am: Edit

Certainly Jeff; if you'd like to make your emulator code public, I'll be happy to make it available in the File Area, with all due credit.

Neal

By **Dave Ruske** on Monday, February 26, 2001 - 04:38 pm: Edit

Wow, what a coincidence! I'm just finishing up an emulator for the 1802 with a virtual hex keypad/LED interface similar to the old Netronics ELF II. Even went ahead and emulated the 1861 graphics chip with it's weird DMA interface to the CPU (it's S-L-O-W but it works).

I still need to add program save/load and maybe write a conduit for kicks. I think I may add an all toggle switch front panel as well, for two reasons: one, that's how the original ELF from Popular Electronics was configured, and two, given the objects I've created putting a different user-selectable "skin" on top should be easy.

It's a silly project, I suppose, but it's the most fun I've had writing code in quite some time. Now I wonder if I can figure a way to load that twenty-year-old copy of Tom Pittman's Tiny Basic off the cassette I found in my basement...

By **Dan Hughes** on Tuesday, February 27, 2001 - 11:31 am: Edit

Dave,

You are bring back memories. The Netronics ELF with the RCA 1802 was the first computer I ever owned. I built it while I was in high school. I'd be interested in seeing what you have done.

Dan

By **Dave Ruske** on Wednesday, February 28, 2001 - 02:58 pm: Edit

Dan, I'll fling a copy your way in a week or two, once I've at least added save/load and a preference dialog.

The ELF was my first machine in high school as well. By college it grew to have 64K of RAM, a custom monitor ROM, a Motorola 6847-based display and (of course) figForth!

Cleaning my basement has turned out to be much more fun than I would've guessed. <g>

By **Dan Hughes** on Wednesday, February 28, 2001 - 09:50 pm: Edit

Dave,

I'll be looking forward to it.

I didn't expanded my ELF as far as you did but I did add some memory boards and piggybacked some ram on the back to double the size.

Where I got involved with Forth was with my next computer a Z80 starter kit where I wrote a custom monitor ROM patterned after the Heathkit H8 and then wrote a Z80 version of figForth.

I believe I still have most of the parts but since I've switched jobs from building/designing hardware to software development I haven't done much with the old hardware I have.

Thanks for the memories ;)

Dan

By **Andrew Kearns** on Monday, March 5, 2001 - 10:03 am: Edit

Is there any more news on this emulator? I had an old Atari computer way back when which also used the 6502. I would love to see some of the old games working on my Palm..

I am not familiar with emulators at all, which means I am probably not going to be a great help. On the other hand I am interested in learning how emulation works and I'll help with whatever I can.

Andrew

By **Dave Ruske** on Wednesday, April 11, 2001 - 01:56 am: Edit

FYI, the ELF emulator (dubbed TinyELF) is now on PalmGear.com. I threw a

credit for QF in there, and I've got my fingers crossed that it doesn't toast anybody's machine and reflect poorly on Quartus!

Anyway, I had fun with it. Now if I can just come up with an idea that someone would actually pay for... 🙂

Dave, that's a very cool piece of work!

Neal

Dave, you've brought back some great memories. A beautiful app. I spent half my summer employment wages on tuition, the other half on expansion cards for my ELF II. This included $450 for a 4k static memory card. Worth every penny.

One question, your prc is over 60k. I have an app that's only 35k, but I'm almost out of codespace. What gives?

Mike

2 toggle switches, three states each = 6 bitmaps
16 digits, small = 16 bitmaps
16 digits, large = 16 bitmaps
input button, two states, small = 2 bitmaps
input button, two states, large = 2 bitmaps
LED, two states = 2 bitmaps
small text label bitmaps = 12 bitmaps

...mostly, those bitmaps add up, particularly when some of them are eight bits deep. Use RsrcEdit to browse TinyELF's resources and you'll see where a lot of the size comes from.

I've already had someone request emulation of the "classic" ELF's TIL311 displays, which would add 16 to 32 more bitmaps (depending on whether I do the small ones as well). I may do it despite the size increase, though. After all, if I'd written it to be practical I could've done better than a toggle switch skin!

It's rather funny to think that four or five of the large digit bitmaps would completely fill that 4K memory card you once owned...

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Sony Clie

By **Vadim Zaliva (Krokodil)** on Monday, February 26, 2001 - 01:03 am:
Edit

I've seen few people mentioning Sony Clie
in this forum. Do you have any problems using
Quartus Forth with it? Is is viable alternative
to Palm Vx? I've overgrown my Palm V 🙂

By **Vadim Zaliva (Krokodil)** on Monday, February 26, 2001 - 01:04 am:
Edit

I just realized, my GoType keyboard will
not work with it 😖

By **Michael Mouse** on Wednesday, February 28, 2001 - 07:17 pm: Edit

Is anyone using quartus forth on a Clie?? I want to know whether the
memory stick slot and jog dial are supported in Quartus?

By **Neal Bridges (Nbridges)** on Wednesday, February 28, 2001 - 07:19
pm: Edit

I haven't had any reports in about the Clie. However, the memory stick is
accessible via the new Palm OS 4.0 external storage library; no interface
code exists, but it's certainly possible.

I'm not sure how the jog dial is interfaced; not having a Clie slows me
down. But I'd be happy to work with you to get the interface written.

Neal

By **Michael Mouse** on Wednesday, February 28, 2001 - 07:28 pm: Edit

Wow!! Quick reply! I have just ordered a Clie. When it gets here I will give
Quartus a try and report back. May not be very informative though.
Previous experience limited to a glance at Starting Forth about 15 yrs ago.
Clie should be here next week. BTW, I guess I'll have to wait for Sony to
release their version of PalmOS 4, won't I??

By **Neal Bridges (Nbridges)** on Wednesday, February 28, 2001 - 07:29
pm: Edit

The external storage libraries are already in the Clie; kind of a little slice of Palm OS 4.

Neal

By **Mike Will** on Wednesday, February 28, 2001 - 09:02 pm: Edit

I've ordered one from the US as well, no delivery date promised. I tried to get one from SONY in Canada, they just said, "SONY doesn't make palm computers. Would you like to buy a stereo?"

There was a thread about other platforms, I just can't find it, so I'll drop a question for Neal here. I'm seriously considering some software for the RIM950, manufactured by Reseach in Motion (RIM) of Waterloo, Ont. The choices are Java (cough) or VC++ (cough, choke). Have you ever thought about this platform (Intel, I believe)?

Mike

By **Neal Bridges (Nbridges)** on Wednesday, February 28, 2001 - 09:04 pm: Edit

Have I considered porting Quartus Forth to the RIM? Briefly. The market for those devices is large but rather narrow, however; I'm not sure an on-board Forth would be a success there.

Neal

By **Ken Samson** on Wednesday, February 28, 2001 - 09:58 pm: Edit

I have a Sony Clie and the 64 meg Sim. I have registered Quartus, but just when I started getting into things, the screen was cracked.

So, at this time, the Clie is off to the repair shop, and I'm playing with the simulator.

If you look for my name in the past, you will find that I have asked some simple questions about how to open a file on the flash, and there were some good suggestions on how to start.

I don't have the 4.0 documentation, and I have not found where to get documentation for the Clie calls that are already there to support the flash.

4.0 should be out very soon I suppose, I was hoping that while I learn the basics of Forth, 4.0 would come out and I could graduate to using the flash cards. (Reading and writing as well as using the irDA interface.)

My ideal goal would be to write a program that allows users to walk up to a

pedistal at work located by the coffee machine, set their palm on the counter while they get their coffee and when they pick it back up the IR link would have started a Quartus application, received and appended/deleted some information on the flash card, and the "electronic newspaper" would be readable by the user during the day.

Large dreams with little time.. not sure how much I will get done how quickly. And it relies on some of the things that Neil has yet to release on Quartus as well.

But, I was never one to aspire to do something that was obvious or easy.

Ken

By **Wes Matchett (Wesm)** on Wednesday, February 28, 2001 - 10:11 pm: Edit

I am also working with a RIM device for consideration of running some software. Currently I'm looking at Java, but I would be very pleased to also have Quartus available.

By **Neal Bridges (Nbridges)** on Wednesday, February 28, 2001 - 10:13 pm: Edit

I have done preliminary investigation, but to proceed I'd need to be convinced of an appreciable interest in a Quartus RIM Forth.

Neal

By **Wes Matchett (Wesm)** on Wednesday, February 28, 2001 - 10:51 pm: Edit

Well, on the counter side, I think the RIM devices need considerable hardware interface improvement to have a large user base. The lack of a touch screen is, IMHO, a great deficit.

By **Neal Bridges (Nbridges)** on Thursday, March 1, 2001 - 02:24 pm: Edit

I agree, Wes. The wheel on the side is nice to have, but to have it as the only positioning tool gets frustrating pretty quickly.

Neal

By **Dave Ruske** on Thursday, March 1, 2001 - 03:08 pm: Edit

According to this CNet article, Palm is working on a RIM killer, so who knows where you might be using QF in the future…

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Using Struct AT and . on forms

By **Andrew Kearns** on Sunday, February 25, 2001 - 11:55 pm: Edit

I've got an app that is using some structures. They haven't given me any problem on the Palm, and I've checked and I'm using them the way the forum suggests. Yet I'm getting errors on the emulator saying unlocked memory chunk.

This is what I am doing:

Bring up a form:
FormName ShowForm

Manipulate the structures a bit:
Structname @ FieldName @
calculate
Structname @ FieldName !

So far so good, then I'm trying to print them on a form (the second displayed form) using:

32 24 AT Structname @ FieldName @ .

This blows up and then whenever I try to use a struct I get the error in the emulator.

I've tried each piece and the AT seems to be where things get messed up. Should I be using something else to just write some text to the screen?

The other thought that occured to me is that all I'm doing with the forms is ShowForm. Do you have to close forms? I could only find reference to a CloseAllForms and I don't want to do that yet.

Thanks!

Andrew

By **Vadim Zaliva (Krokodil)** on Monday, February 26, 2001 - 01:09 am: Edit

Andrew,

I suggest you to look at some sample code. This is
best way to get started with Quartus.
The way you are using structures is not correct.
It is 3 step process:

1. Describe your structure:

struct
1 cells field f1
end-struct MyStruct

2. allocate memory

create data sizeof MyStruct allot

3. Access fields

22 data f1 ! \ writes 22 to f1
data f1 @ \ reads from f1 to data stack

By **Andrew Kearns** on Monday, February 26, 2001 - 10:18 am: Edit

How odd, I was using an example from Neal which compares a C struct to a
Forth one. I must have gotten mixed up somewhere. This method looks
much better, as in it makes more sense to me.

I'll give it a try and see what happens.

Andrew

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                                   not have an account, enter your full
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Dictionary Overflow Exception

By **Barry Ekstrand (Ekstrandbb)** on Sunday, February 25, 2001 - 05:54 pm: Edit

What does a dictionary overflow error indicate? I added another screen to my current project and initially it displayed just fine. After adding the calculation routine, but before adding any code to call the routine, I started getting this error upon compiling:

```
Exception in file: make
ShowForm? dictionary overflow
```

Assuming this was caused by my most recent additions, I started commenting out these calls to figure out where the problem was happening, however the error just changed a bit:

```
Exception in file: make
Screen4FormID? dictionary overflow
```

where Screen4FormID is a screen that was in the program (and whose calculations worked fine) prior to the most recent changes. The error has me confused as to what is going wrong.

By the way, I'm using v1.2.6R of Quartus; my codefile is in doc format and my make file is in regular memo format. Any help will be appreciated.

Regards,

Barry Ekstrand

By **Neal Bridges (Nbridges)** on Sunday, February 25, 2001 - 06:10 pm: Edit

Is your app large enough to have exceeded the actual size of the dictionary? If not, try including safe before, see if it generates a meaningful error message.

Neal

Neal,

The last successful compile resulted in an app that is 28638 bytes in size. The code file is 25455 bytes in size. I do have needs safe in the code, although it isn't the first 'needs' that is listed.

I assume these sizes shouldn't be a problem (?). What is the 'actual size of the dictionary' you refer to? Any other ideas?

Barry

Comment out your MakePRC, and at the end, do

unused .

and let me know the result.

Neal

Neal,

I apparently am not doing what you want - are you wanting me comment out only the line in my make file with makeprc in it? I did so and added the unused . at the end, but still get the same dictionary overflow error. Am I misunderstanding?

Barry

Sorry Barry -- my fault.

Compile your source. When you get the error, at the console do

unused .

and let me know.

Neal

Neal,

Got it, sorry for the confusion. It returns 255.

Barry

That's low. Take 'safe' out of the equation and recompile.

Neal

OK, will do. I get the picture that I need to free up memory, and I see some opportunity for streamlining my variable declarations, so I'll dig into that as well. I appreciate the assistance in helping me understand what the exception meant.

Barry

Barry, it might not be that -- it might be something else. Let me know; you can send me your sources for testing also if you wish.

Neal

Neal, I seem to always get either 256 or 255 when I type
unused .
no matter what the size of my app.

That's because I'm completely wrong.

Barry --

csunused .

Sorry about that. Let me know.

Neal

By **Barry Ekstrand (Ekstrandbb)** on Sunday, February 25, 2001 - 09:14 pm: Edit

I just picked up the additional comments, but in the mean time I've taken safe out as well as a few dfvariables that were in from early testing and are no longer needed. It is compiling without any difficulty now, so something apparently helped it. I'll try csunused . to see what it shows - like Wade, I was getting 255 with unused . no matter what.

Barry

By **John Newell** on Monday, February 26, 2001 - 07:25 am: Edit

I have the following word defined at the beginning of my startup.quartus memo.

```
: NEEDS ( -- )
>IN @ >R PARSE-WORD TYPE
SPACE csunused . R> >IN ! NEEDS
;
```

It prints out the NEEDS memoname and the value of csunused at the beginning of each memo include by NEEDS. I can then see what is taking up all the code space and try and do something about it.

John

By **Barry Ekstrand (Ekstrandbb)** on Tuesday, February 27, 2001 - 06:14 pm: Edit

Further to the above....

I added John's word to my startup.quartus memo and noticed that some libraries were being loaded multiple times. It was apparent that the NEEDS statements in each library was resulting in them being loaded again, even if the library had already been loaded by a NEEDS statement in my code file. I guess I completely misunderstood this, as I thought the NEEDS word only loaded the library if it wasn't already there. Anyway, as a result of this "revelation", I went in and commented out each NEEDS statement in my code file that was a duplicate of one contained within the libraries themselves. As a result, the CSUNUSED . test gave a result of 1116, up from 56 just prior to the commenting out of duplicate NEEDS statements.

John, many thanks for your code, it helped point out some obvious places for optimization; Neal, as always, many thanks for your assistance in understanding what was going on.

Barry

Barry

Barry -- not sure what you're seeing, but NEEDS does in fact only include a library once.

Neal

I rememeber tracking down this one with "announce".
Every time Needs is called John's words tell you that it was called and what library it was told to load. The original Needs then gets called, and ignores the 2nd load on a file because it keeps track of which libs where loaded.
Needs does indeed only inclue any given library once. If you want to prove it put a line like
.(Loading the suspect module.)
in any library you think is being loaded twice.

Hmmm... I assumed the changing csunused . value as reported by John's word indicated that the libraries were being loaded multiple times. I did get an increase in the value of the final csunused . (after compilation) when I simply commented out the needs calls that were repetitious - why would that have occurred?

As it sits right now, I seem to be fighting for memory as I finish out the program. I've got 5 individual calculation screens / routines, all working, and now I'm adding the save to memo routines for each and menu help. Each time I add the next piece I'm getting another dictionary overflow exception, which then leads me to combine eliminate some variables to gain a little space back. Is there a better way? It looks like I'm losing the battle while near the end!

Barry

Are you really low on space, Barry? What is csunused reporting?

Neal

I've had it as low as 8; when I did the commenting out it went from 56 to 1116. I thought this would get me through, but the next save to memo routine went back to the overflow. I then eliminated some variables (by re-using some across screens; it wasn't what I really wanted but will work) and got it back up to 400. I suspect the next save to memo routine (I have 2 left to add) will put me back in the overflow again. By the way, the program is written completely using DF variables, and there are a bunch of them. Any ideas?

Barry

A lot of the Forth libraries include words that you don't use in your application. They all take up dictionary space. Sometimes, if you are only using one or two words, it is worth defining the ones you want in your app. and not INCLUDEing the Forth library.

Also, some useful contribution libraries include others. E.g Steve Bohrer's callback libraries. \ callbacks includes the asm68k library which takes up 6k or so of dictionary space. I ended up not using it and writing my own database sort, just to save space.

I am beginning to think that any app. which has more than 4 active Forms starts to run out of dictionary space, just supporting them. What do you say?

John

I've made apps with more than 4 forms and had no difficulties. It depends entirely on how much code you have.

Barry, what revision of Quartus Forth are you using?

Neal

John,

My experience tends to support yours - although my LoanPayment app has 5 forms in it, 2 of them only have 1 input field and are there to take the results from another form and make further calculations. I guess you can argue that while there are 5 forms they are not all "full" in terms of associated fields, variables, etc., and I didn't have any dictionary overflow problems with LoanPayment.

My current project also has 5 forms but they each make some complex (different) calculations. 2 of the forms have 10 input fields, 2 have 6, and 1 has 3. Another difference is LoanPayment used Quartus floats but this one is using IEEE double precision floats - I'm not sure if the dfvariable declarations eat more space than fvariable declarations or not.

I have started to look at the libraries to move words that I need and not load others that I don't, hopefully I can gain something there.

Barry

Neal,

I'm using version 1.2.6R. I sent you my source files; if you can take the time to take a look at it, maybe you can see some opportunity to optimize that I'm missing.

Barry

My TeamFile app has several forms, some with a lot of checkboxes, buttons and fields. To get it to fit, I had to do things like:

1. I made groups of the fields and checkboxes sequentially numbered, so I could do loops to fill them in, and I also subtracted the ID of the first one to find offsets to data rather than doing huge if/else/thens.

2. I originally had constants defined for all the resources (although for the sequential sets I just defined a constant for the first resource and then a constant for the number of them). I had to put all the constant definitions

into a memo that was for cross-reference only and was not compiled, and then hard-code the resource ID's into the code. Constants take up more room than you would ever think.

3. System systrap calls take up multiple bytes. By defining Forth words to do not much more than call a systrap, I could then be calling Forth words, which is a small overhead, rather than the system functions directly each time.

4. Weeding out unneeded library functions is painful, as library functions call other library functions and there is overlap, but I was able to extract portions of libraries into special merged libraries just for the application.

The whole process of freeing codespace is a distraction while you are coding, and after some initial factoring exercises can be slow work. On the plus side, it's really amazing how much you can squeeze Forth code! For the new app I'm finishing up, I had to bite the bullet and have two separate modules that call each other--it's work, though, so avoid it if you can.

Ron

Ron,

Many thanks for the guidance on ways to trim down the space requirements. I think I'll take the easiest route first, and look into eliminating the constant declarations to see if that gives me enough room.

I must admit a certain level of frustration as I've worked on the calculation routines on and off for the past several months as time allowed. As I finally got them done and debugged, I thought I was looking at finishing out the program with straightforward stuff, only to run out of space before getting the easy stuff in. In the immortal words of Bill the Cat, Ackpfth! Murphy's law strikes again.…

Anyway, thanks again for the help, I'll start digging in once again!

Barry

You're using the double-precision floats too, right Barry? Those are substantial libraries that can possibly be improved in and of themselves.

Neal

By **Barry Ekstrand (Ekstrandbb)** on Wednesday, February 28, 2001 - 02:54 pm: Edit

Yes, it is all DF variables. I figured that there is some room to be gained by extracting out the DF words that I need, but will start with the constants. It looks like I see a gain 30 for each constant declaration that I eliminate, so with about 75 declarations there is a fair amount to save. It may be enough to finish it out, I'm keeping my fingers crossed.

Barry

By **Barry Ekstrand (Ekstrandbb)** on Wednesday, February 28, 2001 - 03:47 pm: Edit

Just a bit of info: I replaced all of the constants with hard values, and my csunused . value went from 758 to 2876, now I'll see if it is enough to finish or not. If not, I'll start extracting words from the libraries and put them directly in the codefile, eliminating the needs statement.

By the way, a small plug for peditPro in this latest effort: the find/replace function in it allowed me to make the replacements easily, accurately, and quickly.

Barry

By **John Newell** on Thursday, March 1, 2001 - 08:38 am: Edit

I notice that:

5 CONSTANT Five
takes up 18 bytes of code space, while

: Five [5] LITERAL ;
only takes 16 bytes

I was trying to work out a redefinition of CONSTANT to use LITERAL but haven't got it yet.

John

By **Neal Bridges (Nbridges)** on Thursday, March 1, 2001 - 09:24 am: Edit

John, using disasm, you'll see that exactly the same code is generated for each of

5 constant five
: five [5] literal ;
: five 5 ;

They're all 6 bytes long -- two machine instructions plus RTS.

One difference -- the constant is automatically flagged INLINE for optimization.

Neal

If you put csunused before, after, and between the definitions, then the "literal" version takes 16 bytes of code space where the others take 18 (or am I missing something else?).

INLINE does not affect the size of the word which calls the defined constant word because it has the same length in these cases (INLINEing would of course speed up the execution).

John

John, using 1.2.6R I'm showing 18 bytes for each definition. What build are you using?

Neal

1.2.6R. Build: 2000.07.22 12:37:50am

```
\ tc
needs disasm
: .( 41 parse type ; immediate
.( 0 ) csunused .
3 constant three
.( 1 ) csunused .
 : four 4 ; inline
.( 2 ) csunused .
5 constant five
.( 3 ) csunused .
 : six [ 6 ] literal ; \ inline
.( 4 ) csunused .
```

```
: t1 five . ;
.( 5 ) csunused .
: t2 six . ;
.( 6 ) csunused .
```

John

There it is, then. The names of your different words are of different lengths; this will cause the difference in codespace usage.

Neal

Blush.

1) I tend to make my names descriptive (and thus long). Would you encourage the use of short names if code space is going to be a problem?

2) I tried to imagine a #define or macro method for constants which would take up no code space. However, the names would have to appear in the dictionary so that they are found when referenced… That's as far as I got.

John

You'll only save exactly as many bytes as the names are shorter; this is unlikely to make much of an impact.

Names of functions presently reside in codespace; I'm investigating the possibility of moving them outside of codespace. That'd help.

Neal

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Questions

By **Bob Ryan** on Saturday, February 24, 2001 - 04:31 pm: Edit

What is the difference between variable and value? They seem to do the same thing.

Why are 0 and -1 implemented as words? Aren't they just numbers?

In the sequence:

[2 cells] literal *

What is the purpose of the "literal" word?

By **Neal Bridges (Nbridges)** on Saturday, February 24, 2001 - 09:01 pm: Edit

1. A variable returns an address; you use **!** and **@** to write and read it. A value is like a constant; it returns its defined value unless you override that value with **TO**.

2. 0 and -1 are defined as words for speed; they are commonly used and hence parse and compile faster this way.

3. **LITERAL** is a word that, at compile-time, takes whatever you have placed on the stack (in this case, the calculation '2 cells') and compiles it into the current word as a literal value. When the current word executes, the literal value of '2 cells' will be placed on the stack.

Neal

By **Neal Bridges (Nbridges)** on Saturday, February 24, 2001 - 09:04 pm: Edit

By the way, you should download a copy of the ANSI/ISO Forth Standard; it's free and is a great reference for how the Standard functions work.

Neal

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Reading other app prefs

By **Vadim Zaliva (Krokodil)** on Friday, February 23, 2001 - 11:25 pm:
Edit

Hi!

I am still fighting with accessing Expense
DB. I am able to create my own records now!
The problem is that one of record fields, Currency is reference to value
defined in Expense Preferences. If it custom currency its definition is stored
in AppInfo :-(

I found structure of Expense preferences
and trying to read it with no luck. I use:

PrefGetAppPreferencesV10

call which returns 0.

I suspect that 'version' parameter
value I am supplying is wrong. How do I
find what is right value?

Maybe I should use PrefGetAppPreferences instead? What 'id' is then?

Did anybody attempted to access other application
preferences?

By **Neal Bridges (Nbridges)** on Saturday, February 24, 2001 - 10:07
pm: Edit

Vadim, I think the 'id' would be the creator ID of the Expense app.

Has anybody else attempted this?

Neal

By **Steve Bohrer (Skb)** on Sunday, February 25, 2001 - 01:58 am: Edit

A little poking with RsrcEdit into "Saved Preferences" with OS3.1 shows that
the preference resource of my app is two bytes bigger than I ask for, and
the first two bytes are the version number.

I create my prefs with the **PrefSetAppPreferencesV10**, and they are created as a resource with ID 0, and with whatever type I pass as the "creator" arguement.

By inspection, some apps have multiple items in the Saved Preferences file, with different ids. Seems this must be the result of the "id" arguement of the new **PrefSetAppPreferences** call. The first two bytes of these preferences must be the version parameter as well. As a partial check, with OS 3.1, the pref items for todo, addr, and memo all have 0003 as their first word, and the headers in the SDK examples set the pref version for these as 3.

Actually, never mind the rest of this. If you want to use their preferences, read their headers to figure out what is what, including what version and id they use.

By **Vadim Zaliva (Krokodil)** on Monday, February 26, 2001 - 12:01 am:

Edit

Thanks for all suggestions.
I will study headers to see what I can
find there.

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Adding Scrollbars

By **Garbett** on Friday, February 23, 2001 - 02:08 pm: Edit

I'm attempting to add a scrollbar to a text field and having some odd behavior.

Here's a snippet:

```
: do-event ( ekey -- )
    dup menuEvent = if
        event >abx itemid
        handle-menu
    else dup fldChangedEvent = if
        ." Field Changed"
    else sclRepeatEvent = if
        ." sclrepeat"
    then then then ;

: show-panel ( -- )
    MainForm ShowForm
    updateScrollbar
    setFocus ;

: mainloop ( -- )
    show-panel
    begin ekey do-event again ;
```

show-panel does it's job and put up a scrollbar if there's any text off the screen. However, I use string>Field to fill the text field and no fldChangedEvents are generated. I edit the text and no fldChangedEvents are generated. I move the scrollbar and no sclRepeatEvents are generated. The menu bars function fine.

What's wrong with this event loop?

By **Neal Bridges (Nbridges)** on Friday, February 23, 2001 - 02:19 pm: Edit

I'm not in front of my main terminal, but sclRepeatEvents may have been

something I adjusted for in 1.2.6r. What release are you using?

Neal

By **Shawn** on Friday, February 23, 2001 - 03:40 pm: Edit

I've got 1.2.1. I just purchased a full release copy through pilotsw. So far have only gotten an invoice. So I soon will have the latest release copy installed.

By **John Newell** on Thursday, March 1, 2001 - 04:37 am: Edit

I have Quartus 1.2.6R. I don't appear to be getting sclRepeatEvent's either. I do get sclExitEvent's however, which I am currently making do with.

I took Trevor Steele's Table libraries (and modified them to use tbl sysapp calls). He only seems to use sclExitEvent to scroll the tables.

John

By **Trevor Steele** on Friday, March 2, 2001 - 03:28 am: Edit

At the time I wrote the table tutorial I found that this was the only event I could get from the scrollbar. I haven't loked at it more recently. BTW glad to hear that my code's been useful to someone :-)

Trevor

By **John Newell** on Friday, March 2, 2001 - 08:59 am: Edit

Changing \ newtable to use tbl sysapp calls (tblSetItemInt, tblSetItemPtr) was fun. I found out that you have to initialise absolutely everything in the table - height, font, selectable, style, usable, … etc. And then, just when you thought you had caught everything, something else would come along which needed setting up.

Whew!!! It's working now though.

John

By **Shawn Garbett** on Tuesday, March 6, 2001 - 07:58 am: Edit

Okay I've installed a registered version 1.2.5R. (That's the one you just emailed me. Above you mentioned 1.2.6R)

The fldChangedEvent message is coming through. I still don't get the sclRepeatEvent however.

I'll play with sclExitEvent.

One silly question, when my app comes up the first menu item is always highlighted. Is this a focus issue?

By **Steve Bohrer (Skb)** on Tuesday, March 6, 2001 - 01:26 pm: Edit

With RsrcEdit, set the MBAR's Selected Item to -1.

> **Quote:**
>
> One silly question, when my app comes up the first menu item is always highlighted. Is this a focus issue?

By **John.Newell** on Monday, March 12, 2001 - 04:18 am: Edit

Just for information.

Add initialize Masked to the list of things to set up when using tables.

I have found the when RsrcEdit creates the table structures it does not initialize everything to zero - in fact you get whatever happens to be laying around in memory at the time. This means that you can't assume any flags or numbers or pointers are zero - you have to initiialize every single one.

(The Masked bit being set meant I couldn't select that row which is what showed up the problem. It was a bit awkward to find and fix because it requires OS3.5 system calls, e.g. TblSetRowMasked, which are not built into Quartus.)

John

By **Steve Bohrer (Skb)** on Monday, March 12, 2001 - 08:11 am: Edit

John,

This seems like a useful thing to point out to the RsrcEdit folks. They have seemed pretty responsive in the past.

> **Quote:**
>
> I have found the when RsrcEdit creates the table structures it does not initialize everything to zero - in fact you get whatever happens to be laying around in memory at the time. This means that you can't assume any flags or numbers or pointers are zero - you have to initiialize every single one.

I have done so. I'll let you know if I hear anything specific from them.

John

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Newbie StandAlone app question

By **Peter Thomas (Petert)** on Friday, February 23, 2001 - 12:38 pm:
Edit

I have some code that runs quite nicely via an "include …" "go" set of commands, however, as soon as I attempt to compile it, kaboom..

Quartus dies and takes my Palm (or POSE) with it.

Any hints as to what I should look for?

Peter

By **Neal Bridges (Nbridges)** on Friday, February 23, 2001 - 12:52 pm:
Edit

No idea, Peter. I'd need more information. Can you reproduce this in something you can send?

Neal

By **Peter Thomas (Petert)** on Saturday, February 24, 2001 - 12:08 am:
Edit

I think I've found it.… I have a resource file called XYZ, and when I do the makeprc, I'm trying to also name the application XYZ. Even though one is of type rsrc, and the other of type appl that seems to cause a problem.

Changing the rsrc file to YZ_rsrc works fine.

Peter

By **Neal Bridges (Nbridges)** on Saturday, February 24, 2001 - 12:17 am: Edit

Ah! Great. Yes, that's supposed to generate an error, but sometimes the Palm OS just freaks out.

Neal

By **Michael Curtis** on Thursday, March 1, 2001 - 02:16 pm: Edit

Peter,

Thank you!!!!!

I've been working on an app for a while, and when I went to compile it for the first time I had the same problem. Then I got wrapped up in moving apartments and haven't been able to look at it for a week. I just read your post, changed the name of my resource file and presto! it compiles perfectly.

Thanks again!

Michael

By **Kris Johnson (Kdj)** on Thursday, March 1, 2001 - 11:12 pm: Edit

BTW, if your XYZ_rsrc file has the same creator ID as your app, don't ever delete the standalone app--you'll lose your resource file as well. PalmOS apparently deletes all databases with the given creator ID.

I learned the hard way. Maybe the rest of you aren't as dumb as I am, but I thought I'd share this tip.

-- Kris

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RctPtInRectangle

By **Dave Ruske** on Friday, February 23, 2001 - 12:38 pm: <u>Edit</u>

Is it normal to have to clean up boolean values returned from calls to OS functions such as RctPtInRectangle? Witness the following session:

```
: t RctPtInRectangle ;
create rect
142 , 10 , 17 , 21 ,
rect >abs 5 5 t .   -> 8192
rect >abs 14 145 t .   -> 1
rect >abs 120 145 t .   -> 0
```

Checking a point at (5,5) against a rectangle at (142,10) with a size of 17x21 should obviously not be returning a "true" value… and since the Palm OS regards booleans as byte sized quantities, I suppose it isn't.

Cleaning this is easy, but is it necessary on all boolean return values or is this a bug in the hook to RctPtInRectangle?

By **Neal Bridges (Nbridges)** on Friday, February 23, 2001 - 12:54 pm: <u>Edit</u>

Unfortunately different versions of the ROM return 'dirty' Boolean values. To be safe, do

255 and

to clean them up.

Neal

By **Steve Bohrer (Skb)** on Sunday, February 25, 2001 - 01:20 am: <u>Edit</u>

Is it known (e.g. speced by Palm) if old versions of the ROM have this issue, while newer ones clear the upper byte, or is it just random from version to version?

By **Neal Bridges (Nbridges)** on Sunday, February 25, 2001 - 01:53 am: <u>Edit</u>

It's not formally documented in any way. I've only run across it in one other circumstance.

Neal

So, best practice is to always AND boolean results from the OS? Seems annoying to remember that...

It's not necessary in the great majority of cases. I'll see if it's easy to modify the system to handle this for you.

Neal

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PAD? HERE?

By **Vadim Zaliva (Krokodil)** on Thursday, February 22, 2001 - 07:58 pm: Edit

Hi!

I need to convert string to null terminated
string to pass it to systrap. What is common
way doing this? Could I use PAD or HERE?
I've heard that HERE is limited to 256, and I am
not sure if that is enough for my string.

By **Neal Bridges (Nbridges)** on Thursday, February 22, 2001 - 09:34 pm: Edit

It's best to allocate your own buffer:

create pad 512 chars allot

Neal

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not have an account, enter your full
name into the "Username" box and leave
the "Password" box empty. Your e-mail
address is optional.

Press a Button, Stop an Event Loop

By **Dave Ruske** on Thursday, February 22, 2001 - 03:34 pm: _Edit_

It appears that holding a button down is enough to halt an event loop coded with (ekey). What I suspect is going on is that while the button is pressed the system spins and watches for penMoveEvents, making sure that the penUpEvent comes from inside the button before ctlSelectEvent is issued. That kind of makes sense, but I'm not too thrilled with my background task stopping because of a pressed button.

I'm thinking I've got three options, and I'd like to know if I'm about right or overlooking something simple.

Option 1 - live with it. Hey, it's just a Palm, nobody's going to expect it to jump through hoops anyway. It feels a bit lazy of me, though.

Option 2 - don't use buttons, build your own with gadgets and bitmaps and handle all the events you care to. This isn't too far-fetched, since my app has a couple toggle switches that act very much like buttons anyway, except I draw them and they have a couple extra states. The annoying thing about it is that I'll need to waste a lot more time doing bounds-checking for every penDownEvent/penMoveEvent/penUpEvent that comes along.

Option 3 - patch into the OS's eventhandler like Hackmaster does. I saw a comment about this in the support archives, but Neil referred to it as being pretty tricky. I reason that if it's tricky for a Palm veteran like Neil, it's probably more than I'm prepared to deal with.

Any thoughts?

By **Neal Bridges (Nbridges)** on Thursday, February 22, 2001 - 03:40 pm: _Edit_

You're right; the OS has its own little event loops that it falls into when it sees things like button presses. I'd go with option 1, and live with it, unless there's some extraordinary reason that you need to intercept the system event handler.

Neal

By **Mark Beckman (Mbeckman)** on Thursday, February 22, 2001 - 07:15 pm: _Edit_

For what its worth, Option 2 is very much like the solution I went with for my Minesweeper game because it became important to me to see if the pen up was outside the "button" ("mine"). But, I didn't care what the system was doing in the background. Well I didn't care so long as it returned control to me soon enough to update the game clock.

Option 4: Break up ekey into its components EvtGetEvent and HandleEvent, handle your own stuff in between and decide what you allow to pass to HandleEvent for the system to take care of. Might not be the solution to all of your problems but gives you somewhat better control over things to happen.

/Erwin

That will help with some esoteric event handling requirements, but GUI objects such as buttons will still go into their own event loops until the pen is raised.

Neal

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Function lookup tables

By **jeff** on Thursday, February 22, 2001 - 10:24 am: Edit

Well, this last project of mine has brought me closer to Forth in a week than in 1 month of reading... 🙂 -- thanks you y'all!

On to the question: having used case and select, both to hit the 4096 byte barrier within a memopad, I feel that they will not work for what i need.

What I'd like to try and do now is create a function lookup table. For example, I have some simple functions:

```
: a ( c -- ) ;
: b ( c -- ) ;
: x ( c -- ) ;
: y ( c -- ) ;
```

And I'd like to make an array of those locations so that later I can just do:

```
: call-lookup-function ( c f -- )
    lookup-table + @ execute ;
```

Or something like that. I'm sure this is possible, I just don't know how to create the table, and if it needs to be 2 cells or 1 cell per index.

Thanks 🙂
Jeff

By **Neal Bridges (Nbridges)** on Thursday, February 22, 2001 - 11:04 am: Edit

That kind of table won't relocate properly in a stand-alone app; that's why **select/xt/end-select** was added.

If you're exceeding the size of a memo, one way to go is to have several such select function, each for a certain range of values, and a master function that divides the initial value and calls the right sub-function; the other, simpler way to go is to use a Doc file to hold the big function. There's no 4096-byte limit on a Doc file.

Neal

Okay, thanks, Neal. That leads me to my next question about select/end-select. Since it leaves the execution token on the stack, does that mean I can't do other things, too? For example:

```
select
xt get-argument myFunction
xt get-argument myFunction
end-select execute
```

Can I only put 1 item (the function) after xt? And also, how would I go about creating a DOC?

Thanks, again! 🙂
Jeff

Nevermind, got the answer myself just trying a simple version of it... 🙂

Jeff

I'm sure you've figured this out, but the basic form would be:

get-argument swap select
xt function1
xt function2
end-select execute

Neal

You mentioned earlier that the lookup table idea would give incorrect results after compiling. I am wondering, would using ' give wrong results, too?

E.G. ' function execute

Jeff

If you need the xt of a function at run-time, use **[']** inside a definition -- it relocates properly.

Neal

Hmm, now that's interesting... I might have caused myself a little trouble. I was rather wondering about why the select/xt/end-select construct was there.

From Forth-83 I was used to doing something like this for forward referencing:

```
variable foovar

: bar    foovar @ execute ;

: foo  ( ... ) ;

' foo foovar !
```

I don't need forward references often enough to have devised anything more clever, but with state machines sooner or later things wind up coming full circle and one or two are needed. I find storing the state as a vector a bit faster than looking it up in a table... call it a bad habit from my assembly language days.

So I take it that sort of thing won't work when I build a standalone app in Quartus? What's the easiest workaround --- something like the following to be called at runtime?

```
: init-reference   ['] foo foovar ! ;
```

This is pretty simple and not too big a deal, but is there a "cleaner" way to handle forward references, i.e. something that avoids the runtime initialization?

The run-time initialization is required. A 'cleaner' solution would involve a

substantial change to the way Quartus Forth generates stand-alone apps, and also quite a bit more time; in that light, doing the run-time initialization of the vector is not such a big deal.

Neal

So if ['] will work at runtime, could I (in theory) generate a lookup-table still, and in a function just initialize the table with all the functions I know?

```
create lookup 3 cells allot

: a ;
: b ;
: c ;

: fill-lookup ( -- )
    ['] a lookup !
    ['] b lookup 1 + !
    ['] c lookup 2 + !
;
```

Would this work?

Jeff

It would, but it wouldn't represent any space or speed savings over using a **select/xt/end-select** structure.

Neal

Oh -- one amendment -- your code as shown would fail. It would need to be

```
['] a lookup !
['] b lookup 1 cells + !
['] c lookup 2 cells + !
```

Neal

By **jeff** on Thursday, February 22, 2001 - 03:39 pm: Edit

In my case it would provide savings in space. Just because I have roughly 152 xt noop operations in my select/end-select function. When creating the lookup table those would go away.

Thanks, Neal! 🙂
Jeff

By **Neal Bridges (Nbridges)** on Thursday, February 22, 2001 - 03:41 pm: Edit

How many of those are at the beginning or end of your table? A check of the inbound parameter, and an adjustment, and you could eliminate all the leading and trailing cases.

Neal

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More newbie ?

By **Tim** on Thursday, February 22, 2001 - 12:26 am: Edit

As a very RANK beginner I'm starting to get the hang of QF. However I don't seem to be able to find documentation which explains the specific difference and useage of Docinclude vs. Docinclude" - what does the quote do? I can assume the answer applies to docneeds vs. docneeds" as well. I have tried to study and understand the stack-chart in the library file but I'm still to new at this language to fully understand.

By **Neal Bridges (Nbridges)** on Thursday, February 22, 2001 - 12:51 am: Edit

DocInclude" and **DocNeeds"** both parse up to the next " mark, so that you can access doc files that have spaces at the ends of their names.

The simple **DocNeeds** and **DocInclude** also allow spaces, but it may not be clear that there are spaces at the end of the line.

Generally, the " versions let you see exactly where the filenames ends on the line.

Neal

By **Neal Bridges (Nbridges)** on Thursday, February 22, 2001 - 12:53 am: Edit

Note that the " mark in the names of those words doesn't do anything magical itself -- I could have easily called them **Fred** and **Joe**; naming them like that gives a reminder of what they do.

Neal

By **Tim** on Thursday, February 22, 2001 - 09:21 am: Edit

Neal,

Got it - thanks.

Tim

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Arrays in codespace?

By **Duane Foster (Duaneg)** on Wednesday, February 21, 2001 - 09:52 pm: Edit

I've been hitting the archives pretty hard, but most threads about codespace seem to concern 'getting smaller'. I understand about making arrays and allot, etc., but they form in dataspace. What I am thinking about is an 'array of constants'. In other words, I have an array of data which will not change. It seems logical that this would be compiled into codespace. How can this be implemented?

By **Neal Bridges (Nbridges)** on Wednesday, February 21, 2001 - 10:32 pm: Edit

Hmm. If it's a very large array of data, you might keep it in a custom resource in your app. If it's small, keep it in dataspace.

Neal

By **Duane Foster (Duaneg)** on Thursday, February 22, 2001 - 07:10 pm: Edit

What would you advise for about 800 bytes of data?
Duane

By **Neal Bridges (Nbridges)** on Thursday, February 22, 2001 - 07:11 pm: Edit

That's small. Keep it in dataspace.

Neal

By **Duane Foster (Duaneg)** on Thursday, February 22, 2001 - 07:29 pm: Edit

What considerations should be implemented in the stand-alone code to preserve the data in dynamic RAM? Is your scheme for 'saving and restoring application data' adequate?

Thanks for your advice
Duane

By **Neal Bridges (Nbridges)** on Thursday, February 22, 2001 - 07:30 pm: Edit

In general, yes -- can you be more specific about your requirements?

Neal

My application is a UI which displays various views and dimensions of a subject The views (bitmapIDs) and dimensions are in an array. The UI can be directed to a different subject by indexing to a different array. Namely, an array of arrays.
This data must be present and unaltered while the program is closed and opened. Since I am unfamiliar with PalmOS, I'm just concerned about putting static data in a dynamic memory area.
I felt that codespace would be a safe place for the arrays, so other programs would not write over the data. I just want my code to 'play nice' with the other programs ☺
Duane

Only one app runs at a time in the Palm OS. If you have static data, it'll be there the next time, no reason to worry. Nobody will step on your data while your app is running.

If your data changes via input from the user, and you need to save and restore it between invocations of your app, you have to do so explicitly.

Neal

Are you saying that once a program is installed on the Palm, it reserves a piece of the dynamic memory and no other program will use that piece?

Or; in the case where data does not change between invocations; the data is restored on launch? If this second case is true, then I presume you setup the restoration of dataspace on launch when compiling the PRC.
Duane

To your first question -- no. Dynamic memory is just working space for the currently running application.

Each time a stand-alone PRC is started, its dataspace is set up from the image contained in the PRC when it was created.

Neal

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More signed/unsigned questions

By **jeff** on Wednesday, February 21, 2001 - 03:01 pm: Edit

How can I make two 8-bit numbers act as signed values (since a 1 cell value in Forth is 16-bit)?

For example, I want to add 256+256 and get -2 instead of 512? I check right now to see if an 8-bit number is negative by AND'ing 0x80 to it and checking the bit.

Do I have to write my own 8-bit adding/subtracting routines or is there something built-in I can use?

Thanks! 🙂

Jeff

By **Neal Bridges (Nbridges)** on Wednesday, February 21, 2001 - 03:10 pm: Edit

The CPU itself offers an instruction to extend a signed byte value into a 16-bit word value. Here's the long form:

```
needs asm68k

code extend ( byte -- cell )
  prefix
  ext .b TOS
end-code
```

And the short form:

```
: extend ( byte -- cell )
  [ (hex) 4887 cs, ] ;
```

Neal

By **Neal Bridges (Nbridges)** on Wednesday, February 21, 2001 - 03:12 pm: Edit

By the way, I presume you meant '255+255' in your example.

Neal

Hehe, yeah 🙂

I don't understand how to use the example you gave, though. Is there just a way for me to create an 8-bit number in Forth (or was that what your example does)?

My basic problem is that I am emulating an 8-bit processor, and for addition, subtraction and left bit shifts, I need to be left with just 8 bits.

Jeff

Here's an example:

255 extend 255 extend + . -> -2

Neal

To strip that back to only 8 bits:

255 and

You don't need to do this if you're just writing the value back to a character address in memory; the truncation will occur automatically.

Neal

By the way, another way to write '255 and':

(binary) 11111111 and

Neal

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Select xt end-select

By **jeff** on Wednesday, February 21, 2001 - 11:16 am: Edit

Is this strictly incremental (ie 0, 1, 2, etc.) without being able to skip numbers? Or if I only wanted to compare against 4 7 and 9 would I have to do:

```
select
xt xt xt xt \ 0,1,2,3
xt doSomething
xt xt \ 5,6
xt doSomething
xt \ 8
xt doSomething
end-select
```

Is there a limit of if/then depth? Because if select/xt won't do what I need I'll have a case/endcase of close to 156 depth.

Thanks.

Jeff

By **Neal Bridges (Nbridges)** on Wednesday, February 21, 2001 - 12:31 pm: Edit

It's strictly incremental, yes. You can skip entries by using

xt noop

Neal

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Code: Arrays with Bounds Checking

By **Bob Ryan** on Wednesday, February 21, 2001 - 02:43 am: Edit

Hi all!
I just recently discovered Forth, and I thought I'd share my first bit of code.
These versions of array and matrix check that the given indexes are valid.
Coming from a C background I was impressed!

Tweaks and comments are appreciated!

Notes: I used 'matrix' instead of '2array' for the 2 dimensional array
because '2array' might be mistaken for a one dimensional array of 2-celled
values.

```
\ barray 2001/02/18 15:58 RLR
\ Arrays with bounds checking

needs toolkit

: array
  create   ( n -- )
      dup , cells 0allot
  does>     ( +n -- a-addr )
     >r dup 0 r> dup cell+ >r @ within
      if
             cells r> +
      else
              cr
             abort" Array out of bounds!"
      then ;

: matrix
  create    ( #rows #cols -- )
      2dup , , * cells 0allot
  does>     ( row col -- a-addr )
      >r 2dup r@ @ rot * +
      rot rot 0 r> dup cell+ >r @ within
      swap 0 r> dup cell+ >r @ within
      and
      if
              cells r> +
```

```
        else
                cr
                abort" Array out of bounds!"
        then ;
```

Neat!

Neal

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Get Palm Unique ID

By **Jih-tung Pai** on Tuesday, February 20, 2001 - 11:32 pm: Edit

Hi all,

I would like to have a piece of code to access the unique ID number of the Palm that my program is running on. What will be the way of doing it?

Thanks in advance,

By **Neal Bridges (Nbridges)** on Tuesday, February 20, 2001 - 11:37 pm: Edit

This thread should help:

http://www.quartus.net/discus/messages/23/808.html?#POST5114

Neal

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PalmVII Forth Support

By **Don Golding** on Tuesday, February 20, 2001 - 01:47 pm: Edit

Does QForth support TCP/IP data transfer protocols so a Palm can exchange data with a server? Anyone doing this?

By **Neal Bridges (Nbridges)** on Tuesday, February 20, 2001 - 02:09 pm: Edit

Philip Robinson is using Quartus Forth to work with the Palm TCP/IP stack. How's that going, Philip?

Neal

By **philip robinson** on Thursday, March 22, 2001 - 08:53 am: Edit

Neal,

I did get the tcp/ip all working including send/receive of data from the Quantus Forth program to a small Java tcp/ip program I have.
So tell everybody it can be done by calling the appropriate tcp/ip functions in Netlib via the appropriate systraps. I did it all with the interpreted version and didn't do a makeprc as I don't have that capability, but I guess that will also work quite happily. So basically a good read of the Palm Netlib documents is required and away you go.........it all works fine!!!!

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> 64K

By **jeff** on Tuesday, February 20, 2001 - 11:47 am: Edit

Okay. Probably a simple problem, but I can't seem to solve it 🙂

I'm adding two single-cell numbers together:

x @ y @ +

Now I need to determine if after being added they were greater than 64K. However, everything in Forth is signed, and I _need_ these variables to be single-cell.

How can I do this?
Jeff

By **Mark Browne (Markbrowne)** on Tuesday, February 20, 2001 - 11:54 am: Edit

The way that I would do this is to do the calculation as a double, and then check the top cell. i.e.

x @ 0 y @ 0 d+

The top cell will be zero (false) if the result is less than 64K, and the next cell will be your result.

Mark

By **Bob Ryan** on Tuesday, February 20, 2001 - 12:09 pm: Edit

One way (maybe not the most efficient) would be:

0. x @ m+ y @ m+

Don't forget the dot after the zero (indicating a double cell value). This should give you the double celled sum of the single celled values x and y.

By **jeff** on Tuesday, February 20, 2001 - 12:09 pm: Edit

That will work... thanks, Mark! 🙂

BTW, is there a way to do unsigned math in Quartus Forth? The basic idea is that I need this for a wrap-around. Like adding two unsigned bytes, 256=0, 257=1, etc.

Now I need it for 16-bit unsigned values. So when I return a number >32K, I need it to show me the number, not a negative value. Does this make sense?

Jeff

One way (maybe not the most efficient) would be:

0. x @ m+ y @ m+

Don't forget the dot after the zero (indicating a double cell value). This should give you the double celled sum of the single celled values x and y.

Actually, due to the magic of two's complement arithmetic, I think you already have what you need.

Try this:

33000 1 + u.

The "u." prints an unsigned numeric. If you'd have used "." instead, you'd print the signed interpretation of the same value. Bits is bits, and for addition and subtraction with two's complement arithmetic you can interpret them as either signed or unsigned values.

The thing you need to watch out for is comparisons. Try this:

33000 1 > .

">" is doing a signed comparison of 33000 and 1, and thus returns FALSE for the above expression. There's an unsigned comparison word called "u<" and (in the core-ext library) a definition for the "u>" operator.

Since this is Forth, you can of course redefine the normal comparison operators to be unsigned by default, but redefining standard words isn't a practice I'd encourage.

Hope this helps!

By **Neal Bridges (Nbridges)** on Tuesday, February 20, 2001 - 02:16 pm: Edit

Dave is right. Arithmetic works for both signed and unsigned numbers; how you interpret the result (as signed or unsigned) is up to you.

```
0 1- . -> -1
0 1- u. -> 65535
```

Neal

By **jeff** on Wednesday, February 21, 2001 - 12:32 pm: Edit

What about with arrays? What if I have an array of 64Kb in length, and I want to access the byte at location 45,000? Will it work? or will I get a fatal error?

Jeff

By **Neal Bridges (Nbridges)** on Wednesday, February 21, 2001 - 12:34 pm: Edit

Since dataspace is only 32K, you can't keep an array that large without using absolute addressing, at which point you're dealing with a 32-bit address that can access any item in memeory.

Neal

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Why use >r and r> ?

By **Mike Keesling (Blueeyedpop)** on Tuesday, February 20, 2001 - 10:04 am: Edit

Is the use of >r and r> in definitions such as:
\ Combine new nnn and 1000's:
>r 1000 m* r> m+ set-display ;

a matter of style, or is there a performance gain by using the return stack?

By **Neal Bridges (Nbridges)** on Tuesday, February 20, 2001 - 10:15 am: Edit

It's not a matter of performance gain, it's a matter of getting things out of the way.

In the example above, I move the 'nnn' value out of the way while I multiply the double-cell value underneath it by 1000.

Neal

By **Mike Keesling (Blueeyedpop)** on Tuesday, February 20, 2001 - 10:19 am: Edit

but why use the return stack and not the regular stack?

By **Neal Bridges (Nbridges)** on Tuesday, February 20, 2001 - 10:22 am: Edit

Why use the return stack? Not to be glib, but because it's there. Otherwise, you'd have to do ROT ROT, then the multiplication, then another ROT.

Neal

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Problem w/ Fields

By **Wolfgang Allinger** on Monday, February 19, 2001 - 07:55 am: Edit

string>Field uses FldInsert and this works only with editable fields. I want to write also to fields, which are normaly non-editable.

One solution would be, to modify string>Field that it saves the actual attributes, then set the field to editable, does the FldInsert and then restore the original attributes.
However I couldn't manage this, because I'm not able to interactively test Forms/Fields etc.

Neal and/or others, it would be nice, if you please could modifiy your WIN example to include forms and testing them interactivly or give any hint's howto.

THX from germany, Wolfgang

By **Neal Bridges (Nbridges)** on Monday, February 19, 2001 - 11:14 am: Edit

Interactively testing forms is tricky. I'm not sure the win module can be modified to help. However, there's an easy answer to your question--

http://www.quartus.net/discus/messages/23/368.html?MondayJuly1020000221pm#POST2364?MondayJuly1020000221pm

Neal

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Current user locale

By **Vadim Zaliva (Krokodil)** on Monday, February 19, 2001 - 02:36 am:
Edit

If there is any way to get current user
decimal separator settings? The one set
in Preferences->Formats->Numbers?

By **Erwin Schomburg (Esc)** on Monday, February 19, 2001 - 05:41 am:
Edit

The C-prototype is LocGetNumberSeparators (NumberFormatType
numberFormat, Char *thousandSeparator, Char *decimalSeparator)

/Erwin

By **Vadim Zaliva (Krokodil)** on Monday, February 19, 2001 - 01:34 pm:
Edit

Ok, here is what I am trying:

6 PrefGetPreference

it should return number format which later
I will use in call suggested by Erwin.

This call always return 2 words: 6, 0.
My guess that this call does not drop parameters
from the stack, this I put 'nip' to take care
of it.

However, whatever number format preferences I am setting, it always
returns 0.

What I am doing wrong?

By **Neal Bridges (Nbridges)** on Monday, February 19, 2001 - 01:41
pm: Edit

PrefGetPreference works properly. It consumes one parameter and
returns a double-cell value (two cells).

You need to pre-process the parameter with >**BYTE**:

```
6 >byte PrefGetPreference .s -> <2> 0 0
```

This is returning a double-cell value of zero, which represents
nfCommaPeriod and indicates that on my Palm, the separators are the
comma and the period.

Neal

By the way, you'd do better to use the call Erwin described; the
'Preferences' method is out-of-date.

Neal

Neil, thanks for hint.

GetPreferences is out of date indeed, but
in SDK documentation they say that GetPreference should be used instead -
that's what I am doing.

I am going to use LocGetNumberSeparators call Erwin suggested, but first
parameter passed to it
have to be NumberFormatType, which I am trying to retrieve with
GetPreference.

Or I am misunderstood it all again? 🙂

Here what I have now:

```
6 >byte constant prefNumberFormat

: getNumberFormat ( -- d. )
prefNumberFormat PrefGetPreference
;

: getDecimalSeparator ( d. -- d )
here dup >abs rot 1+ >abs
LocGetNumberSeparators
```

```
here 1+ @
;

: test
getNumberFormat getDecimalSeparator
;
```

GetNumberFormat works fine, and returns
value which change depending from my
Pilot settings.

However getDecumalSeparator causes
fatal exception.

Any suggestions?

1+ won't cut it; it'll turn the address provided by HERE into an odd number,
a mis-aligned address. The CPU in the Palm requires aligned addresses.

Use CELL+ instead.

Neal

I've replaced 1+ with CELL+ and it still
gives me fatal exception.

By the way, what is word opposite to '>byte'?

my mistake.
wrong args order.

I see you're going to force me to type in your code 🙂 Ok.

First, the reverse of >BYTE is 8 RSHIFT.

Second:
I take back what I said about the CELL+, it looks like you could use 1+
here, as they're 'char' type pointers. However, at second glance, you've got
your parameters in the wrong order, and it appears you need to pass the
number format type as a >BYTE massaged single-cell.

This works:

```
6 >byte constant prefNumberFormat

: getNumberFormat ( -- numformat )
  prefNumberFormat PrefGetPreference drop ;

variable decsep
variable thousep

: getSeparators ( numformattype -- decsepchar thousepchar )
  >r
  decsep >abs thousep >abs r> >byte
  LocGetNumberSeparators
  decsep c@  thousep c@ ;

\ Example:
getNumberFormat getSeparators emit emit
```

Neal

Thanks for help!

I am proud to say that I wrote almost identical
code before reading your last message which
also works:


```
: getDecimalSeparator ( d. -- d)
drop >byte r> here dup >abs rot cell+ >abs
r> LogGetNumberSeparators here c@
```

Glad to hear that! I prefer my code slightly in this case, as by requiring a
double-cell input to your getDecimalSeparator you create an unnecessary

dependancy between it and getNumberFormat. It also leaves getNumberFormat less directly useful.

Neal

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Opening other app DB

By **Vadim Zaliva (Krokodil)** on Sunday, February 18, 2001 - 01:28 am:
Edit

Is it possible from Quartus application to add
record to some of standard pilot applications
databases? For example to Expense?

By **Neal Bridges (Nbridges)** on Sunday, February 18, 2001 - 11:10 am:
Edit

It is certainly possible; the newmemo library is one example that opens the
MemoPad database.

Neal

By **Vadim Zaliva (Krokodil)** on Sunday, February 18, 2001 - 03:31 pm:
Edit

I guess I should know structure of the
database I am trying to access. What is common
way to find out structure of some pilot DB?

I am particulary interested in 'Expense' db.

By **Neal Bridges (Nbridges)** on Sunday, February 18, 2001 - 04:00 pm:
Edit

Your best bet is to find documentation on the structure. This isn't likely
available, so the next best is to find existing source that manipulates that
database. Failing that, create some trial Expense entries and examine the
data directly (RsrcEdit) to determine the layout.

Neal

By **Vadim Zaliva (Krokodil)** on Sunday, February 18, 2001 - 11:40 pm:
Edit

I examined sources of pilot-link package
and it seems to contain all information I need.
I will try to make use of it.

By **Neal Bridges (Nbridges)** on Monday, February 19, 2001 - 03:19
pm: Edit

Keep us posted, Vadim!

Neal

If it will work, I will publish my code, perhaps
somebody might want to use it.

That would be terrific, Vadim.

Neal

OK, I have some groundwork done
and now I've formed 'struct' which
contains all required information
to create new record in expense DB.

Now I need to write it to DB. Suppose I already
opened database, created new record with correct
size and locked memory handle pointing to newly
created record.

What is best way to fill it with data? I can
start filling it writing elements of structure,
one by one using DmWrite. Anything wrong with
doing dozen of DmWrite's per record?

Or is it better to allocate temporary memory
buffer and create record image there and when
write it once using single DmWrite? Record could
be quite big, I am concerned with memory constraints.

Thanks!

You can certainly do multiple DmWrites; that's slower than doing one big
write, but it'll work.

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Readfing Forth code

By **Tim Hulme** on Saturday, February 17, 2001 - 01:44 pm: *Edit*

Hi Everyone,

Here comes more newbie questions. Sorry, this is going to be long.

I have been working at learning forth for about a month now. I have ordered a Forth book from Forth, Inc. (hasn't arrived yet) and have been downloading and reading everything I can get my hands on. Tried to find Thinking and Starting Forth books at my local library but no cigar. I have been working thru the "simple forth" tutorial from Leo Wong's site but something isn't getting thru to me.

Here's my question: How does one teach himself to READ forth? By this I mean be able to look at a code listing and get a mental picture of what the program does. I have been able to do this with programs like Dave Bennetts "wind chill factor" and a couple of his other programs as well. What I have done is to sit down with the listing and outline what each line of code is doing in english statements that gives me a clear picture of what is happening at that given moment. In other words bacically commenting each line of code. This is a throwback to my knowledge of english like languages such as BASIC and Pascal. I have had a lot of success at doing this with Dave's programs. Where I seem to get hung up is when I encounter listings which have a lot of low level(not sure that's the right term)stack words. I have a pretty good hold on the GUI and form end of this because most of my programming experience is with Macintosh. As an example (taken from Neal's Duco program):

\ Combine new nnn and 1000's:
>r 1000 m* r> m+ set-display ;

For some reason I can't get a clear mental picture of what is happening as a whole. I think I understand each word (i.e. >r or m*) on it own. After all their defined in the manual, but just don't seem to be able to wrap my brain around the entire line. This is a simplfied example. It's the combination of the little words that are throwing me.

I realize that part of my problem is my newness to the concept of a stack machine and the programmer being responsible for the details, and that's why I would like some help trying to understand this concept. Also I'm having a little trouble thinking in RPN (but that's just me). Which is I

assume fundemental to the whole forth process.

I found a short article on the Taygeta site which used some flow chart type of examples to illustrate some of forth's basic words. This was a big help to my understanding. Does anyone have any suggestions or advise as to how to do this kind of diagramming to break down a listing in order to understand the function of the program. It's tough to diagram something out if you don't understand what to diagram in the first place.

BTW, If I'm being a pain in the… or off base here please let me know. My excitement at wanting to learn this language is very high and I don't mean to irritate anyone with my questions. It's a hobby and you know how hobbies can be! Is this the correct way to attack this or is there a different approach I should be taking. This forum has been a big help so far. I spend a lot of time reading past messages to help my learning process. I guess I just don't get it yet.

If someone out there has some lenghty input please feel free to email me if you don't want to tie up the forum.

Tim (a wanabe forth programmer)

By **Tim Hulme** on Saturday, February 17, 2001 - 01:47 pm: Edit

That READING Forth - finger slipped of the 'd' key.

By **Neal Bridges (Nbridges)** on Saturday, February 17, 2001 - 01:51 pm: Edit

You can't possibly irritate by asking questions, Tim -- that's what this forum is for.

You're at the stage of learning where you understand the individual words, but not the idioms that they combine into. You'll quickly improve with a bit of study. What I recommend is this: when you encounter a difficult sequence, break it down and do a stack-diagram for each word:

```
\ Combine new nnn and 1000's:
  ( thousands. nnn )
  >r   ( thousands. ) ( R: nnn )
  1000 m*  ( thousands.*1000 ) ( R: nnn )
  r>   ( thousands.*1000 nnn )
  m+   ( thousands.*1000+nnn )
  set-display ( ) ;
```

Neal

Only a short input: Get yourself a handful of equal things (quarter coins, a sack of dried peas, whatever) and put and take these items onto and from the mental-support stacks (one heap each for data and return stacks, if you advance further, one more for the float stack) on your table while reading through bits of code. Check if the outcome corresponds to the word's stack diagram (if provided) and restart if not.

/Erwin

Anyone using QForth to commincate over the Internet?

Philip Robinson is using Quartus Forth to work with the Palm TCP/IP stack.

Neal

It is true, at least in my opinion, that reading someone else's Forth code can be difficult. Even going back and making your way through some involved piece of your own code can be tedious. Of course, it helps to factor everything to small, well-defined words with descriptive names. One outstanding thing about the language, though, is that once you have coded and tested, say, a particularly difficult word, you then can just use the word without having to delve into it again. For example, library files to open and close records and databases, append text to memos, etc. offer words that you can just use without necessarily having to figure out exactly what they are doing at the time. Essentially, the pyramid-ing of Forth words allows you to work at higher levels of abstraction as you go, and you only have to return to the lower levels when you have to change something specifically.

One example of this is a routine I needed to convert a pair of coordinate points to slope and intercept values of the line passing through them. It wasn't a whole lot of fun to create the word, particularly as there were conversions to and from floating point, but when I was done I ended up with a word that I pass x1,y1,x2,y2 values on the stack and get back m,b in return. It works, and I never have to revisit the details again.

So if you can re-use someone else's piece of code, don't worry if you can't understand everything in it right away--the knack of following the algorithm

from the code comes naturally later.

Ron

The degree of factoring is also important. Short, well-factored functions are much easier to follow and understand than long rambling ones; this is equally true in any language.

Neal

Neal,
I think I get it. I hadn't thought of doing a stack-diagram. I was focusing more on flow charting. Old habit I guess. In the context of the diagram you replied with, I don't understand the meaning of the . (dot) and the : (colon). Do they represent the same meaning in a stack-diagram that they do when used as words? i.e. dot=print top of stack. I think this question is a good example of my confusion with understanding things as a whole. your right though - just takes more study. I'm just in a hurry to learn and get down to business.

In my diagrams, a **R:** at the start indicates that this is a picture of the return-stack, rather than the normal data-stack.

The '.' indicates a double-cell value. Use this section of the Quartus Forth manual as reference:

http://www.quartus.net/products/forth/manual/datatype.htm

Neal

Thanks again Neal, Big HELP!

Ron,

You understand my problem. Thing is I'm one of those detail obsessed types. I totally get the concept of using high level words. I can understand most of the examples that have been written with mostly high level words, but i just have to understand how they work. It's kind of like OCD for

programmers.

Thanks everyone for the replies.

Tim

By **Ron Doerfler** on Saturday, February 17, 2001 - 04:33 pm: <u>Edit</u>

Hi Tim,

Well, actually I'm a details person myself generally. When I entered the FIGForth hex code by hand (!) into my little computer I created in the early 80's, I added a floating point Forth package from somewhere as well. I found a tiny floating point error that occurred in some extreme case and I followed that baby down into the original FIGForth primitive kernel and fixed it by patching in a different set of opcodes. So I know where you're coming from 8^).

Ron

By **Dmitry Yakimov** on Tuesday, February 20, 2001 - 05:06 pm: <u>Edit</u>

Just write programs in forth (or try to do it) and it will be clear for you soon.
I (and any forther) write programs in forth 3-5 times faster than in "c" or pascal.

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I'm confused. How it could be possible?

By **Dmitry Yakimov** on Saturday, February 17, 2001 - 07:51 am: Edit

Try to imagine - I have got some data in some resource. This data is 2-bytes words and they mean trap codes to call palmAPI. Then in code I need to write a cycle, that get this numbers from the resource and call palmAPI functions with this numbers.

Motorola did not make command trap reg, and I'm confused 😕 And palm do not allow me for example to compile trap #xxxx, and then, before of each call change #xxxx because it is protected storage and dwWrite works too long.

What may I do? Please help if you know something - it is live important question for me.

By the way, Neal, how Quartus manages this trouble? Primitives in code for each of palmAPIs?
Quartus compiles the following code to call API:
… \ DUP as a rule
move.w xxxx,d7
jsr 48(a5)

What is 48(a5)?

By **Neal Bridges (Nbridges)** on Saturday, February 17, 2001 - 09:41 pm: Edit

I suppose the best approach depends on what speed you need, and how much memory you want to use.

What exactly is it you're trying to accomplish, Dmitry?

Neal

By **Dmitry Yakimov** on Sunday, February 18, 2001 - 05:25 am: Edit

I wanna build indirect threaded code, but now I have to make ~1000 primitives, it is awfull 😕
And I don't know how it is possible to make only one or two primitives.
Of cource - the faster, the better.
Of cource it depends on what I need, but I have no slightest idea 😕

May I build native code in global data and then execute it?

P.S. Why I wonder Motorola did not make trap reg instruction?

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Loading a single record db

By **jeff** on Friday, February 16, 2001 - 03:08 pm: Edit

Okay, using RsrcEdit I've created a non-resource database with 1 record containing a few bytes (number of bytes is variable, but always just 1 record long).

I was wondering if anyone could show me how to open and read the bytes into a table of variables. I have this so far:

```
create DATA 4096 cells allot \ max size

2variable dbref

: dbname z" Test" ;

: open-db
    DmOpenReadOnly dbname DmOpen dbref 2! ;

: read-record
    0 dbref 2@ DmGetRecord
    \ do something here
    \ fill data into DATA
    0 0 dbref 2@ DmReleaseRecord ;
```

A little push to help me complete the function would be great 😊 -- thanks!

Jeff

By **Neal Bridges (Nbridges)** on Friday, February 16, 2001 - 03:27 pm: Edit

Hint:

Lock the handle (MemHandleLock).
Copy the data (MemMove).
Unlock the handle (MemHandleUnlock).

Neal

Okay, Neal, thanks. I'm now this far... and it runs okay, just doesn't load anything:

```
needs datamgr
needs zstrings

create data 4096 cells allot

2variable dbref
2variable recref
variable recsiz

: open-rec ( -- )
    0 dbr 2@ DmGetRecord recref 2! ;

: get-size ( -- )
    recref 2@ MemHandleSize drop recsiz ! ;

: copy-data ( -- )
    open-rec get-size
    recsiz @ recref 2@ MemHandleLock
    data MemMove drop
    recref 2@ dup MemHandleUnlock
    DmReleaseRecord ;

: open-db ( -- )
    DmModeReadOnly z" Test" OpenDB dbref 2!
    copy-data dbref 2@ DmCloseDatabase drop ;

open-db
```

Any ideas from a quick look-through?
Thanks.
Jeff

You're not passing the right number and type of parameters to MemMove. Have a look at what it takes, and compare that to what you're passing it.

Neal

Here's a couple of utilities I use for getting info from records. I use DmQueryRecord mostly, since I don't modify records, just get info. Index is the record number and dbp is a double valued database pointer. Recbuf is a pointer to memory and RecLen is the record length. Hope this helps.

```
 : LockRecord ( index dbp. -- ptr. )
\ lock record pointer, store in recptr
     DmQueryRecord
     2dup recptr 2!
     MemHandleLock ;

: UnLockRecord ( -- )
\ unlock record pointer from recptr
     recptr 2@ MemHandleUnlock
     throw  ;

: MoveRecord  ( index dbp. --  )
 \ move record into RecBuf
     LockRecord  RecLen s>d
     2swap RecBuf >abs
     MemMove throw
     UnlockRecord ;

: GetField ( offset -- u )
\ get field from buffer onto stack
      RecBuf + @ ;

: GetCField ( c-offset -- c )
\ get char from buffer onto stack
      RecBuf + c@ ;
```

Also, if you're just reading from a record, there's no reason to move the data anywhere. You can just do absolute fetches of whatever data you need (@a and c@a) once you lock the record and get the starting recptr.

Oh, and if you are using a data size of 4096 to cover the maximum memo size of record, you don't have to specify cells, but leave it as bytes and use c@'s.

Of course, both of these suggestions are made without any idea of what you want--perhaps you do want to copy the data so you can re-arrange it

or something.

Ron

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Field Editing

By **Garbett** on Friday, February 16, 2001 - 10:07 am: Edit

I'm working on cleaning up my first full app. It's the old buzzword jargon generator from Leo Brodie's _Starting_Forth_ book of years ago converted to working on a Visor. I figured this is an easy first demo and there's an inside joke going around about buzzwords-- so now I can create the MetaBuzzJoke.

Anyway on the my question. The application is basically one giant field with one memo option now. (I'm going to add an about box here soon). The one thing I'd like to add is all the cut and paste functions that a normal memo has and have it interoperate with memo pad. Do I have to write each of the "Cut/Paste/Select All" functions myself using the various Field functions and extension? Or is there a shortcut to turn these on (I doubt it?)

I've done the entire thing in Quartus Forth and used RsrcEdit with the demo version. It's been amazing easy. I've spent most of the time doing the lowest level things-- like re-learning forth and copying a memory buffer correctly. Cells, Absolutes and memory alignment is tricky. It's looking like soon I will have no excuse not to buy a copy and proceed onto a project that I hope will make me money. It's definately easier than the other methods I've looked at. RsrcEdit is a must no matter what development environment you work in.

I'm going to make all the code available somewhere and everyone can have a handy bs generator.

By **Jim Purdy** on Friday, February 16, 2001 - 12:01 pm: Edit

try this link on the BBS.
I have found this code to be solid.

http://www.quartus.net/discus/messages/23/454.html?MondayMay120000215am

Best of Luck,

Jim

By **Barry Ekstrand (Ekstrandbb)** on Friday, February 16, 2001 - 03:28 pm: Edit

I've found the simplest approach for the standard Edit menu is to use the 'default' resource values such that PalmOS handles it for you. The MBAR resource should have an Edit menu in it, containing the following:

```
Item          ID        Key
```

```
Undo            10000   U
Cut             10001   X
Copy            10002   C
Paste           10003   P
Keyboard        10006   K
Grafitti Help   10007   G
```

For code in the program, you need a word something like:

```
: handleSysEditMenu ( -- )
    event >abs FrmGetActiveForm
    FrmHandleEvent DROP ;
```

Finally, in the event handling loop, simply make the call to handleSysEditMenu the last choice, after the other menu choices have dealt with in the if-else routines; something like:

```
: main
BEGIN ekey
dup
ctlselectevent = if
   ..... \ handle buttons and stuff
then
MenuEvent = if
event >abs itemid cond
dup
MenuItem1 = if
drop
    ...... \ do some stuff
else
dup
MenuItem2 = if
drop
    ...... \ do some other stuff
else
handleSysEditMenu
thens
again
;
```

Basically the event loop checks to see if the event is one of your program specific actions first, and if not, it assumes it is the only thing left, the Edit menu. I'm reconstructing from partially from memory, so hopefully I didn't leave anything out, but I think I covered the gist of it.

Barry Ekstrand

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First try

By **krokodil** on Thursday, February 15, 2001 - 10:31 pm: Edit

I finally finished by first Pilot software
using Quartus Forth:

http://www.crocodile.org/pilot/index.html

It is freeware, but I do not post source,
because it is my first forth program and
it is not very clean.

Thanks Neal for Quartus forth and everybody
for your advice kindly provided in this forum.

By **Neal Bridges (Nbridges)** on Thursday, February 15, 2001 - 10:39 pm: Edit

Congratulations! One small bit of advice -- make it available from your website as a zip file, rather than as a PRC. Some web browsers mangle mistake PRCs for text and mangle the PRC when it is downloaded.

Neal

By **Vadim Zaliva (Krokodil)** on Sunday, February 18, 2001 - 01:32 am: Edit

The problem you describe occurs some times
with HTTP links in case of misconfigured HTTP
server (wrong content type). It should not
happen with FTP links, like one I use. Having directly downloadable PRC file adds user convenience of installing it right away, from his browser.

By **krokodil** on Wednesday, March 7, 2001 - 10:36 pm: Edit

I just published new version of this
application:

http://www.crocodile.org/pilot/

New features:

- Better user input errors detection
- Filing current bill to Palm built-in Expense application
- Preferences where you can specify your tax and expense
  filing options which are save between restarts.
- Localized number formats
- Application icon
- Tip % shortcuts
- Increased precision of calculations

Thanks everybody in this forum for your advice!

By **Neal Bridges (Nbridges)** on Thursday, March 8, 2001 - 01:30 am:
Edit

I see you have successfully interfaced to the Expense app --
congratulations! It would be interesting to see how that's done.

Neal

By **Vadim Zaliva (Krokodil)** on Thursday, March 8, 2001 - 03:41 am:
Edit

For now I've implemented only addition of
new records to Expense,
but reading should not be too complex
once all data structures are known.

I will brush up code over
weekend and post it here next week.

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Hi/lo bytes AND and bit-shifting

By **jeff** on Thursday, February 15, 2001 - 07:01 pm: Edit

Okay, basically I have these two functions:

```
: hi-byte ( word -- byte )
    8 rshift (hex) ff and ;

: lo-byte ( word -- byte )
    (hex) ff and ;
```

Now, in the interpreter if I do:

```
49 (hex) ff and .      49 ok
49 lo-byte .            0 ok
```

Why is this? Also, is there an easier way to do this in Forth (built-in words, maybe)?

Thanks! 🙂
Jeff

By **Neal Bridges (Nbridges)** on Thursday, February 15, 2001 - 07:24 pm: Edit

Check your **lo-byte** definition, Jeff -- here, yours returns 49, as it should.

One way to simplify **hi-byte** -- skip the **(hex) ff and**, as you won't need it.

Neal

By **jeff** on Friday, February 16, 2001 - 10:55 am: Edit

Okay, now I am confused. In the interpreter, if I do:

```
(hex) ff .      8996 ok
```

What is going on? 🙂

Jeff

The above post is the problem. If I do:

```
49 255 and .        49 ok
49 (hex) ff and .       32 ok
```

Does (hex) not do what I think it does?

Jeff

The problem seems to be that somewhere in your environment there was introduced a word (a constant, variable, whatever) called "ff".

Get it hardwired into the part of your brain dedicated to programming that you NEVER EVER, in any programming language you employ, use literal hex values starting with an overdecadic digit without a leading zero.

Try

49 (hex) 0ff and . (49 ok)

and remain stunned in awe.

May the Forth be with you!

/Erwin

Hehe... I am humbled yet again 🙂

> May the Forth be with you!

It will be with me -- always.

Jeff

By **Vadim Zaliva (Krokodil)** on Wednesday, February 21, 2001 - 02:43 pm: Edit

I have related question: If I want to store
some byte, say 12 at absolute memory location: do
I have to use >byte before c!a?

By **Neal Bridges (Nbridges)** on Wednesday, February 21, 2001 - 02:47 pm: Edit

No, >BYTE is not required in that circumstance. c!a will store a byte value
at an absolute address.

>BYTE is only needed for a few Palm OS calls that take 'byte' sized
parameters; it's an artifact of an optimization performed by the particular
compiler that Palm used to compile their ROM.

Neal

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CASE...ENDCASE

By **jeff** on Wednesday, February 14, 2001 - 11:39 am: Edit

I'm curious, it appears in case.txt that CASE ENDCASE just insert IF THEN for you, making the coding (and readability) much easier.

However, is there a speed increase or decrease? In C, using switch() greatly increases the speed if you are doing (say) 100 compares. Is this true for Forth as well?

If I received a number, and was doing something different based on the number, and there were approx. 100 different things it could be, what would be the most efficient way to do that in Forth?

Also, if IF THEN would be the "best" way (why do I doubt that 🙂) to do that, then is there a depth limit in Quartus Forth for it?

And just so there isn't any "what the?!" or "why?!" 🙂 I do have a project that needs this... I'm emulating a piece of hardware on the Palm, and using the IRTERM program I wrote, I'll be sending instructions to it.

Thanks, guys!
Jeff

By **Neal Bridges (Nbridges)** on Wednesday, February 14, 2001 - 01:16 pm: Edit

If you're looking for raw speed, try the **select/xt/end-select** construct that Quartus Forth provides. It'll be faster than any set of nested conditionals.

Neal

By **Chris Bucsko** on Wednesday, February 14, 2001 - 04:32 pm: Edit

While we're on the subject of CASE...ENDCASE, could someone help me with the use of OF...ENDOF? I see it a lot in code, but I'm not really sure what it does. Is it like an IF..ENDIF statement? I find the CASE..ENDCASE type of constructs easy to read and modify, but I haven't really gotten good with them in Forth, yet.

By **jeff** on Wednesday, February 14, 2001 - 05:10 pm: Edit

If you know C/C++ then it OF ... ENDOF works just like CASE ... BREAK.

```
: NumericString ( n -- )
    case
        0 of ." Zero" cr endof
        1 of ." One" cr endof
        2 of ." Two" cr endof

        \ This is the default
        ." Some other number" cr
    endcase ;

: Go ( -- )
    5 0 do
        i NumericString
    loop ;
```

Now when you run it the output should be:

```
Zero
One
Two
Some other number
Some other number
 ok
```

Hope this helps. 🙂
Jeff

Yes, that helps a lot, thanks. I tried it last nite. Just add Needs Case, and it works well. Sometimes a simple example is all I need to get started.

If you want more than you asked for Chris, have a look here:

http://www.quartus.net/discus/messages/23/955.html?980880966

John

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Advanced Case Statement

By **Vaughn Wine (Vwine)** on Saturday, January 20, 2001 - 04:59 pm:
Edit

What is the equivalent code in Forth to a Java switch statement (like the following)?

```
switch( expr )
{
  case CONST1:
  case CONST2:
  case CONST3:

    ...

    break;
  default:

    ...

}
```

I was just wondering if there's a way to do this with case/endcase (where more than one value branches to a single block of code and there is a default condition).

Vaughn

By **Kris Johnson (Kdj)** on Monday, January 22, 2001 - 12:40 am: Edit

You can't do it with CASE/ENDCASE. I think the most straightforward way of doing the above with standard Forth words would be something like this:

```
: case1? ( n -- f )
  dup CONST1 = if drop true exit then
  dup CONST2 = if drop true exit then
  dup CONST3 = if drop true exit then
  drop false ;

: foo ( n -- )
  case1? if
    ( do whatever )
  else
    ( do default )
  then ;
```

or something like this:

```
: firstcase ( -- ) ( ... ) ;
: defaultcase ( -- ) ( ... ) ;
: foo ( n -- )
  case
    CONST1 of firstcase endof
    CONST2 of firstcase endof
    CONST3 of firstcase endof
    defaultcase
  endcase ;
```

But, depending upon exactly what the relationship is between CONST1, CONST2, and CONST3, it might make sense to use COND…THENS, GOTO, SELECT, (all of which are "nonstandard", but

available with Quartus Forth), or something of your own design.

-- Kris

I thought a little bit more about your question, and came up with this:

```
\ oneof 01/01/22 KDJ

\ Return true if x0 is equal to
\ one of N given values
: oneof ( x0 x1 x2 ... xN n -- f )
  \ move values to return stack
  dup begin dup 0> while
    1- rot >r
  repeat
  drop false swap
  ( x0 f n ) ( R: xN ... x2 x1 )
  begin dup 0> while
    1- r> 3 pick = if
      \ match!; drop remaining items
      nip true swap
      begin dup 0> while
        1- r> drop
      repeat
    then
  repeat
  ( x0 f n ) ( R: )
  drop nip ;
```

Here are a couple of examples of how to use ONEOF:

```
: odd-digit? ( n -- f )
  1 3 5 7 9  5 oneof ;

: even-digit? ( n -- f )
  0 2 4 6 8  5 oneof ;
```

-- Kris

The solution is simpler and more efficient if the order of the parameters is changed so that the tested value is at the top of the stack (rather than down at the bottom):

```
\ memberof 01/01/22 KDJ

\ Call DROP n times (if n<1, then just drop n)
: ndrop ( x1 x2 ... xN n -- )
  dup 0> if
    for drop next exit
  then
  drop ;

\ Return true if x0 is equal to
\ one of N given values
: memberof ( x1 x2 ... xN n x0 -- f )
  >r begin dup 0> while
    1- swap r@ = if
```

```
      ndrop r> drop true exit
    then
  repeat
  r> drop ;
```

Examples:

```
: odd-digit? ( n -- f )
  >r   1 3 5 7 9   5 r> memberof ;

: even-digit? ( n -- f )
  >r   0 2 4 6 8   5 r> memberof ;
```

-- **Kris**

Lets try changing that a little bit. Modify oneOF to leave x0 on the stack as follows:

```
\ oneOF 01/01/22 KDJ
\        01/01/22 JRN modified to leave x0 on stack

\ Return x 0 and true if x0 is equal to
\ one of N given values
: oneOF ( x0 x1 x2 ... xN n -- x0 f )
  \ move values to return stack
  dup begin dup 0> while
    1- rot >r
  repeat
  drop false swap
  ( x0 f n ) ( R: xN ... x2 x1 )
  begin dup 0> while
    1- r> 3 pick = if
      \ match!; drop remaining items
      nip true swap
      begin dup 0> while
        1- r> drop
      repeat
    then
  repeat
  ( x0 f n ) ( R: )
  drop ;

\ Add a new word, very much like OF, but calling "oneOF" instead of "=" as follows:

: anyOF
  1+ >r postpone oneOF
  postpone if postpone drop r> ;
immediate

We can now say:
NEEDS case
NEEDS oneOF

: Casetest (n - )
CASE
  1 OF
    ." Value is 1"
  ENDOF
```

```
   2 3 4 3 anyOF
     ." Value is 2 or 3 or 4"
   ENDOF
   5 6 7 8 4 anyOF
     ." Value is 5 or 6 or 7 or 8"
   ENDOF
\ Otherwise
     ." Value " . ." not found"
     0
ENDCASE
;
1 Casetest Value is 1 ok
3 Casetest Value is 2 or 3 or 4 ok
8 Casetest Value is 5 or 6 or 7 or 8 ok
0 Casetest Value 0 not found ok
```

John

Sorry,
I didn't say that the word immediately before the anyOF word is the count of the values to be tested.
i.e.
.
.
\ Test 3 values
.
x1 x2 x3 3 anyOF \ Test for
.
.

x1, x2, x3 are 3 values to be tested.

```
    anyOF    CORE EXT
 Interpretation: Interpretation semantics for this word are undefined.
 Compilation: ( C: -- of-sys )
Put of-sys onto the control flow stack.  Append the run-time semantics given below to
the
current definition.  The semantics are incomplete until resolved by a consumer of
of-sys
 such as ENDOF.
 Run-time: ( x0 x1 x2 ... xN N --    | x0 )
If the x0 value on the stack is not equal to any of the N values x1 to xN, discard
all values
 except x0 and continue execution at the location specified by the consumer of
of-sys, e.g.,
following the next ENDOF.  Otherwise, discard all values, including x0, and continue
execution
in line.
 See: 6.2.0873 CASE, 6.2.1342 ENDCASE, 6.2.1343 ENDOF, 6.2.1950 OF.
```

John

Cool. I was trying to figure out how to integrate ONEOF or MEMBEROF into CASE, but had trouble

coming up with the solution at 2:00 AM.

BTW, that documentation you give looks like it comes from the ANS standard. Is it? (It's not in the draft I have.)

-- Kris

Kris,
The word anyOF is not in the draft. I just copied the stuff about OF out of the draft and modified it to describe the new anyOF word I'd just made up.

I had looked at CASE in the past with a view to being able to do all this but couldn't be bothered to work out what was required. This thread, with your oneOF word, made it easy.

John

Thanks a lot Kris and John! anyOF is just what I needed!

Quick question, though. What is the zero for, right before ENDCASE in John's example (Casetest)?

Vaughn

If you're not already sick of this stuff, here's one more variation: it uses an array of values rather than doing all the stack manipulations:

```
\ inarray 01/1/22 KDJ

\ Return TRUE if X is equal to
\ one of the values in the array
\ at address A with N elements
: (inarray) ( x a n -- x f )
  cells over + swap do
    i @ over = if
      unloop true exit
    then
  [ 1 cells ] literal +loop
  false ;

\ Return TRUE if X is equal to
\ one of the values in the array
\ at address A with N elements
: inarray ( x a n -- f )
  (inarray) nip ;

\ Trigger case if value is
\ in array A of size N
\ Compile: ( C: -- of-sys )
\ Run-tine: ( x a n -- | x )
: inarrayof
  1+ >r postpone (inarray)
  postpone if postpone drop r>
; immediate
```

Examples:

```
needs case
needs inarray

create odds  1 , 3 , 5 , 7 , 9 ,
create evens 0 , 2 , 4 , 6 , 8 ,

: odd-digit? ( n -- f )
  odds 5 inarray ;

: even-digit? ( n -- f )
  evens 5 inarray ;

: test ( n -- )
  case
    odds 5 inarrayof ." odd" endof
    evens 5 inarrayof ." even" endof
    ." Neither"
  endcase ;
```

-- Kris

Vaughn,
When OF or anyOF succeeds it drops the target of the CASE from the stack. If none of them succeed then, when we get to ENDCASE, it is still on the stack. ENDCASE throws it away.
In the example I gave, I printed it in the

```
\ Otherwise
    ." Value " . ." not found"
```

line so I needed to put something on the stack for ENDCASE to throw away. Hence the 0.

BTW, I had no end of stack underflow trouble when I first started using CASE before I worked out that ENDCASE threw away a value.

John

I found the 0 confusing as well. It might be clearer to use

```
." Value " dup . ." not found".
```

-- Kris

When I asked the question yesterday, I had only briefly looked over the code. This morning I had a closer look, and I tried Casetest without the 0. When I got the stack underflow, I immediately remembered that ENDCASE throws away the test value. I was going to reply to my own message, but you guys beat me to it!

I think for somebody like myself, a beginner in FORTH, using DUP is clearer, but hey, using 0 saves a few keystrokes and has the same result.

Thanks,

Vaughn

Surely.

How about:

```
create odds 99 , 1 , 3 , 5 , 7 , 9 ,
here odds cell+ - 1 cells / odds !
```

etc.

storing the number of compare items at the front (where the 99 is). Then, with suitable modification to the "inarray" words, you wouldn't need to explicitly specify the number of items to be compared.

P.S.
The sequence "here odds cell+ - 1 cells / odds !" all looks a bit ugly don't you think.

I considered putting the count at the beginning of the array, but decided to go with a separate count argument because it's more general. With the separate count argument of INARRAY, you can handle a "counted array" with a simple definition:

```
: incountarray ( a -- f )
  dup cell+ swap @ inarray ;
```

BTW, here's a definition of ANYOF that uses my MEMBEROF word instead of ONEOF. (MEMBEROF is more efficient, with less stack juggling):

```
needs memberof

: (anyof) ( x x1 ... xN n -- x f )
  dup 1+ pick memberof ;

: anyof
\ Compilation: ( C: -- of-sys )
\ Run-time: ( x x1 ... xN n -- | x )
  1+ >r postpone (anyof)
  postpone if postpone drop r>
; immediate
```

-- Kris

It gets simpler:

```
\ If x = x1 leave x x1 else leave x x2
: || ( x x1 x2 -- x x1 | x x2 )
2dup - 2over = and + nip \ Work that out!!
;


NEEDS case
: Casetest (n - )
CASE
  1 OF
    ." Value is 1"
```

```
   ENDOF
   2 3 || 4 || OF
     ." Value is 2 or 3 or 4"
   ENDOF
   5 6 || 7 || 8 || OF
     ." Value is 5 or 6 or 7 or 8"
   ENDOF
\ Otherwise
     ." Value " . ." not found"
     0
ENDCASE
;
1 Casetest Value is 1 ok
3 Casetest Value is 2 or 3 or 4 ok
8 Casetest Value is 5 or 6 or 7 or 8 ok
0 Casetest Value 0 not found ok
```

John

I worked out the operation of your || word. It calculates $((x1-x2)\&(x=x1))+x2$. Pretty neat--how the heck did you come up with that?

-- Kris

Thank you for asking. I started with this:

```
\ If x = x1 leave x x1 else leave x x2
: || ( x x1 x2 -- x x1 | x x2 )
>r 2dup = if
  r> drop
else
  drop r>
then
;
```

but decided I didn't like if .. else ..then nor using the return stack so tried to work out another way (with less words) - maybe as a bit of a Forth exercise.
I haven't tried to compare their individual performance but have a nasty suspicion that the "neat" version would run slower than the straight forward one. What do you think?

John

Generally speaking, inlined operations are faster than conditional branches; this effect is far more dramatic on pipelined architectures. I also find such branchless structures more elegant, and use them when I can.

Neal

I like using CASE for processing EKEY, but it seems like most people are using IF. So, since we're talking about efficiency...I thought I would ask what's faster? What about CONDS?

I usually use CASE when I'm comparing a value to lots of constants (like when processing EKEY) because I think it looks better. But, I'm discovering that programming in Forth is less about making the code look nice and more about making the code run efficiently.

Vaughn

Efficiency is a worthy goal, and sometimes even a necessary one, but I wouldn't put it ahead of clarity when writing code.

Write your app well and clearly. If when it runs you think it needs to run faster, profile it; see where the bottleneck is; optimize that bit only.

Neal

I couldn't agree with you more Neal. As a newbie, though, I'm still learning how to bring clarity to my Forth code. Personally, I find that all the necessary stack manipulation often muddies the water. It seems to be harder than other languages I've worked with to find the best solution, but I'm sure it will get easier.

There's a wonderful module available in Perl called Benchmark that one can use to compare two pieces of code to determine the faster performer. Has anybody written a similar set of Forth words?

There is hardly any difference in the code generated between coding IF ELSE IF ELSE THEN THEN yourself or using COND … THENS or using CASE OF ENDOF … ENDCASE.

```
For example, YOU might code:
DUP A = IF
  DoA
ELSE DUP B = IF
   DoB
 ELSE DUP
   DoDef
 THEN
THEN
DROP



Using COND ... THENS you might code:
COND
  DUP A = IF
    DoA
  ELSE DUP B = IF
    DoB
  ELSE DUP
    DoDef
THENS                           \ THEN THEN
DROP
```

the COND generates no words and the THENS statement generates the necessary THEN words (to match the IF's).

```
Using CASE ... ENDCASE you might code:
CASE
```

```
    A OF                      \    A OVER = IF DROP
      DoA                     \        DoA
    ENDOF                     \    ELSE
    B OF                      \     B OVER = IF DROP
      DoB                     \        DoB
    ENDOF                     \    ELSE
      DoDef                   \        DoDef
ENDCASE                       \    DROP THEN THEN
```

the CASE generates no words, the OF generates OVER = IF DROP, the ENDOF generates ELSE and the ENDCASE statement generates DROP and necessary THEN words (to match the IF's).

So you see, the code generated is just a sequence of IF … ELSE IF … THEN THEN words in all cases. The main difference it seems to me is that the test value is still on the stack for DoA and DoB and DoDef in the COND … THENS case but only for DoDef in the CASE … ENDCASE case.

John

By **Kris Johnson (Kdj)** on Friday, January 26, 2001 - 10:11 am: Edit

When focusing on "efficiency" on a handheld, efficient use of memory space is probably more important than speed. In that case, a table-driven approach (such as with the INARRAY example) is better than a bunch of IF…THENs.

I use the disasm module a lot to look at the code generated for my definitions. It sometimes gives me good ideas for making the code tighter.

-- Kris

By **Neal Bridges (Nbridges)** on Friday, January 26, 2001 - 10:18 am: Edit

Vaughn, as you proceed, eventually you'll reach a point where it all 'clicks', and stack manipulation is no longer an obstacle. Then, 'the sword will feel like an extension of your arm'.

Neal

By **Kris Johnson (Kdj)** on Friday, January 26, 2001 - 02:45 pm: Edit

Yeah Vaughn, stick with it. Eventually the stack manipulation will seem natural.

However, I don't think that I would ever have come up with John's "elegant" version of ||. Can anyone suggest any basic principles or approaches for converting an IF…THEN conditional to a sequence of Boolean and arithmetic operations?

-- Kris

By **Vaughn Wine (Vwine)** on Friday, January 26, 2001 - 03:37 pm: Edit

Thanks for the encouragement Neal and Kris. Forth is already a ton easier than when I first started.

Bring on the nirvana!

By **Vaughn Wine (Vwine)** on Friday, January 26, 2001 - 03:37 pm: Edit

Thanks for the encouragement Neal and Kris. Forth is already a ton easier than when I first started.

Bring on the nirvana!

By **John Newell** on Tuesday, January 30, 2001 - 01:56 pm: Edit

To get back to the subject…

To suppliment ||, add this word for CASE testing:

```
\ If x between x1 and x2 leave x x else leave x x-1
: >< ( x x1 x2 -- x x | x x-1 ) \ In range
  1+ rot dup 2swap
  over - >r - r> u<
  0= over +
;
\ Note.  This word checks x is between x1 and x2 INCLUSIVE.
\ If you want it to work like WITHIN, remove the 1+ at the beginning of the
definition.


NEEDS case
: Casetest (n - )
CASE
  -4 -1 >< OF
    ." Value is between -4 and -1"
  ENDOF
  1 OF
    ." Value is 1"
  ENDOF
  2 4 >< OF
    ." Value is between 2 and 4"
  ENDOF
  5 8 >< OF
    ." Value is between 5 and 8"
  ENDOF
\ Otherwise
    ." Value " . ." not found"
    0
ENDCASE
;
-4 Casetest Value is between -4 and -1 ok
1 Casetest Value is 1 ok
3 Casetest Value is between 2 and 4 ok
8 Casetest Value is between 5 and 8 ok
0 Casetest Value 0 not found
```

NOTE.
1. You cannot have both a || and a >< before an OF word. i.e. you cannot test matching both a set and a range at the same time. i.e. 1 2 || 5 7 >< OF will not work. Because of the job they do they are mutually exclusive.

2. You can only test one range before an OF. i.e. 1 3 >< 5 7 >< OF will not work.

3. You can test for set inclusion. i.e. 1 3 || 4 || 8 || OF does work.

John

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Environment? stack underflow

By **Garbett** on Tuesday, February 13, 2001 - 09:49 am: Edit

when excuting the following code I get a stack-underflow:

```
include environment
s" foobar" environment?
```

I looked at the word in the library and attempted the following:

```
s" foobar" envlist search-wordlist
```

Same result. Stack underflow. Checking the stack before the search-wordlist it has three values.

Is my library damaged? Is this a bug? Am I missing a value on the stack?

By **Neal Bridges (Nbridges)** on Tuesday, February 13, 2001 - 10:43 am: Edit

You're making use of S" outside of a definition. By default, S" doesn't do that. To fix it, either do:

```
needs environment

: test
  s" foobar" environment? ;
```

or

```
needs file
s" foobar" environment?
```

Neal

By **Garbett** on Tuesday, February 13, 2001 - 11:15 am: Edit

hmmmm. Last Forth I programmed was FORTH-79. There has been a few changes since then hasn't there.

Not a huge amount, but some. The Rationale section of the ANSI Forth Standard gives an overview.

Neal

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How do I do bit masking in Forth?

By **Tammy Cravit (Tammycravit)** on Monday, February 12, 2001 - 10:27 pm: Edit

I'm trying to port a chunk of C code to Quartus. The relevant snippet of C code looks like the following:

```
#define sysFtrNumProcessorID 2
#define sysFtrNumProcessorMask 0xFFFF0000

err = FtrGet(sysFtrCreator, sysFtrNumProcessorID, &id);
chip    = id & sysFtrNumProcessorMask;
```

I've gotten as far as the following in my code:

```
2 constant sysFtrNumProcessorID
(hex) ffff0000. 2constant sysFtrNumProcessorMask
2variable procid

procid >abs
sysFtrNumProcessorID (id) psys
FtrGet drop
procid 2@
```

Now I have a double-cell value on the stack. How do I do the masking? I looked for something like 2and, but didn't find any such thing. What's the easiest (or, the most idiomatically correct) way to do this in Forth?

I'm sure this is an easy thing, but I'm completely bewildered.

Thanks in advance!
Tammy

By **Neal Bridges (Nbridges)** on Monday, February 12, 2001 - 10:31 pm: Edit

This should do it:

```
: 2and ( x1. x2. -- x3. )
```

```
  rot and >r and r> ;
```

Neal

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Field Focus

By **krokodil** on Monday, February 12, 2001 - 06:28 pm: Edit

Hi!

I am writing small application which
involves editing several fields.
I noticed that after I am using field>string
I no longer see blinking cursor in field
which was active before. What's the trick
to restore it?

Another problem I faced is how to "unfocus" field.
I've used FldReleaseFocus (mentioned somewhere
in this forum) which caused fatal error.

By **Neal Bridges (Nbridges)** on Monday, February 12, 2001 - 06:31 pm: Edit

For starters, use **FieldFocus** from fields.txt.

Neal

By **Neal Bridges (Nbridges)** on Monday, February 12, 2001 - 06:33 pm: Edit

To release focus, you must pass a field pointer -- NOT a field ID -- to **FldReleaseFocus**. To get the pointer to a field, use **GetObjectPtr**.

Neal

By **krokodil** on Monday, February 12, 2001 - 06:45 pm: Edit

Thanks Neal.

I used FieldFocus, but for some reason
it does not always help. I worked this problem
around right now, so it is not so critical, but I am still curious why it did happen.

Passing field ID instead of pointer to FldReleaseFocus was my mistake. I have not found documentation on this word and I assumed it takes field id. It hides cursor, but if you type on keyboard (I use GoType) input still goes
to this field.

By **Kris Johnson (Kdj)** on Tuesday, February 13, 2001 - 12:53 am: Edit

FWIW, I couldn't get FieldFocus to show the cursor in one of my forms. My form consisted of one field. If I started writing, then the text would show up in the field, but until I did, no cursor or anything.

Any tips? I went through the Palm OS docs several dozen times trying to figure this out. I also tried several "equivalents" to FieldFocus, but couldn't get any different behavior.

-- Kris

FWIW: I use FieldFocus on various forms, and to my knowledge have never had any problems with it (at least as far as I've ever noticed).

Ron

I'm with Ron, Kris. Was the field unusual in some way? How tall was it?

Neal

I have same problem as Kris with not
showing curson in field.
My field is not special and have length
of 7.

Could it be related to the fact I use
string>field with 0 length string to clean it?

Hard to say, K. What happens if you don't do that?

Neal

Two thoughts:

1) Try using this--I notice it's different from the one in the Fields.txt library file, even though mine has an earlier date of 98.12.7. I recall that the FldGrabFocus is sometimes needed after a FrmSetFocus. This is the one I've always used. Note that I also don't have a FlushQueue at the end, unlike the current 99.2.8 library file.

```
: FieldFocus ( fieldid -- )
FrmGetActiveForm 2dup 2>r
FrmGetObjectIndex dup
2r@ FrmGetObjectPtr ( idx ptr. )
\ Make the field active:
2dup 0 rot rot FldSetInsPtPosition
rot 2r> FrmSetFocus FldGrabFocus ;
```

2) Try using this string>Field version:

```
: string>Field (c-addr u fieldID -- Err )
>r swap >abs r> GetObjectPtr
2dup 2dup
FldGetTextLength 0
2over FldDelete
0 rot rot FldSetInsertionPoint
FldInsert ;
```

I have a note in my library file that this version was extracted from a 12/16/99 Quartus post so POSE wouldn't complain about dynamic memory, etc., but I can't seem to dredge up the post. I have never used string>Field, though, so I can't comment on it.

Ron

The field was a little unusual in that it took up almost the entire form. This was for a text editor application.

I tried various permutations of FrmSetFocus, FldGrabFocus, FldSetInsPtPosition, FldSetInsertionPoint, FldSetSelection, etc. Nothing helped.

I lost interest in finishing the project several weeks ago, but I can try to dredge it up if anyone is really interested in investigating this problem.

-- Kris

When in doubt, seek existing practice. I'm not at my main terminal, but perhaps you can check the MemoPad sources, and see how they achieve cursor focus on a full-screen field.

Neal

For what its worth, I had a problem with FieldFocus not placing the cursor. I found that I had to do the FieldFocus BEFORE doing the string>Field then it worked OK.

John

I've been following this thread with interest (albeit somewhat confused, as I've never seen any problems with FieldFocus and cursors). Now John's comment strikes a chord: I've always set the FieldFocus as soon as doing the ShowForm, before running string>Field. Consistent with John's finding, this approach has always worked fine for me.

…even a blind hog finds an acorn once in awhile…

Barry

When I was writing InchCalc I discovered this with FieldFocus. This is from my readme.

If you set the field focus first, and then add the number, the user input position is after the last number and the user can backspace to erase what is there.

If you load the number into the field and then set the field focus, the user input position is at the beginning of the field.

I've also never had any issues with setting the field focus when used correctly. However, if I have the font set to large and do not allow enough height or width in my field definition things do not display correctly or appear to be "invisible".

Dave

By **Kris Johnson (Kdj)** on Saturday, February 17, 2001 - 10:39 am: Edit

And just to reiterate the description of my problem: I believe the field does have the focus, as any input characters go into the field. But the blinking cursor doesn't appear until something is entered.

I just took a quick look at my app. I have the problem when running it inside Quartus. But the standalone app works correctly--the cursor is displayed fine. So maybe it has something to do with switching from Quartus's form to my form?

-- Kris

By **Neal Bridges (Nbridges)** on Saturday, February 17, 2001 - 01:54 pm: Edit

It shouldn't make any difference, Kris. I've never seen a circumstance where a previous form affected the display of the current form.

Neal

By **krokodil** on Tuesday, February 27, 2001 - 09:44 pm: Edit

What is difference between FieldFocus
and FldGrabFocus? I found situation
where FldGrabFocus works while FieldFocus
does not.

Vadim

P.S. Last question for to-day. I promise! 🙂

By **Neal Bridges (Nbridges)** on Tuesday, February 27, 2001 - 09:51 pm: Edit

Here's a description:

http://www.cs.washington.edu/homes/swanson/palmos_dev_documentation/Field.html#610234
Neal

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Display Bitmap in Form

By **duaneg** on Monday, February 12, 2001 - 05:02 pm: Edit

I followed the "on board development" tutorial successfully, but the PalmOS is very new to me. I have been scouring the SDK and this forum's archives, but when I tried to add a bitmap display to the Form, I ran into a mystery. There is an option for a bitmap in the form editor. When I made a bitmap and referred to it by number, I either crashed the palm or got an existing icon from the RsrcEdit program!

What bitmap does the Form expect to use? I expected it would look for a bitmap in the same resource.

My application will be heavy into displaying graphics, so I expect to put them into a resourceDB. I need to get this "bitmap display from a resourceDB" straight in my head. If you can shed some light on this, I would be very grateful. I am looking forward to using forth again.

By **Neal Bridges (Nbridges)** on Monday, February 12, 2001 - 06:04 pm: Edit

Duane, are you trying to make a bitmap that automatically displays when you bring up a given form, or just a bitmap resource that you can draw at will at any location?

Neal

By **Duane Foster (Duaneg)** on Monday, February 12, 2001 - 07:36 pm: Edit

It is not clear to me, at this juncture in the Palm learning curve, whether or not I should attach my bitmaps to a form. I was just taking the next logical step from the tutorial with confusing results.
If it is a reasonable approach, I would put up a form with some buttons and draw different bitmaps in the main part of the display as required. In this case, the 'draw at will at any location' sounds like the ticket. TIA
Duane

By **Andrew Kearns** on Monday, February 12, 2001 - 08:26 pm: Edit

Actually this bring up a question I've had. That tutorial mentioned is an excellent start, but since I've started with QF it has never been updated. I've been not so patiently hoping that the author would continue this

project.

Does anyone know if the author has plans to continue the Tutorial?

Andrew

By **Neal Bridges (Nbridges)** on Monday, February 12, 2001 - 08:32 pm: Edit

I haven't heard from him for awhile; I suggest you let him know directly how useful his tutorial is, and see what his plans are. There's room for more tutorials, of course; if anybody'd like to work on one, I'm glad to assist.

Neal

By **Garbett** on Tuesday, February 13, 2001 - 09:40 am: Edit

This is something I fiddled with doing as well. Got confused and put it on the shelf. As I always ask a customer, "What do you want?"

Well what I wanted was on a form to display one of several bitmaps. So in the Palm mindset, how is this approached?

I posted my first effort at learning Quartus earlier to this board as a conversion of the first example in the O'Reilly book. It was amazing simple in Quartus compared to C. I was contemplating looking for an example that had a bitmap and converting that. Most of the O'Reilly book is one big example of a Sales application.

By **Neal Bridges (Nbridges)** on Tuesday, February 13, 2001 - 01:16 pm: Edit

Drawing bitmaps is pretty simple. Create your bitmaps using RsrcEdit (or other tool) as Tbmp resources. Here's a generic routine to draw a bitmap:

```
: DrawBitmapResource
  ( y x id dtype --)
  DmGetResource 2dup >r >r
    MemHandleLock
      WinDrawBitmap
    r> r> 2dup MemHandleUnlock drop
  DmReleaseResource drop ;
```

Example of use (assumes you have a resource 'Tbmp 1200' containing your bitmap):

```
needs ids
```

```
80 80  1200  (id) Tbmp  DrawBitmapResource
```

Neal

Thanks Neal, I'm sure I'll be using that bit of code extensively.

I would like to create a set of 100 x 100 pixel, 2bit depth bitmaps. I've been getting familiar with Tealpaint, but I don't see a way to set the depth or to constrain the bitmap outline (clipping). I can set a 100 x 100 pixel outline in Paint, but I only seem to be able to do B&W or color. Also my initial attempts to import into Paint manager changed the size of the bitmap. If anyone can point me in the right direction on this, it would be greatly appreciated.

Duane

Under OS3.5, there's a way to set pixels to 'transparent'; whether or not TealPaint supports this, I don't know.

Such bitmaps would be constrained to work only under OS3.5 and later.

Neal

I have been able to copy a Tealpaint bitmap into RsrcEdit at 4bit depth. Create a 2bit depth family member and copy the 4bit to the 2bit. I also can set the size of the bitmap in RsrcEdit. What a program!
Duane

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Structures

By **jeff** on Monday, February 12, 2001 - 04:19 pm: Edit

Okay, trying to learn how to do this... hopefully a little push will be enough. This is what I have:

```
needs struct

struct
    1 cells field x
    1 cells field y
end-struct point

sizeof point constant pointsize
create points pointsize 10 * allot

: getpoint ( n -- )
    pointsize * points + ;

: setpoint ( x y n -- )
    getpoint dup y ! x ! ;

: showpoint ( n -- )
    getpoint dup x @ y @ . . ;
```

Now if I do (in the interpreter):

```
10 10 2 setpoint
2 showpoint
```

Outputs: 0 546 ok

I'm sure I'm just not calling @ when I should or something silly like that. 🙂

Thanks!
Jeff

Your **setpoint** is not correct. Try this:

```
: setpoint ( x y n -- )
  getpoint tuck y ! x ! ;
```

Neal

Sorry, but I can't seem to get this to work. I know the "getpoint" function works, because if in the interpreter I do:

```
10 2 getpoint x ! ok
2 getpoint x @ . 10 ok
```

However, if I use setpoint and showpoint they return wrong values. I changed the dup to tuck and there is no difference (other than different values displayed -- still wrong).

Any ideas?
Jeff

I stopped at the first error I found. There's also a problem with **showpoint**. This works:

```
: showpoint ( n -- )
    getpoint dup x @ . y @ . ;
```

Neal

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Library installation from Outlook

By **Peter Thomas** on Monday, February 12, 2001 - 02:29 pm: Edit

I tend to use Chapura's software to synchronize my Palm with Outlook (including notes / memos)..

Does anyone have a PST format of the standard Quartus library, or should I just bite the bullet and have a friend install the ".mpa" in her Palm Desktop, hotsync her machine and then beam the entire set of memo's to my machine…

Peter

By **Mark Browne (Markbrowne)** on Tuesday, February 13, 2001 - 04:28 am: Edit

What you can do is change the Chapura settings to a one-time action of "Backup to Palm Desktop Files", Hotsync and then import the mpa into your own desktop. The change the one-time setting to "Restore from Palm Desktop Files", and do a second Hotsync.

I hasten to add that I have not tried this, but it should work ☺

Mark

By **Peter Thomas (Petert)** on Tuesday, February 13, 2001 - 06:55 am: Edit

Neat idea! I tried the first part, and sure enough it worked! Since however I have done as I'd mentionned yesterday and installed the library on a friend's palm (who DOES use Palm desktop), I was able to beam em all over to my machine.

Peter

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Things that should not be done

By **Samuel Tardieu (Sam)** on Sunday, February 11, 2001 - 06:28 am:
Edit

I'd like to start a new thread on things that should *never* be done with Quartus Forth.

I'll start with an example: yesterday, I asked myself "what if I fill up the stack?".

```
: c begin 1 again ;
c
```

Result: soft-reset, as expected. What was not expected was the reset loop, that forced me to do a hard reset. Fortunately, I had backed up everything one hour before 🙂

By **Neal Bridges (Nbridges)** on Sunday, February 11, 2001 - 06:31 am:
Edit

Yes -- that'll write a 1 to a whole lot of places that 1 shouldn't be written. The Palm OS lacks the ability to start up in a sane state when certain low memory addresses are corrupted, unfortunately. The same thing would happen in C, or any other language, if you were to overflow the system stack.

Neal

By **Samuel Tardieu (Sam)** on Sunday, February 11, 2001 - 06:35 am:
Edit

Sure, I didn't mean that QF was at fault. I would just want to be able to evaluate in what domains PalmOS can protect me from my own mistakes.

Sam

By **Neal Bridges (Nbridges)** on Sunday, February 11, 2001 - 06:57 am:
Edit

Oh -- no attack assumed, Samuel 🙂 Just trying to illustrate the mechanism involved, and why it's hard to protect against. There's no easy way to do

memory-out-of-bounds detection on the DragonBall processor, so a system that could catch overflow would have to check the stack depth after each access; this would slow things down by about half.

Neal

By **jeff** on Monday, February 12, 2001 - 10:40 am: Edit

How about a word tht would allow us to check it ourselves?

Jeff

By **Neal Bridges (Nbridges)** on Monday, February 12, 2001 - 10:41 am: Edit

DEPTH returns the current number of items on the stack.

Neal

By **krokodil** on Monday, February 12, 2001 - 06:00 pm: Edit

I thought about bounds check issue myself.

It would be nice to have set of debugging
words which would do extra bounds
checking for memory and stack access
at price of speed. When I debug application
I do not care much about execution speed,
but reseting my palm from time to time
does bother me.

By **Neal Bridges (Nbridges)** on Monday, February 12, 2001 - 06:12 pm: Edit

safe.txt handles memory access; stack depth checking can be handled in any number of ways, depending on what you want to check for. Generally, I'd put a simple **DEPTH** test in the main loop of my application.

Neal

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Installation Issue

By **Peter Thomas** on Sunday, February 11, 2001 - 01:10 am: Edit

I've just acquired Quartus forth and while I seem to be able to install the prc correctly on both mu IIIxe and on a POSE environment, as soon as I try and do anything on the IIIxe she dies real good <g>.

Needs a hard reset to get back going again. This includes something as simple as 2 "return".

Any ideas?

Peter

By **Neal Bridges (Nbridges)** on Sunday, February 11, 2001 - 01:11 am: Edit

Peter, I'm sorry to hear that. It's rare to hear of any problems at all. What else are you running in that environment -- any editing enhancements, pZip!, or similar?

Neal

By **Peter Thomas** on Sunday, February 11, 2001 - 01:19 am: Edit

AH HA

It appears to be related to having TextPlus installed and active. I've just disable it and now all sems to work. Reenabling it causes the same problem.

Running under POSE it reports that 1.25R has caused a BUS error

By **Neal Bridges (Nbridges)** on Sunday, February 11, 2001 - 01:21 am: Edit

TextPlus -- thanks. I'll have a look.

Neal

By **Mike Will** on Sunday, February 11, 2001 - 10:52 am: Edit

Peter, for what it's worth, I had a dickens of a time with my PalmIIIxe right

from the start. Quartus, TealInfo and a few hacks would each cause fatal errors. Eventually, I found out that Palm made a batch of IIIxe's using faulty memory chips that are quite flaky. Of course, I'm the proud owner of one of them. If this is news to you, you can check your serial number at:

http://www.palm.com/support/dram/

and obtain a software patch if needed from the same site. It worked for me, although it does reduce battery life about 10%.

PS Don't expect any apologies or kind words from Palm Inc., they'll just tell you you're honoured to even possess such a treasured piece of technology, and to shut up about it. My next purchase will be a SONY or Handspring.

Mike

By **Peter Thomas** on Sunday, February 11, 2001 - 03:42 pm: Edit

I've done the hardware tests and have no issues at all. RAM etc is good.

By **Mark Beckman (Mbeckman)** on Monday, February 12, 2001 - 01:05 am: Edit

An other data point.
With versions of EvEdit Hack before 2.4, the multiple undo feature would cause Quartus to crash. (that feature uncheck or version 2.4 (on?) all is well).

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Z" s" and c" and cvariable

By **jeff** on Friday, February 9, 2001 - 06:41 pm: Edit

What is the difference between s" and z"? Also, why isn't c" there? Or cvariable?

Thanks, 🙂
Jeff

By **Neal Bridges (Nbridges)** on Friday, February 9, 2001 - 06:44 pm: Edit

A z" is automatically zero-byte-delimited; an s" is not. C" is defined in core-ext.

CVARIABLE is not a Standard word; for any practical purpose, use VARIABLE as a direct replacement.

Neal

By **jeff** on Friday, February 9, 2001 - 06:50 pm: Edit

Just for jargon sake… when you say "zero-byte-delimited" do you mean NULL-terminating (C background, sorry) 🙂

Is C" zero-byte-delimited, too? just w/o returning the length?

Jeff

By **Neal Bridges (Nbridges)** on Friday, February 9, 2001 - 06:53 pm: Edit

Strings defined with C" are not zero-byte-delimited (NULL terminated) -- they are stored as a one-byte length, followed by the string data.

Neal

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Sorted Databases

Quartus Handheld Software: Discussion Forum: Quartus Forth (PalmOS version): Sorted Databases

By **Mike Will** on Wednesday, February 7, 2001 - 08:19 pm: Edit

Here's something for those who need to build, maintain and query sorted databases. Although Neal advised me to use callbacks, I'm still licking my wounds from my last battle with them. So, this is a pure-Quartus solution, basically replacing DmFindSortPosition. It can be used both to find the correct position (index) to insert a new record, and to find an existing record. That's what the flgExists result is for. It uses a binary search of course, and is pretty fast. Once again, Quartus comes through.

```
\ fsp    02-06-2001   MRW
\ FindSortPosition

needs DataMgr

variable newRec  \ any block or struct
variable idxLo
variable idxHi
variable idxMid
2variable dbP.
2variable rMidP.

\ a trivial comparison function:
\ just look at the first cell in rec
: comparF ( r2P.  r1P.)
  @a rot rot @a  ( n1 n2)
  2dup < if 2drop -1
  else > abs then   ( -1 | 0 | +1 ) ;

: (QueryMid) ( index -- rP.)
  dbP. 2@ DmQueryRecord
  MemHandleLock 2dup rMidP. 2!  ;

: FindSortPosition
  ( &comparF &newRec dbP. -- u flgExists)
  dbP. 2! DmNumRecords ?dup
  if  1-  idxHi !  0 idxLo !  >abs rot >r
  else 2drop  -1 exit then
  ( &newRec.    R: &comparF)
```

```
      begin
       \ split remaining set in half
         idxHi @ idxLo @ + 2/ dup idxMid !
         (QueryMid) 2over ( &midRec. &rec.)
         r@ execute  ( call comparF)
         rMidP.  2@ MemPtrUnlock throw
         dup 0> if drop idxMid @ idxLo !
             \ handle one special case
               idxHi @ idxLo @ - 1 = if
            1 idxMid +! -2 idxHi ! then
         else 0<  if  idxMid @ idxHi !
         else -1 idxHi ! ( found) then then
         idxHi @ idxLo @ <
      until 2drop r> drop
      idxMid @  idxHi @ -1 =
   ;


   \ Test

   : findRec ( key -- )
      newRec !
      ( Open DB code )
      ['] comparF  newRec dbP. 2@
      FindSortPosition
      if ." existing record at: " .
      else ." insert position: " .
      then
      ( Close DB code )
   ;
```

Notes:
This code uses signed math, so the effective maximum index is 32767.
IMHO, if you have more than that many records, it's time to switch to
something more robust, like Sybase's Palm stuff. Also, there is no provision
for deleted records. This shouldn't be hard to add support for, however, as
DmQueryRecord will return a 0 for out-of-range or deleted records. That's
the reason I factored (QueryMid) out. If anyone improves on this code,
please repost. I'm sure it could be a bit leaner. I'm happy with it for now
because I had been using brute force linear searches!

Mike

Oops. First line of code in FindSortPosition should read:

```
2dup dbP. 2! DmNumRecords ?dup
```

Mike

Here's a cleaned-up post. Sorry for the mistakes; it's a bit difficult extracting postable code from my own which is built on heavily modified libraries.

```
\ fsp    02-08-2001   MRW
\ FindSortPosition


variable newRec  \ any block or struct
variable idxLo
variable idxHi
variable idxMid
2variable dbP.
2variable rMidP.

\ a trivial comparison function:
\ just look at the first cell in rec
: comparF ( r2P.  r1P.)
  @a rot rot @a  ( n1 n2)
  2dup < if 2drop -1
  else > abs then   ( -1 | 0 | +1 ) ;

: (QueryMid) ( index -- rP.)
  dbP. 2@ DmQueryRecord
  MemHandleLock 2dup rMidP. 2!  ;

: FindSortPosition
  ( &comparF &newRec dbP. -- u flgExists)
  2dup dbP. 2! DmNumRecords ?dup
  if  1-  idxHi !  0 idxLo !  >abs rot >r
  else 2drop  -1 0 exit then
  ( &newRec.   R: &comparF)
  begin
   \ split remaining set in half
     idxHi @ idxLo @ + 2/ dup idxMid !
```

```
    (QueryMid) 2over ( &midRec. &rec.)
    r@ execute  ( call comparF)
    rMidP. 2@ MemPtrUnlock throw
    dup 0> if drop idxMid @ idxLo !
        \ handle one special case
         idxHi @ idxLo @ - 1 = if
        1 idxMid +! -2 idxHi ! then
    else 0<  if  idxMid @ idxHi !
    else -1 idxHi ! ( found) then then
    idxHi @ idxLo @ <
  until 2drop r> drop
  idxMid @  idxHi @ -1 =
;


\ Test

: findRec ( key -- )
  newRec !
  ( Open DB code )
  ['] comparF  newRec dbP. 2@
  FindSortPosition
  if ." existing record at: " .
  else ." insert position: " .
  then
  ( Close DB code )
;
```

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Crash Visor on Compilation

By **Garbett** on Wednesday, February 7, 2001 - 05:04 pm: Edit

I downloaded the Object Oriented extensions written by M. Ertl (http://coldforth.teegra.net/objects.html) and put them on the palm. The memo was so big I broke it into several smaller memos so that the palm didn't get heart-burn on the big memo. Each memo of FORTH code has a "needs" the previous memo to create a chain that provides the whole oo library.

Now when I include the test code (or just the main-library) I get a "MemoryMgr.c, Line 4450, Invalid Chunk Ptr" and the Palm resets.

I can go into Quartus and include a memo about half-way through the chain and then the final memo (i.e. test-case) and it runs perfect. Generating the output that is specified with the test case.

Is this some sort of stack/include overrun? Or is there something being reset when using Quartus interactive that prevents a bug in the code from rearing it's ugly head when done interactively?

I've got a Platinum Visor which says Applications 3.5H in the main about box. Is this the OS rev?

Shawn

By **Neal Bridges (Nbridges)** on Wednesday, February 7, 2001 - 11:43 pm: Edit

If I remember Ertl's code correctly, it relies on storing XTs in data structures that are used at run-time. The problem, under Quartus Forth, is that XTs change when you make a stand-alone app; this is normally transparent behaviour that unfortunately makes Ertl's technique fail.

Neal

By **Garbett** on Thursday, February 8, 2001 - 09:13 am: Edit

Is Ertl's technique fatally flawed or is there a modification that would make it work on the Palm?

By **Neal Bridges (Nbridges)** on Thursday, February 8, 2001 - 11:59 am: Edit

His technique is not fatally flawed per se -- it's just that the Quartus Forth model requires XT values to change when creating a stand-alone app, and that throws it off.

Could his technique be modified to work in Quartus Forth? Possibly. It would require more in-depth analysis than I can give it at the present time.

Neal

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Lib for new serial manager

By **jeff** on Wednesday, February 7, 2001 - 01:21 pm:

More out of possible necessity for me, I'm working on writing a lib for the new serial manager. As from past posts it's obvious I'm not a Forth expert by any stretch, I thought I'd share what I got, and see who could fill in some blanks.

When finished I'll pass over the new serial manager lib to Neal to post if he sees fit.

Using the CW header files for examples, here are the basics I've discovered for the systraps:

All the traps are enumerated as such in SerialMgr.h:

```
#define sysSerialInstall 0
#define sysSerialOpen 1
#define sysSerialOpenBkgnd 2
#define sysSerialClose 3
etc.
```

Then to call them, they all use SERIAL_TRAP instead of SYS_TRAP, which evaluates to:

```
#define SERIAL_TRAP(serialSelectorNum) \
_SYSTEM_API(_CALL_WITH_SELECTOR) \
(_SYSTEM_TABLE, sysTrapSerialDispatch, \
serialSelectorNum)
```

SYSTEM_TABLE is 15 and
sysTrapSerialDispatch is 0xA367
and _SYSTEM_API(_CALL_WITH_SELECTOR) evaluates to:

```
#define _OS_CALL_WITH_SELECTOR \
(table, vector, selector) \
= { 0x7400 + selector, 0x4E40 + table, vector }
```

This finally breaks down to

```
= { 0x7400+function, 0x4E40+15, 0xA367 }
```

where "function" is sysSerialOpen, etc.

I have no idea how this works out to a systrap or a function for that matter, or how to convert that into forth using the systrap word. Any help would be great.

Sorry for the extra long post, but just wanted to fully explain what I have so far...

Thanks,
Jeff

That compiles two machine instructions, one to move a value into D2, and another to call the system trap. This should work:

```
: sysSerialOpen
  [ (hex) 7400 1 + cs, ]
  (hex) A367 systrap ;
```

Neal

Thanks, Neal! After understanding that, and following your code example, I have the following for a start:

```
(hex) 8000 constant srmCradlePort
(hex) 8001 constant srcIrPort

: SrmTrap ( -- err )
    (hex) A367 systrap ;

: SrmOpen ( &id baud port -- err )
    [ (hex) 7400 1 + cs, ]
```

```
    SrmTrap ;

: SrmClose ( id -- err )
    [ (hex) 7400 3 + cs, ]
    SrmTrap ;
```

Loads just fine, and actually executes w/o any fatal errors 🙂 But when from the interpreter I do:

```
needs srm
variable port#
port# 38400 srmIrPort SrmOpen
```

SrmOpen didn't use any of the items on the stack for the system trap. If I do . . . I get back 0x8001 38400 and the address of port#.

The function declaration for SrmOpen is

```
Err SrmOpen(UInt32 port, UInt32 baud, UInt16 *portId);
```

I'm just curious what I'm missing. I've been using your serial library as a reference if any examples in there might help me.

Thanks, Neal!
Jeff

By **Neal Bridges (Nbridges)** on Wednesday, February 7, 2001 - 03:00 pm: Edit

It's using the parameters, it's just not cleaning up afterward. You'll have to explicitly DROP the paramters from the stack after the systrap.

Neal

By **Samuel Tardieu (Sam)** on Tuesday, February 20, 2001 - 05:30 am: Edit

I needed the new serial manager last week as well. Here is the tiny interface I wrote. I have used only a few functions from it, so it may be bogus at this stage.

```
\ srm ST 2001-02-14

needs struct
needs toolkit

struct
   4 field serDevCreator
   4 field serDevFtrInfo
   4 field serDevMaxBaudRate
   4 field serDevHandshakeBaud
   4 field serDevPortInfoStr
   8 field reserved
end-struct DeviceInfoType:

0 enum SrmCtlEnum
   SrmCtlEnum srmCtlFirstReserved
   SrmCtlEnum srmCtlSetBaudRate
   SrmCtlEnum srmCtlGetBaudRate
   SrmCtlEnum srmCtlSetFlags
   SrmCtlEnum srmCtlGetFlags
   SrmCtlEnum srmCtlSetCtsTimeout
   SrmCtlEnum srmCtlGetCtsTimeout
   SrmCtlEnum srmCtlStartBreak
   SrmCtlEnum srmCtlStopBreak
   SrmCtlEnum srmCtlStartLocalLoopback
   SrmCtlEnum srmCtlStopLocalLoopback
   SrmCtlEnum srmCtlIrDAEnable
   SrmCtlEnum srmCtlIrDADisable
   SrmCtlEnum srmCtlRxEnable
   SrmCtlEnum srmCtlRxDisable
   SrmCtlEnum srmCtlEmuSetBlockingHook
   SrmCtlEnum srmCtlUserDef
   SrmCtlEnum srmCtlGetOptimalTransmitSize
   SrmCtlEnum srmCtlLAST

1  constant serDevCradlePort
2  constant serDevRS232Serial
4  constant serDevIRDACapable
8  constant serDevModemPort
16 constant serDevCncMgrVisible

(hex) 001 constant srmSettingsFlagStopBitsM
(hex) 000 constant srmSettingsFlagStopBits1
(hex) 001 constant srmSettingsFlagStopBits2
(hex) 002 constant srmSettingsFlagParityOnM
(hex) 004 constant srmSettingsFlagParityEvenM
(hex) 008 constant srmSettingsFlagXonXoffM
(hex) 010 constant srmSettingsFlagRTSAutoM
```

```
(hex) 020 constant srmSettingsFlagCTSAutoM
(hex) 0C0 constant srmSettingsFlagBitsPerChar
(hex) 000 constant srmSettingsFlagBitsPerChar5
(hex) 040 constant srmSettingsFlagBitsPerChar6
(hex) 080 constant srmSettingsFlagBitsPerChar7
(hex) 0C0 constant srmSettingsFlagBitsPerChar8
(hex) 100 constant srmSettingsFlagFlowControl

1 constant srmStatusCtsOn
2 constant srmStatusRtsOn
4 constant srmStatusDsrOn
8 constant srmStatusBreakSignOn

: 5drop 4drop drop ;
: 7drop 4drop 3drop ;
: 9drop 6drop 3drop ;

: srmSysTrap ( # -- )
  (hex) A367 systrap ;

: srmClearErr ( portId -- err )
  [ (hex) 7400 9 + cs, ] srmSysTrap drop d0 drop ;

: srmClose ( portId -- err )
  [ (hex) 7400 3 + cs, ] srmSysTrap drop d0 drop ;

: srmControl ( &valueLenP. &valueP. op portId -- err )
  [ (hex) 7400 10 + cs, ] srmSysTrap 6drop d0 drop ;

: srmGetDeviceCount ( &number. -- err )
  [ (hex) 7400 6 + cs, ] srmSysTrap 2drop d0 drop ;

: srmGetDeviceInfo ( &deviceInfoP. deviceId. -- err )
  [ (hex) 7400 7 + cs, ] srmSysTrap 4drop d0 drop ;

: srmGetStatus ( &lineErrsP. &statusFieldP. portId -- err )
  [ (hex) 7400 8 + cs, ] srmSysTrap 5drop d0 drop ;

: srmOpen ( &newPortIdP. baud. port. -- err )
  [ (hex) 7400 1 + cs, ] srmSysTrap 6drop d0 drop ;

: srmOpenBackground ( &newPortIdP. baud. port. -- err )
  [ (hex) 7400 2 + cs, ] srmSysTrap 6drop d0 drop ;

: srmPrimeWakeupHandler ( minbytes portId -- err )
  [ (hex) 7400 23 + cs, ] srmSysTrap 2drop d0 drop ;

: srmReceive ( &ErrP. timeout. count. &rcvBufP. portId -- recvd. )
```

```
    [ (hex) 7400 15 + cs, ] srmSysTrap 9drop d0 ;

: srmReceiveCheck ( &numBytesP. portId -- err )
    [ (hex) 7400 17 + cs, ] srmSysTrap 3drop d0 drop ;

: srmReceiveFlush ( timeout. portId -- err )
    [ (hex) 7400 18 + cs, ] srmSysTrap 3drop d0 drop ;

: srmReceiveWait ( timeout. bytes. portId -- err )
    [ (hex) 7400 16 + cs, ] srmSysTrap 5drop d0 drop ;

: srmReceiveWindowClose ( bytesPulled. portId -- err )
    [ (hex) 7400 21 + cs, ] srmSysTrap 3drop d0 drop ;

: srmReceiveWindowOpen ( &sizeP. &bufPP. portId -- err )
    [ (hex) 7400 20 + cs, ] srmSysTrap 5drop d0 drop ;

: srmSend ( &errP. count. &bufP. portId -- sent. )
    [ (hex) 7400 11 + cs, ] srmSysTrap 7drop d0 ;

: srmSendCheck ( &numBytesP. portId -- err )
    [ (hex) 7400 13 + cs, ] srmSysTrap 3drop d0 drop ;

: srmSendFlush ( portId -- err )
    [ (hex) 7400 14 + cs, ] srmSysTrap drop d0 drop ;

: srmSendWait ( portId -- err )
    [ (hex) 7400 12 + cs, ] srmSysTrap drop d0 drop ;

: srmSetReceiveBuffer ( bufSize &bufP. portId -- err )
    [ (hex) 7400 19 + cs, ] srmSysTrap 4drop d0 drop ;

: srmSetWakeupHandler ( refCon. &procP. portId -- err )
    [ (hex) 7400 22 + cs, ] srmSysTrap 4drop d0 drop ;
```

By **Samuel Tardieu (Sam)** on Tuesday, February 20, 2001 - 05:32 am:
Edit

And if it can be useful to someone, here is a little piece of code I used (that makes use of the srm library) to talk to my mobile phone using IrComm.

It is ugly but did what I needed.

```
\ ircm ST 2001-02-14

needs srm
```

```
create ircm
   char i c, char r c, char c c, char m c,

variable ircmpid
variable ircmerr
create ircmTimeOut -1 , -1 ,

: ircmopen ( -- err )
   ircmpid >abs 9600. ircm 2@
     srmopen ;

: ircmclose ( -- err )
   ircmpid @ srmclose ;

: ircmsend ( c-addr len -- err )
   ircmerr >abs 2swap s>d rot >abs
     ircmpid @ srmsend 2drop
   ircmerr @ ;

13 constant crchar
10 constant lfchar

variable ircmc

: ircmcr ( -- err )
   crchar ircmc c! ircmc 1 ircmsend ;

: ircmsendcr ( c-addr len -- err )
   ircmsend ?dup 0= if
     ircmcr then ;

: ircmGetc ( -- [c 0 | err ])
   ircmerr >abs ircmTimeOut 2@ 1.
     ircmc >abs ircmpid @ SrmReceive
   2drop ircmerr @ dup 0= if
     ircmc c@ swap
   then ;

80 constant ircmBufSiz
create ircmBuf ircmBufSiz allot

: ircmscan ( n -- [r 0 | err])
   ircmGetc ?dup if nip exit then
   dup lfchar = if
     drop recurse exit
   then
   dup crchar = if
```

```
    drop
    \ XXX Temporary hack
    dup 0= if recurse else 0 then
    exit
  then
  over ircmBuf + c! 1+
  dup ircmBufSiz < if recurse exit then
  0 ;

: ircmgetline ( -- [c-addr len 0 | err])
  0 ircmscan ?dup 0= if
    ircmBuf swap 0
  then ;

: atcmd ( c-addr len -- err )
  s" AT" ircmsend ?dup 0= if
  ircmsendcr
  else rot rot 2drop then ;
```

By **Neal Bridges (Nbridges)** on Tuesday, February 20, 2001 - 02:24 pm: Edit

Thanks for posting that code, Sam!

Neal

Add a Message

Username:

Password:

E-mail:

This is a public posting area. If you do not have an account, enter your full name into the "Username" box and leave the "Password" box empty. Your e-mail address is optional.

Right - I give up - Hotsync ID & Memory Addresses!

By **Mark Wickens (Markwickens)** on Wednesday, February 7, 2001 - 04:18 am: Edit

I am building a boiler-plate application as part of my exploration of Quartus. Each week I give myself a task to extend my understanding of Forth / Palm OS, and hopefully something I can use when I come to build real apps. This weeks task is getting the Hotsync ID, Palm OS and Palm ID into variables. I have trawled through all the current messages (that's where Neal's code comes from), but I cannot find anything that obviously relates to what I am trying to do.

The following code (ala Neal) gets the Hotsync ID into a memory address leaving a length and start memory addrress on the stack. However, what I do not understand is how I can get the Hotsync ID into a vraible from the assigned memory address:

```
\ hsid

\ create a variable to hold the length \ of the
\ username string

variable namelen
\ create a buffer to hold the
\ username string, up
\ to 40 characters long
create namebuf 40 chars allot

\ code to read and store the hotsync \ username and
\ string length
: username ( --- )
0. 0. namebuf >abs 0. 0. 0.
DlkGetSyncInfo drop
namebuf dup >abs StrLen
namelen ! drop ;
```

Any help / suggestions would be grateful. I understand this is probably a basic question, but I'm sure this is a fundamental question that would help other people!

Sorry, made a botch of the code I placed in the above message. The following code will produce the behaviour described:

```
\ hsid

\ create a variable to hold the length \ of the
\ username string

variable namelen
\ create a buffer to hold the
\ username string, up
\ to 40 characters long
create namebuf 40 chars allot

\ code to read and store the hotsync \ username and
\ string length
: username ( --- )
0. 0. namebuf >abs 0. 0. 0.
DlkGetSyncInfo drop
namebuf dup >abs StrLen
namelen ! drop ;

\ read the username, then display it
username
namebuf namelen @
```

Hi Mark

The code you need is in Neal's syncname library. I have included it below for reference:

```
\ syncname 98.6.8 5:14 pm NAB
create NameBuf 41 chars allot
: UserName ( -- c-addr u )
  0. 0. NameBuf >abs 0. 0. 0.
  DlkGetSyncInfo drop
  NameBuf dup >abs StrLen ;
```

Hope this helps

Trevor

Trevor, this is just a shortened version of the original code I posted, which gives me a hotsynce name in a memory location rather than a variable; and I do not know enough about what I am doing to get the value from the memory location into a named vriable!

It's already in a named variable -- **NameBuf**.

To copy it to your own buffer:

```
create mybuffer 40 chars allot
UserName mybuffer swap 1+ move
```

Neal

By the way, to display it:

UserName type

Neal

Maybe I'm not explaining myslef! Thank you to those that have taken the time to try and help thus far.

The original code I posted retrieves the Hotsync ID, places it in a buffer (namebuf)and sets the length of the HotSync ID in namelen. No problem, I understand 98% of what's going on here and how it is being done. However, I ultimately need to get the Hotsync Id from namebuf, and place it on the stack.

In my twisted way of thinking, I thought the esiest way of doing this was to assign the contents of namebuf to a variable (say namestring), and then use a call like namestring @ to achieve my goal! This was why I asked how

do I get the contents of a buffer into a named variable.

Perhaps I should re-from my question:

How do I get the contents of a buffer onto the stack, given the 32 bit address and the length of the string that occupies that buffer?

Mark,

The question would be why you would want the string on the stack rather than just the pointer.

Just the same, you will have to loop starting with the address returned. Then use c@a to fetch the character at that 32 bit address, advance the address by 1 then continue.

c@a is one of the quartus specific words to facilitate fetching from addresses returned from various systraps.

Add a Message

Username:

Password:

E-mail:

This is a public posting area. If you do not have an account, enter your full name into the "Username" box and leave the "Password" box empty. Your e-mail address is optional.

Editor?

By **krokodil** on Tuesday, February 6, 2001 - 10:19 pm: Edit

What editor are you using?
If there is something better for forth
programming than MemoPad?

By **Wes Matchett (Wesm)** on Tuesday, February 6, 2001 - 11:09 pm: Edit

I've found the best enhancement to editing isn't software, but rather the Palm Portable Keyboard.

-Wes

By **Kris Johnson (Kdj)** on Wednesday, February 7, 2001 - 12:41 am: Edit

I like pedit Pro. I set it to use TinyFont, which is a small fixed-size font.

I have a Stowaway keyboard, but find that I don't use it that much. Unfortunately, accomplishing anything non-trivial on PalmOS requires use of the stylus. I just use Graffiti with pedit.

-- Kris

By **Jim Purdy** on Wednesday, February 7, 2001 - 05:01 am: Edit

PeditPro and a Keyboard

By **Jim Hendricks (Jimh)** on Wednesday, February 7, 2001 - 07:40 am: Edit

Been using QED with the Palm Keyboard, although have to revert to Graffiti when on the road since I don't carry the keyboard everywhere I go.

Jim

By **Barry Ekstrand (Ekstrandbb)** on Wednesday, February 7, 2001 - 11:37 am: Edit

I used QED via graffiti until PeditPro came out. Now I use PeditPro, both with grafitti and (more and more) an old Newton keyboard and adapter. From PeditPro I export the memo to a doc file, then compile.

BTW, the selling point for Pedit was the autoindent/shift right, find/replace/again, and select text capabilities. There are another thousand (it seems like) capabilities also that Pedit has - it is a pretty impressive text editor.

Also, I use LapTopHack when connected to the keyboard. It is from Paul Nevai as well and is a perfect compliment to Pedit. As a matter of fact, LapTopHack brings some of the more popular Pedit functions to any text editor via its pedithack selection.

Barry Ekstrand

By **Mark Beckman (Mbeckman)** on Wednesday, February 7, 2001 - 12:57 pm: Edit

I've found that by adding EvEdit hack MemoPad (or any old text editor) works well. EvEdit adds features that make edit easier like:
. Find , Search/replace
. Double tapping a word selects it
. Drag and drop a highlighted section
. Changing case of highlighted section
. Bracket or quote highlighted section
. Multiple undo (10 levels I believe)

In addition the multi-clipboard holds your last 10 copies, which is great if you want to try out some words but hate inputting them over and over. I just copy the lines of code I want to try to the clipboard, switch to Quartus, and paste away.

On the dark side, the graffiti echo feature has given me trouble since I upgraded to OS 3.5 resulting in weird crashes/resets. Disabling this has made things stable again.

Mark Beckman

By **Vaughn Wine (Vwine)** on Wednesday, February 7, 2001 - 05:24 pm: Edit

When was the last time you upgraded EvEditHack, Mark? I just downloaded version 2.4 from PalmGear which was dated 12/23/2000, and I noticed the Update Description includes this note about version 2.3:

    works well with Palm OS 3.5 try it now, you will be surprised

I'm glad you posted info about EvEdit, Mark! This is going to really speed up my development, as I prefer working with MemoPad.

Vaughn Wine

By **Mark Beckman (Mbeckman)** on Wednesday, February 7, 2001 - 06:46 pm: Edit

I'm using the most current version (2.4) and yes 2.3 was a BIG improvement. Prior to 2.4 the multi-undo cause a crash in Quartus (2.4 works fine). The Grafitti echo problem is very intermittent and I can't prove it was the cause (but it did go away when I disabled this feature).

Mark

By **krokodil** on Wednesday, February 7, 2001 - 07:49 pm: Edit

I've donwloaded PeditPro and have some questions:

1. Do you use Pedit32 or Pedit?
2. Do you set 'autoident' to on?
3. Any other pedit hints?

Thanks!

By **Ron Doerfler** on Wednesday, February 7, 2001 - 11:51 pm: Edit

```
"...accomplishing anything non-trivial on PalmOS requires use of the stylus."
```

Kris, LapTopHack is supposed to allow you to access buttons, pop-up lists, etc. with the PPK without having to touch things with a stylus--and it has hooks into the pedit that you already use. You might want to look at it.

Just tried EVEditHack. Very nice--it's a keeper!

Other hacks I find useful include CharHack (to pop up a small table of symbols), Crash (to automatically soft reset my Palm 10 seconds after a fatal so I don't have to poke it in the back), ShiftHack (so new lines aren't capitalized by default), Neal's ClearHack (to remove those underlines that make it hard to distinguish colons from semicolons, etc.), and SwitchHack (which pops up a list of the last 10 apps that were called, to provide fast jumping between them without going through the application launcher).

I'd give my eye teeth, though, for a hack similar to SwitchHack, but instead of swiping to pop up a list of the last 10 apps, it would pop up the last 10 _memos_ that were accessed. This would help immensely with my jumping between code memos--now, for example, if I add a variable and I go to my variables memo and back to continue, or if I want to copy and paste code from other memos, I constantly have to exit and scroll to toggle between them. I don't know how to write hacks, but I'd love that one (hint, hint).

Ron

By **Ron Doerfler** on Wednesday, February 7, 2001 - 11:58 pm: Edit

Oh, and while I'm dreaming, I wish the "SwitchMemoHack" would remember the cursor position in the memos as they were exited, so when I jump from where I'm coding on one memo to grab something from another memo, I return to the same spot when I switch back to my original.

(sigh)

By **Mark Browne (Markbrowne)** on Thursday, February 8, 2001 - 05:42 am: Edit

Ron, pedit has this functionality built in to it. You must be in pedit to use it, but there is a "Recent" list, accesible from the memo list, or whilst editing a memo.

Mark

By **Kris Johnson (Kdj)** on Thursday, February 8, 2001 - 05:44 am: Edit

I tried LapTopHack, but it didn't seem to do much. And I find Paul Nevai's documentation to be unreadable--it consists of about 10% useful information and 90% opinions on what's wrong with Palm OS and everyone else's applications.

Maybe I'll give it another try. I started work on a vi clone, but I've decided that it's probably not worth the effort.

-- Kris

By **Ron Doerfler** on Thursday, February 8, 2001 - 10:07 am: Edit

Thanks, Mark--I'll try pedit! I wasn't aware of this feature.

Yes, Kris, I looked at LapTopHack too, and didn't find much of use to me, but then I don't have pedit, so those links didn't do me any good. Now I'll be looking at pedit for the memo switching. I probably still won't have a need for LapTopHack. I agree with the manual--interesting to read in a way, but…

Ron

By **Jamie Cairns (Jamie)** on Thursday, February 8, 2001 - 11:09 am:
Edit

Just in case you might find it useful, there's a program called keyboard by Mochasoft, that lets you type at your desk while your Palm is in the cradle. The palm screen is mirrored on the PC, and you can use your mouse like a stylus to do anything thatt you can do on the Palm.

I know, I know, if you're at your PC anyway, why not just use POSE, but I've found it mildly useful a few times…

www.mochasoft.dk

Jamie (not affiliated with mochasoft)

By **Vaughn Wine (Vwine)** on Thursday, February 8, 2001 - 12:05 pm:
Edit

I don't use POSE a lot, but one thing I found frustrating was the inability to paste from the clipboard into the emulator. I wonder if Mochasoft's keyboard app would work on POSE.…

I spent some time last night looking at pedit. It's not bad, and I think I'm finally figuring out what Paul was trying to accomplish. The issue for me is size. I have a Palm V (with only 2MB available) and 291K is really pushing it for me. I think I would be happy with EvEdit at 58K if it (or another hack) had auto indent and shift left/right.

I really like the idea of a light VI clone, Kris! But, if someone writes one, keep it under 150K, please!

Vaughn

By **Mark Browne (Markbrowne)** on Thursday, February 8, 2001 - 12:09 pm: Edit

Vaughn,

There is a version of pedit called pedit light. I don't know how much space it saves, but it is intended for those of us with not as much spare memory

By **Vaughn Wine (Vwine)** on Thursday, February 8, 2001 - 12:40 pm:
Edit

I looked at peditLight (around 160K) last night, and to my chagrin, I discovered the features I liked the most, auto indent and shift left/right, were disabled!

Here's what I'd like to be able to do with an app that's as full-featured as pedit: I'd like to be able to go to a web page (or run an application) that let's me select the major features

I want, and then builds a custom PRC that's just the right size for what I need! (There are quite a number of features in pedit that I don't think I'll use very often, if at all.)

Vaughn

By **krokodil** on Friday, February 9, 2001 - 03:31 am: Edit

Following forum recomendation I downloaded
PeditPro and it looks great!

I wish I could teach Quartues Forth use
it when I select 'Jump To Last' error from
menu…

By **Neal Bridges (Nbridges)** on Friday, February 9, 2001 - 01:20 pm:
Edit

I'm building in the facility to do just that. I had another request for this that I'm a bit behind on fulfilling -- sorry! Soon.

Neal

By **WilliamTanksley** on Friday, February 9, 2001 - 03:29 pm: Edit

I haven't needed anything more than the MemoPad yet, since I really haven't had the time to do the programming I want to. When it comes time, though, I'm looking at ZDOCm, a freeware DOC editor. It's not as nice as pEdit, but it'll probably do the job. I'm also trying to get Progect to add support for exporting in Quartus-compatible DOC format. That way I could edit my code in an outline format.

Would anyone else here be interested in specific support for Quartus in an outline program? If so, visit http://progect.sourceforge.net and mention it on the Feature Request bulletin board -- or download the source and add it. I'd do it myself, except that this wedding planning is taking all my time :-).

-Billy

By **Neal Bridges (Nbridges)** on Friday, February 9, 2001 - 03:38 pm:
Edit

Congratulations; programming should definitely come second to that. 🙂

Neal

By **Steve Bohrer (Skb)** on Sunday, February 11, 2001 - 09:35 pm: Edit

You probably can't get it any more, but I've been pretty happy with the old pedit ver 2.02, which has lists of recently used memos, auto-indent, and good search/replace, and it is only 134 K, so it fits into my IIIe without much trouble. Again, this was the full version of pedit, although now it is smaller than the stripped down "lite" version.

I have not stayed up with pedit to figure out what whizzy features I'm missing, but my sense is that the new version works better with keyboards. Also, this version does not read or write doc files. I don't have a keyboard, and I've been happy with 4k chunks of code, so I have not felt the need to upgrade.

Perhaps pedit author Paul Nevai could dig into his source archives, and provide a capable,

minimalist editor.

By **Doug Philips (Dgou)** on Sunday, February 25, 2001 - 06:14 pm: Edit

Been away for a while (life does that from time to time). Anywho, Kris, I'd love to have a vi clone. I used to be an emacs lover, but found that vi was more prevalent on the weird lil' systems I used from time to time, so it was easiest to just always use vi.

-Doug

By **Kris Johnson (Kdj)** on Saturday, March 3, 2001 - 01:14 pm: Edit

Sorry, I've given up on the vi clone, and really didn't get too far with it.

I'm now spending my free time playing with the Agenda VR3 PDA. For that, I built the Berkeley nvi from source. elvis and vim are also available.

-- Kris

By **Neal Bridges (Nbridges)** on Saturday, March 3, 2001 - 02:57 pm:
Edit

Kris! Whisked off to the dark side by a new gadget! Come back!

☺

Neal

By **Kris Johnson (Kdj)** on Sunday, March 4, 2001 - 12:35 pm: Edit

Port Quartus to it, and I'll be back in a jiffy!

My current project is to create a Forth environment for the VR3 (see http://guiforth.sourceforge.net). Once I get that going, I'll try to do some cross-platform Forth PDA apps.

-- Kris

By **Steve Graham (Steve)** on Sunday, March 4, 2001 - 01:33 pm: Edit

Kris,

How about a report on the Agenda and what you're planning on doing once you (or Neal) get Forth on it? I have not seen much activity on its website. Any idea on its acceptance to date?

Steve

Add a Message

Username:

Password:

E-mail:

This is a public posting area. If you do not have an account, enter your full name into the "Username" box and leave the "Password" box empty. Your e-mail address is optional.

String resources?

By **krokodil** on Tuesday, February 6, 2001 - 09:39 pm: Edit

I have resource of type 'String'. How
can I access it from my code?
Thanks!

By **Neal Bridges (Nbridges)** on Tuesday, February 6, 2001 - 10:00 pm:
Edit

Those can be used as Tips screens, or just accessed as ASCII data -- what
are you trying to do?

Neal

By **krokodil** on Wednesday, February 7, 2001 - 05:57 pm: Edit

I want to access it as ASCII string.

By **krokodil** on Wednesday, February 7, 2001 - 11:18 pm: Edit

Please, help!
I think it have something to do with
DmGet1Resource, but I am not sure.
Do I have to lock memory?

By **Neal Bridges (Nbridges)** on Thursday, February 8, 2001 - 12:05
pm: Edit

This will display the first character from a string resource tSTR 1000
(untested, but it looks ok):

```
needs ids

: demo
  1000 [ID] tSTR DmGet1Resource
  2dup MemHandleLock
  c@a emit
  MemHandleUnlock throw ;
```

Neal

By **krokodila** on Friday, February 9, 2001 - 02:23 am: Edit

thanks!
How I can find length? Is string terminated
by someting or I have to arrange this myself?

Neal,

How about copying this to my buffer?
I wrote something like:

needs ids

len constant 6
create mybuf 32 CHARS allot

...

1000 [ID] tSTR DmGet1Resource
2dup MemHandleLock
len 0 2swap mybuf abs> MemMove drop
MemHandleUnlock throw

It is right way to do this?

Do you have page somewhere explaining
differences between relative and absolute
addresses?

Thanks!

If the string resource is zero-delimited, the **StrLen** call can be used to find
its length. Alternatively, there are calls to determine the exact size of a
resource.

There's no such word as **abs>** -- I presume you mean **>abs**. Besides that,
your code looks ok at first glance -- does it work?

Relative addresses are single-cell, 16-bit addresses, relative to the start of
Quartus Forth dataspace. Absolute addresses are 32-bit addresses,
double-cell, and specify the full 32-bit address of a location in memory.

>abs will convert a relative dataspace address into a double-cell absolute
address; **>rel** will convert it back.

(Note that for hopefully obvious reasons, you can't take an arbitrary absolute address and correctly convert it to a relative address; if the address in question is farther away than can be held in 16-bits, the resulting single-cell address will have no meaning.)

Neal

By **krokodil** on Friday, February 9, 2001 - 05:09 pm: Edit

The code seems to be working.

You mention that resources could be zero-terminated. How this is controled?
I just created String resource using RsrcEdit -
is it zero terminated?

What is another way to find length of resource?

Thanks!

By **Neal Bridges (Nbridges)** on Friday, February 9, 2001 - 05:19 pm: Edit

MemHandleSize will return the size. I believe RsrcEdit zero-terminates string resources; have a look at the resource in hex mode to be sure.

Neal

Add a Message

E-mail:

E-mail:

Serial IR program

By **jeff** on Tuesday, February 6, 2001 - 05:28 pm: Edit

Okay. Thanks everyone for the help so far... it has been invaluable 🙂

I've finished a scratch version of my program, and I wanted to show it, because it doesn't work, and was hoping someone could find what is probably a simple error and enlighten me.

I have a lot of ." message" cr code to let me know the systraps aren't returning any errors, it appears to be finding the serial library, opening a serial port, redirecting it to the IR port, and closing it all off when done.

However, when I use this little bit of code to check if anything is waiting and spit it back out nothing happens (and I am using a device to send IR data to the palm):

```
variable recv
: CheckReceive ( -- )
    serRecvCheck ( -- bytes err )
    0 = if \ make sure no error
        0 ?do recv 1 serRecv
        drop emit loop
    then ;
```

The problem is that serRecvCheck always puts 0 0 onto the stack (no error, but no bytes waiting either).

If more code is needed to check the opening, etc. of the port, I'll post it, just wondernig if anyone else has experience with this first.

Jeff

PS I'm on a Handspring Visor Prism if that matters.

By **Ronny Svensson** on Wednesday, February 7, 2001 - 04:48 am: Edit

The bytes returned by serRecvCheck is a double: 0 0 - you should do a drop before the loop
also you should have an else clause to do serClearErr and drop the bytes in

case of error
you also need to check for error after serRecv and do a serClearErr on error, check or drop the double number returned (# bytes received)

I suggest you have a look in the message archives as there has been example code posted here before.

Also check on Serial Communication in the Palm OS® Programmer's Companion in the SDK documentation

Ronny

Well, the program works for everything but receiving data. I can send characters just fine to the IR device, just not receive them.

I've made the changes you suggested and now have this for my receive function:

```
variable recv
: CheckReceive ( -- )
    serRecvCheck 0 = if
        0 ?do recv 1 serRecv
        0 <> if serClearErr then
        emit loop
    else serClearErr then ;
```

I'm sure that it just isn't receiving anything or I'm emitting garbage that isn't displayed. Is there a way to "step" into the function to debug it?

Thanks for the help.
Jeff

Jeff, your emit isn't emitting anything, near as I can tell from the code.

Try

recv c@ emit

Neal

By **Samuel Tardieu (Sam)** on Wednesday, February 7, 2001 - 11:01 am: Edit

Jeff, just being curious, what kind of device are you talking with? I'm interested in knowing what device can be used with a simple redirection and does not require a full IrComm setup.

Sam

By **jeff** on Wednesday, February 7, 2001 - 11:17 am: Edit

Well, without going crazy into details it is a called an "Above Ground Marker" (AGM) -- it detects the passing by of a magnetic tool in a pipeline underground.

It is in-house hardware which just sends/receives character data over IR. If I send a 'T', it returns the time on the AGM, etc.

It has no handshaking protocols and it runs at 38400 baud (which could be a problem I think). I'm setting th stop bits, parity and data bits (8N1).

I know the port is set up and that the data is being transferred, because I can send commands to the AGM, however, if I send a 'T', it's getting something completely different (ugh!)

I know it works with the New Serial Manager, because I got it working w/ CW using SIR (not irCOMM). I just would really like to do it in Forth.

One last question. I've looked at CW header files, but how do I write access to systraps myself in forth (if I want to write a library to the new serial manager)? If someone could tell me how to get the numbers to the systraps and an example of one (like SrmOpen) I'm sure I could do the rest and post it for everyone to use.

Thanks, again.
Jeff

By **jeff** on Thursday, February 8, 2001 - 12:04 pm: Edit

Got it working! Anyways, wanted to thank everyone here, and if anyone ever wants a copy of the simple terminal program, just ask and I'll pass it your way.

Thanks again, all!
Jeff

PS What was throwing me for a loop was serRecv, which seems to put 3

items on the stack - not 2 like it states. It seems to return nBytes someNumber ErrCode.

Glad it's working, Jeff. I'd like to see the code myself; if you're not adverse, I'll post it in the Contrib area.

Neal

Sure thing, Neal. I've emailed it to support@quartus.net as an attached .txt file -- along w/ some more questions 🙂

So if anyone else wants it, just wait and look for it in the contrib section.

Jeff

Hi Jeff,

I had a quick look at serRecv, and it does return 2 items - it is just that one of them is a double.

Mark

Ack! Sorry, I meant serRecvCheck, not serRecv. Basically I would enter a loop after using serRecvCheck to get how many bytes were there. It was always returning nBytes 0 0 (I assume one of the zeros is the errorcode and the other is something else entirely).

Is this still related to the fact that nBytes is a double? Does QF put two 16 bit number on the stack for 1 32 bit number (and I need to join them together?)

Jeff

Even serRecvCheck returns -- bytes. err

The Top zero is the error flag, whilst the second on stack is the top byte of the bytecount, and is therefore zero unless there are more than 255 bytes received.

Mark

By **jeff** on Friday, February 9, 2001 - 12:20 pm: Edit

Why more than 255? and note more than 64k (16 bit)? I thought the palm default was 16 bit for integers? Again, though, I feel I am displaying my newbie-Forth-ness 🙂

Jeff

By **Neal Bridges (Nbridges)** on Friday, February 9, 2001 - 01:10 pm: Edit

That's not a Forth thing, it's the Palm OS. It uses a 32-bit value to return the number of bytes from those calls.

Neal

By **jeff** on Friday, February 9, 2001 - 02:10 pm: Edit

Yes, that I know, but why does a 32 bit value put 2 numbers onto the stack? Is it the hi/lo word values of a dword? if so, then why < 256 have a 0 hi value and not < 64k ?

Jeff

By **Neal Bridges (Nbridges)** on Friday, February 9, 2001 - 02:21 pm: Edit

Each value on the stack is one cell wide -- 16 bits. So a 32-bit double-cell value requires two values on the stack: 16+16=32.

The value on the top of the stack is the high 16-bits, the value just under that is the low 16-bits.

The lowest double-cell value that has a non-zero high-cell is 65536.

Neal

By **jeff** on Friday, February 9, 2001 - 02:26 pm: Edit

Okay, now in the serial code I emailed you, I took the 2 values on the stack and dropped the first (the high bits) and used the second. This should work 99.99% of the time, because the odds of more that 64k of data sent is very

low.

However, if more were send, how can I take two 16 bit values off the stack and make 1 32 bit value?

Thanks, Neal
Jeff

By **Samuel Tardieu (Sam)** on Friday, February 9, 2001 - 02:33 pm: Edit

Well, you don't need to take them off the stack if you plan to put the 32 bit value back there :-)

If you push a low 16-bit value and then a high 16-bit value, then on the stack you can see them as one 32-bit value.

Example:

```
(hex) 10002.    \ Note the trailing dot
.s
```

This will give you: <2> 2 1

By **Neal Bridges (Nbridges)** on Friday, February 9, 2001 - 03:28 pm:
Edit

Jeff, you don't need to worry about receiving more than 64K. In fact, you can specify the maximum size of the serial receive buffer if you're actually concerned that >64K of data will arrive before you're ready to process it. It's not really a question of odds; I don't see how that much data could possibly accrue before your loop saw it.

Additionally, I believe the default buffer allocated by the Palm OS for receiving serial data is far smaller than 64K.

Neal

By **Mark Browne (Markbrowne)** on Monday, February 12, 2001 - 04:15 am: Edit

I must apologise for causing some confusion earlier in this thread - When I said 255, I did, of course, mean 64K-1 🙂 Sorry all.

Mark

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Processing both KEY and EKEY

By **Vaughn Wine (Vwine)** on Tuesday, February 6, 2001 - 11:59 am:
Edit

This is a question that I interrupted a previous conversation with (sorry Jeff!): What does it look like if you need to process both KEY and EKEY?

This didn't quite work for me:

```
: go
  begin
    KEY
      dup [char] a =
      if ." You typed an A. " then
      drop
    EKEY
      dup keyDownEvent =
      if dup ekey>char drop emit then
      drop
    again
;
```

John had replied that I should look at this thread, and after re-reading it, I'm still not sure why this code performs inconsistently. Do I need to flush events at some point? What am I missing?

By **John Newell** on Tuesday, February 6, 2001 - 01:00 pm: Edit

OK,
I think the KEY is trapping the keyDownEvent so that EKEY never gets one.

KEY just hang, not processing other events, until something is entered at the keyboard (or Graffiti).

Try swapping the two bits around i.e. EKEY followed by KEY. At least EKEY gets a look in before the loop takes it back to the KEY hang.

That's why you need an eventloop which can look for all event without one of them hanging up.

Have a look at http://www.quartus.net/discus/messages/23/996.html?981481447
this time.

John

By **Vaughn Wine (Vwine)** on Tuesday, February 6, 2001 - 02:05 pm:
Edit

Swapping them around, so EKEY is followed by KEY, doesn't improve the behavior very much. For some reason, events are totally getting lost: the handlers are only getting called about 30% of the time.

By **Neal Bridges (Nbridges)** on Tuesday, February 6, 2001 - 02:52 pm:
Edit

You don't want to use them both. **KEY** is for when you only want to accept a keystroke event; all other events are discarded. If you're interested in anything more than just keystroke events, use **EKEY**.

To do general event processing, grab the incoming event with **EKEY**, and test it against the various

event types you're interested in. This example uses condthens.txt to make the syntax cleaner; you could also use a **CASE** structure, or a series of nested **IF** conditionals, or a **select** structure. Note that I've broken out the event handling into its own function, for clarity:

```
needs condthens

: do-event ( event -- )
  cond
    dup keyDownEvent = if
      dup ekey>char drop emit cr
    else dup penDownEvent = if
      ." Pen down event detected." cr
    else dup penUpEvent = if
      ." Pen up event detected." cr
  thens
  drop ;

: go
  begin
    ekey do-event
  again ;
```

Neal

By **Neal Bridges (Nbridges)** on Tuesday, February 6, 2001 - 03:08 pm:
Edit

As a mnemonic, remember that **EKEY** is short for "**E**xtended" (or "**E**nhanced") **KEY**.

Neal

By **Vaughn Wine (Vwine)** on Tuesday, February 6, 2001 - 05:34 pm:
Edit

I get it now! Thanks for your patience.

Jeff had said the keyDownEvent was for the hard keys, and then, when Neal said you should use KEY instead of EKEY, I got really confused.

I'm handling many kinds of events, and I was trying to understand how to add processing for keyboard/Graffiti characters.

Just in case anybody is still wondering exactly when the keyDownEvent is fired, here's the description directly from the Palm OS SDK Reference:

> This event is sent by the system when the user enters a Graffiti® character, presses one of the buttons below the display, or taps one of the icons in the icon area;….

The event should include a modifier. Anybody know how to get this?

Thanks again,

Vaughn

By **Neal Bridges (Nbridges)** on Wednesday, February 7, 2001 - 03:10 pm: Edit

The modifier is (off the top of my head) available via **event cell+ @** -- I might be wrong about the offset, though. Check the SDK header for the event struct to be sure.

Neal

This is copied out of archive 8 - page 527 ->

```
By Ron Doerfler on Sunday, January 16, 2000 - 06:50 pm:
Hi Harry,
To process the Up/Down button, you should be able to do what you were doing:
: do-keyDown ( -- )
." char" event 8 + @ . cr
." keycode" event 10 + @ . cr
." modifier" event 12 + @ . cr
event 4 cells + @ \ equivalent to char above
dup 11 = if \ Page Up
\ Page Up procedure
else dup 12 = if \ Page Down
\ Page Down procedure
then drop ;
To capture a hardkey, you mask off the keys in your initial "go" word, and then when
you get no return from EKEY
(a nilEvent after the timeout), you check using the PalmOS command KeyCurrentState to
see if the key is pressed.
For this reason, you want to set the timeout of EKEY to a lower value than the
default number of msec, which you
can do by using (EKEY) instead.
You have to remember to unmask the hardkeys when you exit the app, or they will stay
unresponsive until a soft
reset is done. You need to intercept the event that exits the app (appStopEvent),
unmask the hardkeys, and then
execute the (BYE) command to exit the app yourself. There is a way to do this using
EKEY, but I do it by inserting
my own event handler to filter out those events I want to intercept before they get
to the system (this was how
Quartus _used_ to have to do it before Neal upgraded EKEY, but I got used to using
the original way). So the first
line of "go" places the execution address of my pre-handler at the event handler
vector, and if an appStopEvent
occurs, my handler unmasks the hardkeys, exits the app, and sets "handled" to 1 so
the system will not process
the event further. If it's another event (like keyDownEvent), "handled" is set to 0
(false) so the system will handle
the event after exiting my-prehandler.
: do-keyDown ( -- )
." char" event 8 + @ . cr
." keycode" event 10 + @ . cr
." modifier" event 12 + @ . cr
event 4 cells + @ \ equivalent to char above
dup 11 = if \ Page Up
\ Page Up procedure
else dup 12 = if \ Page Down
\ Page Down procedure
then drop ;
: do-nilEvent ( -- )
KeyCurrentState d>s cond
dup 8 and if \ Hardkey 1
\ Hardkey 1 procedure
else dup 16 and if \ Hardkey 2
\ Hardkey 2 procedure
else dup 32 and if \ Hardkey 3
\ Hardkey 3 procedure
else dup 64 and if \ Hardkey 4
```

```
\ Hardkey 4 procedure
thens drop ;
: do-event ( ekey -- )
case
keyDownEvent of do-keyDown endof
nilEvent of do-nilEvent endof
endcase ;
: my-prehandler ( &event. -- &event. )
callback 2over @a
appStopEvent = if(hex) ffffffff. KeySetMask 2drop (bye)
1 handled
else
0 handled
then end-callback ;
: go ( -- )
['] my-prehandler eventhandler !
page
(hex) ffffff87. KeySetMask 2drop \Hardkeys off
begin 5. (ekey) do-event again ;
Finally, I believe you have to do something to prevent a single hardkey press from
triggering your hardkey routine
repeatedly at every (EKEY) timeout. I did something more complicated (implementing a
key repeat timing
mechanism in software), but if you want a single press to be processed, you should be
able to modify the
do-nilEvent word to make sure that the key is released before you act on the press
again, something like below.
I've not tested this, and I also think it could be more efficiently coded, but I hope
I haven't erred.
variable keypressed
false keypressed ! \ Initialization
: do-key? ( -- do-flag )
keypressed @ false = if
true dup keypressed !
else
false
then ;
: do-nilEvent ( -- )
KeyCurrentState d>s cond
dup 8 and if \ Hardkey 1
do-key? if
\ Hardkey 1 procedure
then
else dup 16 and if \ Hardkey 2
do-key? if
\ Hardkey 2 procedure
then
else dup 32 and if \ Hardkey 3
do-key? if
\ Hardkey 3 procedure
then
else dup 64 and if \ Hardkey 4
do-key? if
\ Hardkey 4 procedure
then
else false keypressed !
thens drop ;
If you have a need to allow key repeating with an initial delay, let me know and I'll
try to extract that portion from
my code.
Ron
```

Sorry I couldn't preserve the formatting.
John

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Simple questions

By **jeff** on Monday, February 5, 2001 - 04:17 pm: Edit

Okay, sorry for the simple questions, but trying to learn this ASAP 🙂 -- I have a working knowledge of Forth, but no experience... so after looking at some examples, here are some questions:

What is the difference between

500 and 500. ?

In this simple event loop:

```
begin
500. event >abs
EvtGetEvent event @ dup
keyDownEvent = if
\ something here
else drop then
again
```

in the "something here" area, what can I put to quit the program? How can I make Quartus Forth handle a typical event (ie launcher or power button)? Right now it just infinitely loops...

Also, if I do:

MainForm ShowForm

I get a fatal error and have to hard reset the palm (visor prism).

Jeff

By **jeff** on Monday, February 5, 2001 - 04:23 pm: Edit

Figured out a lot real quick... should have looked harder 🙂

keyDownEvent is for the hard keys I guess... and I just found out about HandleEvent (not in the docs?)

The other questions still stand 🙂

Jeff

That loop can be greatly simplified, without any need to call EvtGetEvent, HandleEvent, or anything else:

```
: go
  begin
     key
     emit
  again ;
```

Here's the more complex general form, where events are delivered by EKEY and handled conditionally based on the event type:

```
: go
  begin
     ekey dup keyDownEvent = if
         dup ekey>char drop emit
     then
     drop
  again ;
```

The IF/THEN structure can be a CASE structure, or a series of nested conditionals, or what-have-you, to take care of different event types.

500 is a single-cell value. 500. is a double-cell value (32-bit, two cells on the stack). The '.' is the indicator.

'MainForm ShowForm' dies because MainForm is not a form ID -- it's a function that brings up the main form (ID 1000). You don't need to follow it with ShowForm.

Neal

Thanks, Niel! I'm definitely going down the correct path now…

…but there are some Forth-ish things that I don't think I understand yet, and maybe a simple example would help.

In CW, this is what I would like to do:

if (eventP->data.keyDown.chr=='A') { … }

In Q4th I've gotten (with your help) this far:

ekey event @ dup keyDownEvent = if

ekey>char (something here) = if
then

else drop then

of course, I don't know how to compare to a specific character. I was looking in toolkit.txt at >lower and >upper but can't seem to understand [char] and what is going on.

Also, how do I access data within the event? ekey>char is nice for that, but what about screenX or screenY or controlID, etc. for other events?

I'm sure all these questions are answered in a document somewhere… can you point me to one?

Thanks!
Jeff

By **Neal Bridges (Nbridges)** on Monday, February 5, 2001 - 10:26 pm:
Edit

If you want keyboard/Graffiti characters, use **KEY** -- it's your friend. No need to do it the hard way.

```
: go
  begin
    KEY
    dup [char] a =
    if ." You typed an A. " else  drop  then
  again ;
```

You don't have to drag the character out of the event structure, the way it's done in C. **KEY** just places the ASCII value on the stack for you.

To fetch the event coordinates (for screen taps), use **coords@** from events.txt. Item IDs can be retrieved using **itemid** from the same file, or using this definiton:

```
: event-id ( -- id )  event 8 + @ ;
```

Neal
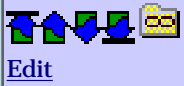
Okay, so what does it look like if you need to process both KEY and EKEY?

This didn't quite work for me:

```
: go
  begin
    KEY
      dup [char] a =
      if ." You typed an A. "
      else drop then
    EKEY
      dup keyDownEvent =
      if dup ekey>char drop emit then
      drop
  again
;
```

I get inconsistent results. I also found I get extra stuff on the stack if I don't put a DROP after

```
  if ." You typed an A. "
```

That's because you did a 'dup' before the '[char] a' and then didn't drop it in the 'if'.
Have a look at this thread:
http://www.quartus.net/discus/messages/23/976.html?980943776
where event loops were discussed recently.

John

Well, I need ekey, because I'm doing a serial interface (great job for a newbie forth-er eh?). That means I need it to timeout if the user didn't enter something in graffiti and check the serial port to see if something is waiting.

So my questions still stand... either I need KEY to timeout (can it?) or I need to get the chr data from the event after using EKEY.

Thanks, Niel and everyone else!

Jeff

He spells it Neal, Jeff.

The event loop is just that - a loop. (EKEY), which takes a timeout period parameter from the stack, always returns an event, even if it is the nilEvent, issued when the (EKEY) times out. So, in the eventloop, you can check for anything. Check for Graffiti input (a keyDownEvent), Serial Input(??), no events occuring (a nilEvent), etc and process each appropriately.

```
NEEDS Events
NEEDS case
: eventloop
begin
  100. (EKEY)  \ Wait 100 milliseconds
  case
    nilEvent OF CheckTimeout ( -- ) ENDOF
    keyDownEvent OF EKEY>CHAR HandleChar ( c -- ) ENDOF
    penUpEvent OF ... ENDOF
     .
     .
  endcase
  CheckSerial ( -- )
again
;
```

I don't know if Serial Input generates an event?

John

Sorry, I should read the manual and check that it actually works. Try this 😊

```
NEEDS Events
NEEDS case
: eventloop
begin
  100. (EKEY)  \ Wait 100 milliseconds
```

```
    dup case
      nilEvent OF
        CheckTimeout ( -- ) ENDOF
      keyDownEvent OF
        EKEY>CHAR if
          HandleChar ( c -- c ) then ENDOF
      penUpEvent OF
        ... ENDOF
      .
      .
    endcase
    drop
    CheckSerial ( -- )
again
;
```

John

Sorry, Neal ;) about the spelling. Perhaps my problem is in the interpreter. My understanding of Forth is that anything in the interpreter should produce the same results at runtime (minus a few exceptions).

Bearing that in mind, if I do this in the interpreter (to test my idea):

```
500. (ekey) ok
dup . 4 ok
ekey>char . -1 ok
```

Of course, I typed in the graffiti area before the timeout to generate a keyDownEvent. But ekey>char returns a -1? But in your code you use it. What am I missing/misunderstanding?

Thanks, everyone! Again -- sorry Neal 🙂
Jeff

EKEY>CHAR returns a boolean flag, as well as an ASCII value. It's defined in the ANSI Forth Standard -- have a look. In your code above, you're just displaying the boolean flag; the ASCII value is still on the stack.

Look back at my example, you'll see a **DROP** after the **EKEY>CHAR**. Can you figure out why I'm doing a **DROP** there, instead of testing the boolean to see if it is true?

Neal

I see, and -1 because True is all bits on...

Thanks, all! I just got Elizabeth's Forth Programmer's Handbook... so hopefully questions this easy won't come often! 🙂

Jeff

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Where the user has taped ?

By **tryph (Tryph)** on Monday, January 29, 2001 - 12:05 pm: Edit

My problem is this one :

I would like that a word which
recognize where the user tap and
send me back.
My question is
how to do that .

```
: position ( -- x y )
  begin ekey? until
  getposition  ;
\ ^^^^^^^^^^ here is the word that i would
\ like to discover
```

By **Jim Hendricks (Jimh)** on Monday, January 29, 2001 - 01:00 pm: Edit

I don't know how off base I might be on this so if it doesn't work, don't say I didn't warn you.

You need to include Events

I typically then use

event 2 cells + constant coords

This sets a constant that points to where the coordinates of the pendown/up would be when these events take place.

I then use the word

: getTapCoords (-- y x)
coords 2@ ;

Then the simpleist eventchecker of

:eventloop (--)
begin ekey
pendown = if
gettapcoords doMyCoordinateProcess
then
again ;

Where doMyCoordinateProcess is a word that acts on the entered coordinates.

Hope this helps,
Jim

By **John Newell** on Monday, January 29, 2001 - 01:17 pm: Edit

Jim / Tryph
The Events library already includes Jim's definitions of:

event 2 cells + constant coords
and the word coords@ which returns y and x.

So,
Needs Events
:eventloop (--)
begin ekey
PenDownEvent = if
coords@ doMyCoordinateProcess
then
again ;

is what is needed.

Of course, the same loop could be used to look for all those other events listed in the Events
library file.
John

> By **Jim Hendricks (Jimh)** on Monday, January 29, 2001 - 02:44 pm: Edit

Good catch John, I hadn't noticed that the constant, and a word to retreive the coords was
already in the event lib. My code that I was extracting from must be from an older version of the
event lib, prior to these definitions. I also noticed that my pendown is actually a constant defined
in my code, where you are using the PenDownEvent defined in events. Once again, I can only
assume that I wrote the code against an older version of the lib.

> By **Erwin Schomburg (Esc)** on Tuesday, January 30, 2001 - 07:50 am:
Edit

In addition to what's been said, I'd suggest an event flush before you start to wait for PenDown
events to evaluate. I'd also suggest a bounds check before or inside the coordinates evaluation
routine. The point is, you get a PenDown wherever you tap, also outside the display area in the
Grafitti or silkscreen buttons areas, which might give unexpected results from an (unchecked)
coordinate evaluation.

/Erwin

> By **tryph (Tryph)** on Wednesday, January 31, 2001 - 03:47 am: Edit

Thanks all of you .

just a question Erwin , the word to flush the
event is EvtInitialize ?

> By **John Newell** on Wednesday, January 31, 2001 - 07:22 am: Edit

There is a definition of FlushQueue in the Fields library but you don't want all the other words in
there. So:

NEEDS Events
: FlushQueue (--)
begin 0. (ekey) nilEvent = until ;

: eventloop
FlushQueue
begin
.
.
etc.

The FlushQueue word will loop, ignoring all events until there are no events left on the event queue. The main loop then starts with a clean slate.

If you are looking for button selects (ctlSelectEvents) you might also want to call FlushQueue, to ignore other events generated at the same time (such as the PenDownEvent), after you have handled the button action.

John

By **Norman "Buz" Stewart (Buz)** on Saturday, April 21, 2001 - 12:40 pm: Edit

Is there any functional difference between

```
: FlushQueue ( -- )
begin 0. (ekey) nilEvent = until ;
```

and

```
: FlushQueue ( -- )
begin 0. (ekey) 0= until ;
```

Also, if FlushQueue (the "nilEvent" version) is at the top of my main event loop, it seems to eat up my button and menu events, while allowing my pen events through. If I move it to the top of my pen event sub-loop, everything seems to work. Is FlushQueue just for pen events, or am I thinking wrong?

By **Neal Bridges (Nbridges)** on Saturday, April 21, 2001 - 02:03 pm: Edit

Both your versions will be functionally identical -- nilEvent is equal to zero.

What that loop does is remove and discard events from the the event queue until there are no events left in the queue. Simple. If you're requesting new events after you use FlushQueue, then you'll get new events as they arise.

Neal

By **Kris Johnson (Kdj)** on Sunday, April 22, 2001 - 01:22 pm: Edit

I have a "flush"-style function like this:

```
: drop-events
  begin ekey? while ekey drop repeat;
```

Is that going to work, or may there be some hidden gotcha?

-- Kris

By **Neal Bridges (Nbridges)** on Sunday, April 22, 2001 - 01:51 pm: Edit

That's equivalent.

Neal

By **Norman "Buz" Stewart (Buz)** on Sunday, April 22, 2001 - 04:45 pm: Edit

I probably just need to be reading more and playing less. Anyway, my problems may be a matter of placement, as I get different results by moving the FlushQueue word around...

```
variable ihold

: do-buttons
  cond
    ihold @ ThrowButton = if
        throw5
    else ihold @ StayButton = if
        stay
  thens ;

: do-menu
  cond
    ihold @ AboutMenuItem = if
        AboutBox FrmAlert
    else ihold @ ScoringMenuItem = if
        ScoringBox FrmAlert
  thens drop ;

: do-pen
  \ FlushQueue <== everything works if it's here, but what about the other events?
  \ check for taps on the dice...
  cond d1rect? if
      die1 dieGone
  else d2rect? if
      die2 dieGone
  else d3rect? if
      die3 dieGone
  else d4rect? if
      die4 dieGone
  else d5rect? if
      die5 dieGone
  else
      noop
  thens ;

: do-event ( event -- )
  \ FlushQueue <== pen events work, but not buttons or menus
  event >abs itemid
  ihold !
  cond
    dup ctlSelectEvent = if
        do-buttons
    else dup menuEvent = if
        do-menu
    else dup penDownEvent = if
        do-pen
  thens drop ;

: go show-panel
  begin
  \ FlushQueue <== pen events and buttons work, but not menus
  ekey do-event again ;
```

🔼🔽✉️ By **John Newell** on Monday, April 23, 2001 - 01:01 pm: Edit

I think you are being distracted by FlushQueue. I used to put them in but eventually took them out as unnecessary.

When you touch the screen multiple events can occur which are queued up in order. EKEY gives

them to you one at a time. So, if say selecting a menu item generates a Pendown event and a Menu event and you flush the queue when processing the pendown event you will lose the Menu event.

If you really want to flush the queues then do so AFTER processing the event, not before. e.g. If you were looking for pendown within a certain area of the screen you might not want to flush the pendown event if it had occured outside of that area (such as in the Form title area).

John

By **Norman "Buz" Stewart (Buz)** on Monday, April 23, 2001 - 07:07 pm: Edit

Thank you, John. I was beginning to wonder about the necessity of flushing the queue, at least in my application, and your explanation about when to do it -- if at all -- helps a lot.

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Ugh… help with [char]

By **jeff** on Monday, February 5, 2001 - 06:36 pm: Edit

If I enter this simple example from Starting Forth:

```
( large letter F )
: STAR    [CHAR] * EMIT ;
: STARS    0 ?DO  STAR  LOOP ;
: MARGIN   CR  30 SPACES ;
: BLIP   MARGIN  STAR ;
: BAR    MARGIN  5 STARS ;
: F    BAR BLIP BAR BLIP BLIP  CR ;
```

It works great! But if I just do:

```
[char] * emit
```

in the interpreter, I get a stack underflow error on emit. Can someone explain why to me?

Jeff

By **Neal Bridges (Nbridges)** on Monday, February 5, 2001 - 07:12 pm: Edit

[char] works within a definition. At the console, use **char**.

Neal

Add a Message

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Password:

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This is a public posting area. If you do not have an account, enter your full name into the "Username" box and leave the "Password" box empty. Your e-mail address is optional.

DmFindSortPositionV10

By **Mike Will** on Sunday, February 4, 2001 - 10:11 pm: Edit

Hi again. I have a question about callbacks. Like John Newell earlier in January, I too would like to use a Compare Function callback. I too am wondering if I need Steve Bohrer's A4 protector code to make this work (I assume that I do). However, instead of sorting the database, I'm more interested in finding an insertion position (DmFindSortPostionV10) to maintain the database in sorted order. I'm hoping I don't have to give up on this systrap because it's probably much faster executing than anything I would write to do the same without a callback. Any thoughts or suggestions?

Thanks

Mike

By **Neal Bridges (Nbridges)** on Monday, February 5, 2001 - 01:01 pm: Edit

Yes, use Steve Bohrer's code for that. It should work fine; I'd be interested in seeing the result.

Neal

Add a Message

Username:

This is a public posting area. If you do not have an account, enter your full

Password:

E-mail:

name into the "Username" box and leave the "Password" box empty. Your e-mail address is optional.

Forth for Windows

By **Mark Norton (Nortonmd)** on Sunday, February 4, 2001 - 07:16 pm:
Edit

Hello. My son is interested in learning Forth. He hasn't programmed before (other than HTML which really isn't programming per se) but I thought Forth would be an excellent language to start in. He'll probably be doing most of it on a Windows machine, but he does have access to my Linux machine.

Does anyone have recommendations for Forth implementations for either or both of these environments. Obviously for Linux there's the GNU Forth which would probably be my first choice, however he'll probably do most of it on his computer, a Windows one. It might be nice to have something that has hooks into the Windows API, but not absolutely necessary as he's a long ways off from programming in a event driven environment. (We've got to cover some basics first!)

Any ideas? Thanks.

By **Neal Bridges (Nbridges)** on Sunday, February 4, 2001 - 07:31 pm:
Edit

Hi, Mark.

GNU Forth is right for Linux, and Win32Forth (also free) is an acceptable Forth for Win32. Both are free.

http://www.forth.com sells SwiftForth for Windows, and there's a 30-day free trial; that might be worth checking out too.

Neal

By **Jim Purdy** on Monday, February 5, 2001 - 08:52 am: Edit

Mark,

I use Mpe Proforth version 2.3
it sells for about $150 (USD) and hae some
really great features, like a Windows resource
builder, Debugger, and MANY examples.

I have included the Info below

Jim

http://www.mpeltd.demon.co.uk

MicroProcessor Engineering Limited
"More real, less time"
133 Hill Lane
Southampton S015 5AF
U.K.
tel: (+44) 2380 631 441
fax: (+44) 2380 339 691

By **Matthew Burke (Mmb)** on Tuesday, February 6, 2001 - 04:47 pm:

Edit

Win32Forth is free and you can find a link to it at www.taygeta.com (can't remember exactly where). It may be a little confusing at first, but it's a nice system and has hooks into the Windows API.

Add a Message

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Using ', >abs and immediate to crash the Palm?

By **Samuel Tardieu (Sam)** on Sunday, February 4, 2001 - 02:04 pm:
Edit

Could someone explain why the following sequence
crashes the Palm?

```
: [cb] ' >abs ; immediate
: x [cb] [cb] ;
needs disasm
```

I am using Quartus Forth 1.2.1U (not "U" for a long time :-)

By **Neal Bridges (Nbridges)** on Sunday, February 4, 2001 - 02:51 pm:
Edit

What you're doing leaves junk on the stack during the definition. This might
be what you're after:

```
: [cb]  '  >abs  postpone 2literal ; immediate
```

Neal

By **Kris Johnson (Kdj)** on Sunday, February 4, 2001 - 03:18 pm: Edit

Not sure why it crashes, but I notice these things:

1. You probably want to use XT>ABS rather than >ABS.

2. Your definition of X leaves a value on the compile stack. In other words,
the compile time behavior of "[cb] [cb]" leaves a double-cell value on the
stack, and there is no run-time behavior for X. Maybe you need to use
2LITERAL here?

Maybe it would be clearer if you explain what you are trying to accomplish.

Here's my guess at what you're really trying to do:

```
needs disasm
: [cb] ' xt>abs ; immediate
```

```
: foo ." foo" ;
: x [cb] foo 2literal ;
```

Here, X returns the absolute address of the code for the FOO word. And this sequence does not crash.

The bad news is that, while this might work interactively, it won't work in a standalone app. The value you get from XT>ABS at compile time will not probably not be a valid value when the app is run standalone. You need to call XT>ABS at runtime to get the correct value. So what you really need to do (assuming you want X to return the absolute address of FOO's code), is something like this:

```
: foo ." foo" ;
: x ['] foo xt>abs ;
```

-- Kris

Good catch on the **xt>abs**, Kris. Thanks.

Neal

Thanks to both of you.

Neal: I was playing with immediate, postpone and friends to refresh my Forth knowledge.

Kris: That was precisely what I intended to test, xt>abs at run-time vs. compile-time (in the hope to save a machine instruction).

Sam

Nope, sorry. It has to be done at run-time. I learned the hard way.

I would be interested in knowing exactly why your sequence of instructions leads to a crash. I can see that it's not doing what you expect, but I don't understand why it would lead to a fatal exception.

-- Kris

By **Neal Bridges (Nbridges)** on Sunday, February 4, 2001 - 07:32 pm:
Edit

Kris, what happens is that he's producing a value on the stack, but not using it, so it's blocking the colon-sys value that : leaves on the stack. When ; executes, crash. safe.txt catches this.

Neal

By **Kris Johnson (Kdj)** on Sunday, February 4, 2001 - 10:25 pm: Edit

Ah, makes sense. It doesn't actually crash when ';' executes; but it crashes shortly thereafter because ';' used the wrong value and so something is corrupted.

-- Kris

By **John Newell** on Monday, February 5, 2001 - 01:23 pm: Edit

I have just chased a '> abs' error (when I meant >abs) which caused a Fatal Error message on running. I just couldn't see it. Very annoying.

No way of 'safe' detecting that I suppose. (You wouldn't normally have '> abs' together I imagine.)

John

By **Neal Bridges (Nbridges)** on Monday, February 5, 2001 - 01:48 pm:
Edit

Spaces are only two pixels wide in the Palm default font. Sometimes switching to a larger font is beneficial.

There's also freeware available to give you fixed-width fonts.

Neal

By **John Newell** on Tuesday, February 6, 2001 - 06:21 am: Edit

I think you replied to the wrong thread here Neal.

John

By **John Newell** on Tuesday, February 6, 2001 - 06:32 am: Edit

On the other hand, Samual thinks not. I was trying to establish if an automatic check along the lines of 'safe' could be made but guess it would be more difficult because the check would have to be made for 2 words -

'>' followed by 'abs'.

John

It would definitely be difficult to catch, John. My suggestion about changing fonts was to make the space between the words more visible, and harder to miss.

Neal

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Memo.txt error?

By **Wes Matchett (Wesm)** on Sunday, February 4, 2001 - 12:25 pm:
Edit

I'm just starting learing how to work with memos and have run into a problem...

When I run the 'dir' word from memo.txt many lines scroll by of memo titles and then I get this FatalError:

MemoryMgrNew.c, Line:4128, Invalid handle

Does this indicate a code problem or a memo db problem?

-Wes

By **Neal Bridges (Nbridges)** on Sunday, February 4, 2001 - 02:51 pm:
Edit

I seem to recall that that will happen if you have deleted memos in the database that have not been purged via HotSync. That 'dir' word isn't a fully-fleshed-out example, but rather just a sketch.

Neal

By **Wes Matchett (Wesm)** on Sunday, February 4, 2001 - 03:09 pm:
Edit

Whew! Yep, doing a HotSync removed the problem. Thanks, I was very worried that something was messed up.

-Wes

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Accessing the IR library from Quartus Forth

By **Samuel Tardieu (Sam)** on Saturday, February 3, 2001 - 02:29 pm:
Edit

I am new to Quartus Forth and to Palm Programming,
and I am currently evaluating Quartus Forth to
see if it fits my needs.

I would need to access the IR port and discuss
with a cell phone (sending AT code and receiving
answers). Did anyone port IrLib.h in Forth?
Does the callback mechanism work correctly?

By **Neal Bridges (Nbridges)** on Sunday, February 4, 2001 - 11:37 am:
Edit

Hi, Samuel. I don't recall anyone interfacing to that library directly yet, but
I'd be glad to assist if it's something somebody would like to undertake.

Neal

By **Samuel Tardieu (Sam)** on Sunday, February 4, 2001 - 12:16 pm:
Edit

That's why I could not find any reference in the
archives 🙂

However, I am not sure how the callback mechanism
will work, as I do not know whether they will be
synchronous (in regard with the event loop) or not.

I'll try to find the time to do that in the near
future. Porting the functions should not be hard
as they are just systraps.

Sam

By **Samuel Tardieu (Sam)** on Tuesday, February 6, 2001 - 07:04 pm:
Edit

I started to play with IrDA, and had some bad
surprises with callbacks. As soon as I do
something in the callback, I get a fatal
exception.

The code (not very beautiful, but I'm just testing) is the following. Does anything look wrong in the callback?

```
\ irda ST 2001-02-06

needs mem
needs struct
needs zstrings

variable IrLib#

struct
  2 cells field ListEntry.Flink
  2 cells field ListEntry.Blink
end-struct ListEntry:

struct
  \ Next field is for internal use only
  sizeof ListEntry: field IrPacket.node
  2 cells field IrPacket.buff
  1 cells field IrPacket.len
  \ Everything below is for internal use only
  2 cells field IrPacket.origin
  1 chars field IrPacket.headerlen
  14 chars field IrPacket.header
  1 chars field IrPacket.reserved
end-struct IrPacket:

struct
  1 chars field IrConnect.lLsap
  1 chars field IrConnect.rLsap
  \ Everything below is for internal use only
  1 chars field IrConnect.flags
  1 chars field IrConnect.reserved
  4 chars field IrConnect.callBack
  sizeof IrPacket: field IrConnect.packet
  sizeof ListEntry: field IrConnect.packets
  1 cells field IrConnect.sendCredit
  1 chars field IrConnect.availCredit
  1 chars field IrConnect.dataOff
end-struct IrConnect:

struct
  1 chars field IrCallbackParms.event
```

```
    1 chars field IrCallbackParms.reserved
    2 cells field IrCallbackParms.rxBuff
    1 cells field IrCallbackParms.rxLen
    2 cells field IrCallbackParms.packet
    2 cells field IrCallbackParms.deviceList
    1 chars field IrCallbackParms.status
    1 chars field IrCallbackParms.reserved2
end-struct IrCallbackParms:

: InitIrLib ( -- err )
  IrLib# >abs
  z" IrDA Library" drop >abs
  SysLibFind ;

: irSysTrap ( # -- )
  IrLib# @ swap systrap drop ;

: IrOpen ( options. -- err )
  43044 irSysTrap 2drop d0 drop ;

: IrBind ( &callback. &con. -- status )
  43023 irSysTrap 4drop d0 drop ;

: IrDiscoverReq ( &con. -- status )
  43025 irSysTrap 2drop d0 drop ;

create irtestevent 0 ,

: irtestcallback
  ( &cbp. &con. -- &cbp. &con. )
  2dup @a irtestevent !
  0. d0! ;

create irtestcon sizeof irconnect:
  allot

: irtest
  ." Going to open InitIrLib" cr
  InitIrLib throw
  ." Going to IrOpen" cr
  3. IrOpen throw
  ['] irtestcallback xt>abs
  irtestcon >abs  IrBind drop
  irtestcon >abs IrDiscoverReq
  ;
```

Following-up to myself, I now use callback/end-callback as well as the callbacks package posted here a few months ago, and I've made some progress. However, it looks like memory is still corrupted somewhere, as I get fatal errors even with very simple callbacks.

Is there any "official" callback documentation which gathers everything posted in this forum? Or is there a FAQ?

Hi, Sam. Have a look at this thread -- it has Steve Bohrer's callback fixes that solve a problem wherein the Palm OS corrupts the A4 register. Read through that; it may help. There's also a referenced example of a sorting callback.

Neal

I now have a working IR application (I can at least establish a connection to my cell phone and get its capabilities). However, as indicated by someone else, I cannot use `."' in callbacks. Why is that? I have no problem to call Win* functions. I'd like to understand what I cannot do in callbacks.

Sam

PS/ I would never had thought that it was possible to really develop an application on-board before using Quartus Forth. I took four trains and two planes last week, and did not get the feeling of loosing my time as I did before!

I started to learn working with Ir, I'll be glad to see your application.

Thanks
Eli

I had errors with < # # #> in a callback for drawing a list (installed with LstSetDrawFunction). I expect that this was also the cause of troubles with

. in a callback. I was not able to solve the problem, but the code in question worked fine when I used a different word for string formatting. See [this thread](#) for tedious details. Since the code in question was just part of my callback testing, this was not a vital issue, and I dropped it.

Bottom line: It may be just a quirk of my code, but # and #s caused me problems with list draw callbacks.

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Drag'n'drop

By **Johan Thureson** on Saturday, February 3, 2001 - 11:12 am: Edit

Has anyone implemented drag'n'drop?
I'd like to see that code,
if so.

/Johan

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Hello.c in Palm Programming O'Reilly

By **Garbett** on Friday, February 2, 2001 - 04:11 pm: Edit

I began my investigation of Palm Programming by reading through Palm Programming by O'Reilly and wondering why it was so convoluted to do such simple things.

The Hello.c on is on pages 70-73 plus another page of a resource generation script. Then in addition you need the build file and all the special compilers. Makes hello world a large task.

I downloaded Quartus Forth's Demo and RsrcEdit. I created the resouces quickly and easily using RsrcEdit of the O'Reilly demo.

Here's the equivalent source in Quartus Forth:

```
\ hello 2/2/1 10:20 am - SPG

needs id
needs resources
needs Events

(ID) orly (ID) ppdg use-resources

1001 constant HelloForm
1101 constant MoonAlert
1010 constant Beep1MenuItem
1000 constant Beep2MenuItem

: handle-menu ( itemid -- )
    dup Beep1MenuItem = if
        1 >byte SndPlaySystemSound
    else dup Beep2MenuItem = if
        4 >byte SndPlaySystemSound
    then then drop ;

: do-event ( ekey -- )
    dup menuEvent = if
        event >abs itemid handle-menu
    else dup ctlSelectEvent = if
        MoonAlert FrmAlert drop;
    then then drop ;
```

```
: go
    HelloForm ShowForm
    begin
        ekey do-event
    again ;
```

It was easy to debug, all on-board. And the source is so much simpler and consise. Less than 1 page!!! Now that's getting back to the good old hello world days!

By **Neal Bridges (Nbridges)** on Friday, February 2, 2001 - 04:49 pm:
Edit

Very nice, Garbett!

Neal

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This is a public posting area. If you do not have an account, enter your full name into the "Username" box and leave the "Password" box empty. Your e-mail address is optional.

"Check's in the mail"

By **Steve Graham (Steve)** on Friday, February 2, 2001 - 10:23 am: Edit

Neal,

Just ordered Quartus Forth from Palmgear.com Looking forward to receiving it! Thanks for the product and great support.

Steve

By **Mike Will** on Friday, February 2, 2001 - 11:59 pm: Edit

I haven't sent Neal any kudos for a while because I've been coding SQL databases for over a year which is about as far away from Forth as you can get. This seems like as good a spot as any. Lately, I've been coding a few Palm apps for myself in Quartus again (which explains any stupid questions I've posted recently).

I am totally blown away by the speed (development and runtime) of Quartus. This is partly due to the elegance of Forth itself, but largely due to Neal's superb implementation of a native compiler. And there's nothing more cool than sitting in an airplane seat writing code on a Palm while the loser beside me does data entry on a 6 lb notebook! I wish I could get my $600 back that I blew on CodeWarrior 6 last year.

Thanks again, Neal.

By **Neal Bridges (Nbridges)** on Saturday, February 3, 2001 - 12:09 am: Edit

Steve, thank you very much for your registration and your kind words. And thanks, Mike -- I'm glad Quartus Forth is serving you so well!

Neal

By **Steve Graham (Steve)** on Monday, February 5, 2001 - 08:38 pm: Edit

Neal,

Have you received my order from PalmGear yet? Yes, I am anxious.

Steve

I have indeed; the registration has gone out. Let me know if it arrived safely.

Thanks again!

Neal

Neal,

I did receive my registered copy. Thanks.

Steve

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Username:

Password:

E-mail:

This is a public posting area. If you do not have an account, enter your full name into the "Username" box and leave the "Password" box empty. Your e-mail address is optional.

Catch trouble

By **Mike Will** on Thursday, February 1, 2001 - 11:40 pm: Edit

I'm having problems with Throw-Catch, namely unexpected stack results. Here's my code:

```
\ catchTest

needs core-ext
needs DataMgr
needs ids

537 constant dmErrAlreadyExists

: z" ( ...<"> -- runtime: c-addr u )
  [char] " parse  0 over here + c!
  postpone sliteral  1 allot ; immediate

: NewDB ( zaddr u --)
  2>r false [ID] DATA [ID] crid 2r>
  ['] CreateDB .s catch .s
;

: go z" hello" NewDB ;
```

Before catch:
0 DATAID. crid. c-addr u -10140 (looks ok)
After catch:
537 DATAID. crid. 12220 0 537 (I lose a few more hairs)

Q1: Why is there a copy of dmErrAlreadyExists at the *bottom* of the stack?
Q2: What happened to the false flag (0) at the bottom?
Q2: Why did the (c-addr u) get mangled?

Notes:
- the "hello" database already exists on my Palm, of course. You'll have to run this code once to put a copy on yours.
- I'm running Quartus 1.2.6R on the emulator and a Palm IIIxe.

Thanks for any help

Mike

Hi, Mike. **CATCH** doesn't magically return the stack back to the state it was at when **CATCH** was executed -- only to the same depth. The contents of the stack may have been (and were, in this case) modified by the word called.

As one example of this, the c-addr u is changed from a 16-bit address and count, to a 32-bit address with no count.

Neal

Oh. That explains a lot. I remember you once telling someone that when an error is caught, "all stacks are rolled back to where they were…"

Being a SQL programmer by trade, I misinterpreted "rolled back" to be in the transactional sense, ie. "Put the money back where you got it from" 🙂

Thanks again Neal.

Add a Message

Username:

This is a public posting area. If you do not have an account, enter your full name into the "Username" box and leave the "Password" box empty. Your e-mail

Password:

E-mail:

address is optional.

Using WORD and PARSE for parsing serial streams?

By **Les Snively** on Thursday, February 1, 2001 - 10:46 pm: Edit

Here's a probably newbie question, which is what I am. My searches of the database haven't been too helpful, nor has the reading of several texts provided enough help. Perhaps the old pros in the forum can offer a little guidance to an amateur.

I would like to be able to parse text collected from the Palm serial port, doing several different things with it. I've written a rudimentary parser to do this, but keep thinking that there must be a way to use the much more efficient built in words such as "WORD" and "PARSE" (and "PARSE-WORD" in Quartus). However, I can't seem to figure out how to get them to operate on a character array rather than just the seemingly inaccessible "input buffer". Am I missing something obvious, or are they not really programmer accessible words?

The mostly ASCII sequences I'm reading from the serial port will include words that I would like to "EVALUATE" as well as write to a display area, or in some cases repackage and transmit back out of the serial port. However, none of that can happen until I can parse the stream for appropriate delimiters.

This must be a common problem, so I'm probably not doing a good job reinventing a standard wheel. Pointers to standard solutions would be appreciated, as well as any hints in case there aren't any good sources to direct me to. Thanks for the help, in advance.

By **Neal Bridges (Nbridges)** on Thursday, February 1, 2001 - 10:49 pm: Edit

Hi, Les. Those words cannot be pointed at any data stream you like -- they're hard-wired for the interpreter. Fortunately, what they do is quite simple, and easy to reproduce. Give it a try, and we can have a look at it and see where the problems lie. It's a good exercise.

Neal

By **Les Snively** on Friday, February 2, 2001 - 12:56 am: Edit

OK, sensei, I'll give it a try. <grin>

First question: I've already implemented a crude and I'm sure none-to-Forthlike word isolator. I can work more on that, and probably do a little better than what I have now. On the other hand, it occurs to me that I could use "EVALUATE", probably in conjunction with a "CATCH" and "THROW" combination. The latter approach has the advantage of using some of the built in power of EVALUATE, e.g., it will execute words it knows without my having to also write a "FIND" that works on a string to let me know if a word's in the dictionary. (All of the FIND-like words seem to work only on the input buffer, much like WORD.) Any hints or thoughts on which will lead to the cleaner and more generally usable solution?

Beware -- there are no dictionary headers in a stand-alone app. EVALUATE will not find any dictionary words once you've gone stand-alone.

Neal

Thanks for the warning. And thanks for the encouragement to try a parser. As you knew in advance, it was a fun exercise, if a bit slow going for me. For critique purposes, I'm listing the relevant code below, since I'm sure I'm not using all, or perhaps even many, of the best practices. If you have the time or inclination, comments would be appreciated.

This parser does serve a special purpose for the application. One reason for parsing word by word is that I'd like to use some of the received words to cause the invocation of dictionary words, rather than using a case or many if/then construct. (However, your warning may now force me to abandon that idea.) So what I've come up with may be a bit more complicated than might otherwise be needed. Leaving the new address and count on the stack makes calls to step through the string easy. The flag will allow me to make a couple of choices during the higher level processing. The variables are declared elsewhere.

```
: parseStr (c-addr n char -- c-addr2 n2 f)
  pChar ! 2dup + ePtr !
  drop 0 >r wBuf 1+ swap 0 0
  begin
    r> 1+ >r
    2drop 2dup c@ swap c!
    1+ swap 1+ swap dup
    dup ePtr swap - dup 0= rot
```

```
   c@ pChar c@ 0 = rot
   or
 until
 3 roll drop  \ removes wBuf addr from stack
 rot 1+ rot 1- rot  \ sets counters
 r> wBuf c!  \ puts count in string, clears ret.
 ;
```

Two new questions: is there a "find"-like word that can act on a string? Or
are they all like "WORD" and can only act on content following them in the
input buffer? If that's the case, how does one determine at runtime if a
word can be executed, without simply trying and risking an abort? And
second, if we can't use "EVALUATE" in a stand-alone program, what are the
options available to use a received string as a calling word? Does this
involve using vectored execution? For this newbie, that's seems to be
another tall challenge to master. Hints appreciated.

Before going too far down this road, let me restate: there are no dictionary
headers in stand-alone apps. You can't search directly using FIND, or
indirectly using EVALUATE; your functions are there, but their linked
dictionary names and headers are not.

If I were attacking a large problem involving parsing, I'd start with the
bnf.txt module and modify it to parse from my own text buffer, instead of
from the standard input buffer; this would give me maximum flexibility.
That's a bit of a tricky job, though, and perhaps not for a beginner. A
CASE/ENDCASE structure would be easiest.

Neal

The idea of parsing input, then executing some words at runtime in a
standalone app is not a total lose though. If you know what subset of words
you plan on supporting, you can build your own lookup list. My aproach
would be (although I am sure there are better or simpler ways) to build an
array of string pointers, each of the string pointers points to a string that
represents one of the words you need dynamic execution. You write your
own find that scans the array making comparisons. For longer arrays you
can consider a sorted array so you can find through a half split algo or
some type of index method. Anyhow, once you find a match, you have the
index# of the array. You have a second array which contains the xt's of the

each of the words where there is index coordination between these 2 arrays. If I'm correct, if you have the execution tokens of the words coded into this array, then even as a standalone you can allow for dynamic execution.

Just my 2 cents (nothing after inflation)

Gentlemen, thanks for both of your comments. They're a help.

If I might impose on you for your views on a couple more quesitons: Under what circumstances, other than "all", might it be appropriate to run an application from within Quartus directly, to get around the limitations you've highlighted, Neal? Or, if it's easier, under what circumstances is it not appropriate to run an app directly in Quartus?

The reason for asking this question is more than just the issue discussed to date. It's also because the app I'm developing will be run remotely, connected to the source of the serial stream I've asked about parsing. A more advanced capability I want to add is being able to send updated modules over the air to the Palm, and then causing it to read the new module to add or modify functionality. I think I recall from reading other messages in the forum that stand alone apps also do not contain the compiler either. If I've understood that correctly, then to accomplish my objective, I'd need to have Quartus running on the target Palm.

Second, and perhaps this can be found elsewhere - though I haven't come across it, is there a way within the Palm OS to set Quartus, or any other app, to be the "startup" app? (Yes, I understand that if it's shut down in the app it will come back up in that app. But is there an override, a callback somewhere, that will cause power up to always boot to a particular app?) This is for the case of a dedicated use of a Palm integrated into an overall system.

Thanks again for all the help.

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Easywords......?

By **Mark Wickens (Markwickens)** on Thursday, February 1, 2001 - 05:47 am: Edit

Well after several false starts, I am now into the thick of using Quartus on my TRG - my commute is now productive once more! Being able to create quality software on a truly portable machine is something I have missed since I abandoned the Psion platform.

Trawling through the messages on this forum, I came across a useful discussion about some 'easywords' whose purpose was to provide a cleaner interface into and out of forms (Take a bow Travis Casey!)

Does anyone know if these words were further refined, or whether they (or something similar)are slated to be included in the QF distribution library?

I need to walk slowly at the moment, so an easy wasy of using data in my forms means I have one less thing to worry about until I am a little more familiar with the Forth Palm combination!

By **Travis Casey** on Thursday, February 1, 2001 - 11:13 am: Edit

The "easy" stuff that I've created is in the file area, as "ezUI". Unfortunately, due to other things (like my father having a bout with cancer :-( ), I haven't had time/energy/concentration to work on it more. Anyone out there using them, though, please feel free to send me requests and comments... I am getting them, and will work on it more when I can.

--Travis

By **Neal Bridges (Nbridges)** on Thursday, February 1, 2001 - 01:04 pm: Edit

Sorry to hear about your father, Travis. Here's hoping for the best possible outcome.

Neal

By **Mark Wickens (Markwickens)** on Friday, February 2, 2001 - 02:48 am: Edit

Travis, thanks for taking the time to reply, during what must be a difficult time. I am using your original 'easywords' for now, and they work just fine.

I am slowly becoming more familiar with Forth, and finding something like this which hides the complexities of form communication has really helped me over what was fast becoming a massive hurdle. I will take a look at ezUI, and send you any comments that I have - beyond 'brilliant'!

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(df.) and string>field

By **Barry Ekstrand (Ekstrandbb)** on Thursday, February 1, 2001 - 12:26 am: Edit

This one has me baffled. I am wanting to initialize my program by putting saved or default values for each field into the fields at startup.

In the past, using Quartus floats, I used the following code and it worked properly:

```
QFval f@ 1e2 f* f>d
tuck dabs <# # # [char] . hold #s rot sign #>
MyFieldID string>field drop
```

I tried converting this to allow the use of DF variables:

```
2 set-places
DFval df@df (df.)
MyFieldID string>field drop
```

When my DF value is 1e3 (or any other exponent, near as I can tell) I get a colon (:) in place of the first 2 expected characters - that is, I get :00.00 in the field rather than 1000.00.

However, and this is where it gets weird, if my DF value has a mantissa (hope I'm remembering the name right!) greater than 1 it will work - so a DF value of 2e3 displays 2000.00 as it should. The above situation seems to hold whether I am "hard entering" the DF value via (dfloat) or if I have declared a DF variable, set it to equal my desired value, and call the variable.

I am baffled by this behavior - any ideas what might be goofing up the process when my value has a mantissa of 1?

Barry

By **Neal Bridges (Nbridges)** on Thursday, February 1, 2001 - 01:03 pm: Edit

Looks like a bug in **dfdot.txt**, Barry. Thanks for finding it! I'll check it out.

Neal

Without actually figuring out what's wrong, here's a fix that works. Replace **dfout** in dfdot.txt with this definition:

```
: dfout ( char -- )
  dup 58 = if  drop
    [char] 1 recurse
    [char] 0 recurse
  else
    dfbuf c!  dfbuf 1+ to dfbuf
  then ;
```

Let me know!

Neal

Neal,

The change to dfout does fix the problem, many thanks for your help. Would it be difficult to modify dfdot to not put a decimal point in when set-places is set to 0? In playing with it I noticed that you get the decimal point always, even when you are only showing integers.

Thanks,

Barry

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Sending Launchcodes with SysUIAppSwitch

By **Wade Carlson** on Wednesday, January 31, 2001 - 10:58 pm: Edit

I'm having problems sending launchcodes with SysUIAppSwitch. It seems if I send anything other than 0 (zero) it causes Quartus to restart without launching the new application.

Here is a short application that I am trying to launch (it requires the beta version 1.27 that accepts launch codes)

```
\ TestApp
needs ids

: go
MainForm
launchcode 32768 = if ." Hi 32768"
then
launchcode 0 = if ." Hi 0"then
begin ekey drop again ;

32768 activate-launchcode
' go (ID) Test MakePRC TestApp
```

After creating the small test app, I try to run it with the launchcode 32768 (Palm states that launchcodes 0-32767 are reserved for system use, so that's why I picked 32768)

```
\ TestLaunch
needs ids
variable cardnum
2variable localid
18 constant cmdPBsize
create DmSearchState 16 cells allot

: go
localid >abs cardnum >abs true
[ID] Test [ID] appl
DmSearchState >abs true
DmGetNextDatabaseByTypeCreator throw
cmdPBsize s>d MemPtrNew 2>r
0 2r@ MemPtrSetOwner throw
\ Launch the app:
2r>
32768 \ if set to zero it works
localid 2@ cardnum @
SysUIAppSwitch throw (bye) ;
```

When using a lauchcode of zero it works fine, but when using 32768, it just causes Quartus to restart. I don't think it has anything to do with Launchcode support. I think it is something wrong with SysUIAppSwitch. Any ideas?

Present Quartus does not support launchcodes. So if you try to switch apps with a launchcode not equal to zero, the calling app is finished and the called app does not bite. In this situation the OS apparently falls through some levels of stack and starts the application that was active before the calling application instead of the system launcher. Can you verify that not necessarily Quartus is re-started, but generally the last application active before you invoked your calling application?

/Erwin

Hi Erwin -- Wade's using the launchcode-enabled Quartus Forth beta.

Wade -- do any other codes cause this? Say, a small non-zero integer?

Neal

Ooops, sorry, read to fast. One observation though, cutting it (too?) close with the allocation of command parameter block?

/Erwin

I tried increasing the size of both the cmPBSize and DmSearchState with no change.

Neal -- Small nonzero integers DO seem to work. Why would this be?

I'm not sure why yet, Wade. I'll let you know. Have you tried integers higher than 32768?

Neal

Wait, Wade -- I know why. You can't presently enable a launch code greater than 128. I'll have to build in that support.

Neal

Okay, thanks for the sleuthing. I'll look forward to it.

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Why safe is not standart ?

By **tryph (Tryph)** on Wednesday, January 31, 2001 - 04:19 am: Edit

when I do this code

: g if ;

g

There is a fatal exception which is raise unless *
I include safe.

I think it's the purpose of safe
but why that's not exist in core functionnality.

By **Wade Carlson** on Wednesday, January 31, 2001 - 07:09 am: Edit

Every IF requires a THEN, and in addition, IF requires a True/False value on the stack before it is executed. Your example SHOULD cause a fatal exception. Do you need an example on how to use IF ?

By **Erwin Schomburg (Esc)** on Wednesday, January 31, 2001 - 08:55 am: Edit

Generally speaking, the closeness of Forth to the underlying (hardware) system enables you to create lean and mean applications with a minimum of overhead for a price: no belts or suspenders like in more bloated compilers. Even small mistakes have the capacity to trash your system. A Forth system is constantly moving in a gray zone between compiling and interpreting states and often lets you feel the results of any (user) mis-construction before core safeguards have a chance to intervene.

Conclusion: Forth does not tolerate clueless probing*), and even if you know what to do, you shouldn't belong to the faint hearted.

May the Forth be with you!

/Erwin

*) Don't get put off by this statement, most of us in here are either looking for help or trying to provide it, swapping these roles permanently.

By **Neal Bridges (Nbridges)** on Wednesday, January 31, 2001 - 09:41 am: Edit

Well, it isn't quite that harsh. Loading safe allows you some latitude in playing around while learning; it catches a lot of things.

There's very little you can do that's actually destructive, anyway -- most mistakes result in "Fatal Exception" and a simple reset.

Neal

By **Barry Ekstrand (Ekstrandbb)** on Wednesday, January 31, 2001 - 11:15 am: Edit

….and FWIW, I found that I got a lot more Fatal Exception resets once I graduated from clueless probing to the classic Sophomore Syndrome, the point where I had deluded myself into believing I actually understood how it should work. ;)

Barry

By **tryph (Tryph)** on Wednesday, January 31, 2001 - 12:21 pm: Edit

Thanks to everyone .

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Df<, et. al.

By **Barry Ekstrand (Ekstrandbb)** on Monday, January 29, 2001 - 08:22 am: Edit

In working with the double precision floats, I have a test between 2 df values to see if one is smaller than the other using df<. This test is followed by a conditional if-else-then branch. The branching wasn't working properly and seemed to ignore the test, even when I manually set the values to force the issue. In looking at the stack, I found 2 unexpected (at least to me!) items:
1) it appears that the df< and df> tests do not simply leave a true or false value on the data stack, but instead leave 2 cells. The last value (upper cell?) seems to always be zero. I surmise from this that the result of a df< test leaves a double cell value on the stack, which will always be zero in the upper cell since the value is either false (0) or true (1).
2) a minor point, but when the result of df< or df> is true, the value left on the stack is not negative as with a f< or < test. In other words, you get 1 rather than -1. This is not a problem, just a point of interest.

The upshot of all this is that if df< or its siblings are used as the test to point if-else-then in the right direction, a drop is needed before the if statement to keep things working right. All of this may be well known to others, but it wasn't to me and took me a bit to finally see that my problem was simply that I expected a different result from the test.

Barry Ekstrand

Barry Ekstrand

By **Neal Bridges (Nbridges)** on Monday, January 29, 2001 - 03:17 pm: Edit

You're right, Barry -- just noticed that little quirk myself. Those words should be redefined to return only one cell.

Neal

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DmSearchStateType inconsistency?

By **Mike Will** on Friday, January 26, 2001 - 09:47 pm: Edit

I'm using DmSearchStateType as required by the DmGetNextDatabaseByTypeCreator function. It is overwriting the cell located just after its declaration:

create DmSearchStateType 16 allot
variable x

x is being overwritten with a -1 whenever the GetNextDatabase is called. Extending DmSearchStateType to 18 bytes solves the problem. However, the DataMgr.h file in the SDK lists this type as 16 bytes, and the DataPrv.h file lists it as 14 bytes (detailed view). My empirical number is 18, as I said. Am I missing something here?

The only difference between my code and other examples in the forum archives is that I'm not looking for only the most recent version of a database, so one of the flags is false instead of true.

Thanks for any input.

Mike

By **Neal Bridges (Nbridges)** on Saturday, January 27, 2001 - 12:15 am: Edit

That's interesting, Mike. Sounds like an error in the header files. Can you post a snippet to demonstrate? I'd like to know if it's consistent across different PalmOS versions.

Neal

By **Ron Doerfler** on Saturday, January 27, 2001 - 01:13 am: Edit

I noticed in past postings that there are some that assign 16 bytes, and some that allot 32 bytes (16 cells) to the block. Erwin said once in a Sept. 25 post on the topic "OS versions and App launch?":

```
...leaving aside that cardNo goes into a 16bit (single) cell variable and the
stateInfo
block is technically 16 cells (8 DWords) big (not chars, which might be another
source of crashes...)...
```

and when Erwin says something I sit up, so I allot it 16 cells and I haven't had any problems.

Ron

By **Mike Will** on Saturday, January 27, 2001 - 01:00 pm: Edit

Yes, thanks Gentlemen. Here is the code in question. As is, it demonstrates the overwriting of variable x. If you change the allot 16 to allot 18 (or even 17), the problem is solved. Notice that x is never written to after it's initially cleared.

Bon chance.

```
\ DmSearch Test

needs DataMgr
needs ids

2variable localID
create DmSearchStateType 16 allot
variable x

0 x !

: FindDB ( flgNewSearch --)
  >r localID >abs cardNum >abs false
  [ID] mail [ID] DATA
  DmSearchStateType >abs r>
DmGetNextDatabaseByTypeCreator throw
;

: go
  true
  ['] FindDB  x @ .  catch  x @ .
;
```

By **Mike Will** on Saturday, January 27, 2001 - 04:08 pm: Edit

Oh. Reading what Ron said, I realize that I was counting DWords as cells, which is wrong. The Palm includes do indeed list this type as 8 DWords, which is 32 bytes. However, the detailed type is 14 bytes in DataMgr.prv

You know what else is strange though? Any data beyond the first cell doesn't get corrupted. That implies that the PalmOS doesn't touch the last 14 bytes of its state data block.

For now, I'll do what Ron does, and burn the full 16 cells. Man, this is starting to feel like Win32 all of a sudden.

Mike

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Wishlist: double precision float log functions

By **Barry Ekstrand (Ekstrandbb)** on Friday, January 26, 2001 - 03:09 pm: Edit

I am diligently working on my next app, which makes heavy use of the double precision floating point libraries of recent vintage. One of the calculations I do requires an exponential calculation. I am aware that the Mathlib gives me access to such a calculation, but since I only need the one function it the full Mathlib library seems to be a big overhead to add (…yes, I realize Mathlib is a shared library, but if a user has no other need for it, it is a big addition relative to my program).

To this point I have been using a do loop-based word to create a dfx^y capability. However, the downside is that it can only handle a positive integer exponent. If I had access to standard log and exp functions I could create a dfx^y based on exp(y*log(x)), hence my question. How difficult would it be to create the log / exp double precision floating point functions? If it is not a monumental task, can someone point me in the right direction to figure out how to do it?

Barry Ekstrand

By **Neal Bridges (Nbridges)** on Friday, January 26, 2001 - 03:17 pm: Edit

This is the blueprint:

http://quartus.net/files/PalmOS/Forth/Library/FEL.txt

Make a version of that code that works with double-precision floats, and you'll be set.

Neal

By **Barry Ekstrand (Ekstrandbb)** on Friday, January 26, 2001 - 05:32 pm: Edit

Neal,

I probably wasn't as clear as I should have been. I've looked at the FEL library, and I certainly can convert the F words to DF words, but I guess what I'm asking for is if someone can point me to something that helps understand the logic behind it.

One issue for me, without fully understanding the logic in it, is not knowing if precision jumps to 15 digits or so just by making the conversion, or if the table (if that is what it should be called) needs to be modified somehow to gain precision. Any pointers?

Thanks for your help,

Barry Ekstrand

By **Neal Bridges (Nbridges)** on Friday, January 26, 2001 - 05:35 pm:
Edit

Good questions, Barry. It's not a big piece of code, so my approach would be to convert it, and then see if the precision is sufficient for your purposes.

The logic behind it is covered (I believe, without cracking the book right now) in the book "Numerical Recipes".

Neal

By **Barry Ekstrand (Ekstrandbb)** on Friday, January 26, 2001 - 05:48 pm: Edit

Thanks, Neal. I'll play with it and see if I can find the reference - I always feel better with some grounding in the logic.

Barry

By **Mike Will (Mikewill)** on Friday, January 26, 2001 - 09:35 pm: Edit

Um. It was a while back that I wrote FEL, but I think I got the algorithm from one of those SCHAUM'S books on numerical methods. I believe it's a Taylor series for log. I'll see if I can find any info on it, but no promises since I've moved twice since then !

Mike

By **Chapman Flack** on Friday, March 9, 2001 - 03:37 pm: Edit

Hello Barry,

I have not been following the Quartus forums regularly, so I just noticed this posting. Sorry
about my tardiness.

What I would suggest is download the mathlib source from Rick Huebner and look

for the implementations of the functions you need, and (unless you ENJOYED
Numerical Analysis and want to do your own error analyses from scratch),
translate the functions with painstaking literalness from C into Forth. Part of
that is verifying that any DF constants involved in the algorithms get
entered
exactly so they produce exactly the same bit patterns in the DF format. In
case
of any question, put the constants in your code as hex constants instead of
using (dfloat). (In the mathlib comments you'll see the actual bit patterns in
hex next to the floating-point notation.) Writing accurate functions like that
is heavily dependent on the particular floating-point format, and the mathlib
was written for IEEE doubles, so those are the algorithms you'd want to go
with.

Also, it pays to be careful about which functions you choose to use when
there
are "equivalent" ways to do something. I can't tell how much of this you
know
already so please forgive me if I assume too little. For example, x y DF**
might be "mathematically" equivalent to x DFLN y DFLN DFEXP but the
author may
have used a direct approximation for DF** that is more accurate than
DFLN DFLN DFEXP. An extreme example is something that you might
actually be
dealing with:

If you are talking about growth (e.g. interest) at some rate r, then sooner
or
later you are going to want to raise something to the power (1 + r). The
trouble is, r is usually a small value compared to 1, so if you actually
compute the sum 1+r in floating point, some of r's precision will have to be
discarded. For example, if r is an interest rate of 5%, then it is a 20th the
size of the 1 you are adding to it, and in the computation of 1+r five bits
of r's mantissa will have to be shifted off the right end and lost. Then to
make matters worse, the next step will exponentiate that inaccuracy.

That kind of calculation is so common and important that there are special
functions for it: DFLNP1 is "equivalent" to (dfloat) 1 DF+ DFLN, and
DFEXPM1
is "equivalent" to DFEXP (dfloat) 1 DF-. They are NOT implemented that
way.
They are based on direct Taylor approximations of log(1+x) or exp(x)-1, so
they never involve clobbering a small number in the shadow of 1.

So to handle your growth rate r accurately, you would do x DFLN r DFLNP1
DFEXP.

The trick is to first be sure you've chosen the best functions for the computations you'll be doing and the values you'll be doing them on, and then
if you want to you can copy just those functions very carefully (every detail matters) from the mathlib source.

Again, I apologize if you knew all that; not everybody does. Hope this helps.

Congratulations on your new app!

-Chap

By **Chap** on Saturday, March 10, 2001 - 09:08 pm: Edit

Ooops, that's embarrassing, there were too many LN's in my examples above. I was consistent, too.
Sheesh. Pretend I said, e.g.,

r DFLNP1 x DF* DFEXP

The points about choosing the right functions and the purposes of DFLNP1 and DFEXPM1 were still sound, even though I botched the examples.

I will never hit send before taking a break and re-reading. I will never hit send before taking a break and re-reading.

-Chap

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ClipboardAddItem ?

By **Jim Purdy** on Thursday, January 25, 2001 - 05:12 pm: Edit

I am wanting to export a bunch of text to the clipboard. I can use ClipboardAdditem, but
I can't find the value of the format byte anywhere.

HELP!!!

Here is the C from the header file.
// Clipboard standard formats
enum clipboardFormats { clipboardText, clipboardInk, clipboardBitmap };

What are the values for the constants?
clipboardText specifically

Thanks

By **Jim Purdy** on Thursday, January 25, 2001 - 05:45 pm: Edit

OK, I answered my own question.
BTW,
here is a snipit to put a bunch of text into the
Clipboard.

```
\ clip
needs toolkit

1000 constant B_SIZE
create bstring  B_SIZE cells allot

: CLRstringBuff  ( addr -- )
    B_SIZE  cells 0 fill ;

: >clip ( -- )
 bstring CLRstringBuff
 bstring 0 s" 1, 2, 3, 4.5,"
 append  nip bstring
 >abs 0 >byte ClipboardAddItem ;
```

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Tiny buttons

By **Barry Ekstrand (Ekstrandbb)** on Wednesday, January 24, 2001 - 05:21 pm: Edit

What is the best approach to creating labeled buttons that are smaller than what RsrcEdit creates? I assume a bitmap could be drawn and then I would have to trap a pendown/penup event somehow based on the x & y coordinates. Is this the best approach, or is there something simpler?

Barry

By **Richard Chamberlain (Rac)** on Thursday, January 25, 2001 - 01:39 am: Edit

Barry,

You can create tiny buttons that have no text on them in rsrcedit and then simply place a bitmap over the top of it.

Richard

By **Barry Ekstrand (Ekstrandbb)** on Thursday, January 25, 2001 - 08:02 am: Edit

Richard,

I hadn't considered that, it sounds like a good idea. I'll give it a try, thanks for the tip.

Barry

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Desktop development

By **Gary A. Clark (Clarkg)** on Tuesday, January 23, 2001 - 04:35 pm:
Edit

I looked through the past topics and did not find this per-se. Currently I'm just using the PalmOS emulator and its notepad, but I'm finding its limitations rather quickly. 🙂 What I would like to know is what desktop environments are others using for development?

By **Neal Bridges (Nbridges)** on Tuesday, January 23, 2001 - 04:40 pm:
Edit

Erwin has a page up describing his development environment; perhaps somebody who has the link at hand can post it.

Neal

By **Gary A. Clark** on Tuesday, January 23, 2001 - 05:36 pm: Edit

I found the link at http://home.t-online.de/home/Erwin.Schomburg/howtoe.htm.

Erwin, do you use SmartDoc/QuickDoc to edit in the emulator or do you use something else and load the doc file when you are ready to test?

By **Gary A. Clark (Clarkg)** on Wednesday, January 24, 2001 - 12:37 am: Edit

The SmartDoc/QuickWord solution seems to work quite well with one problem. DocInc does not handle bookmarks very well. Anybody have an updated version that handles the bookmarks better?

By **Erwin Schomburg (Esc)** on Wednesday, January 24, 2001 - 07:19 am: Edit

For readability's sake I normally use Notepad to write and correct code, then move it through makedoc and drop it in the Emulator. For quick fixes like simple typos I dump QuickDoc on the Emulator and edit directly. Have to remember to re-export the production version then.

What does "not handle bookmarks very well" exactly mean? DocInc uses the original Doc module, so if it does not properly skip bookmark records its either a bug in there or QuickDoc has modified the bookmark record format. Any informations regarding this issue someone?

/Erwin

By **Gary A. Clark** on Wednesday, January 24, 2001 - 12:22 pm: <u>Edit</u>

I've found that if there are several (I had 7) bookmarks, DocInc will cause a memory access violation in the emulator forcing a reset. I sprinkled the document with n-dot's (number followed by .) to indicate where the problem was. It looks like it happens after the last line of the document but before DocInclude" returns.

I'm not sure, but I think I can get my desktop editor (vim) to run an extern program every time I save/load. If that is true, then I should be able to get it to run any command line utility to convert to the doc format. That would rock!

By **Wade Carlson** on Wednesday, January 24, 2001 - 01:12 pm: <u>Edit</u>

The issue with bookmarks has been known for some time.
http://www.quartus.net/discus/messages/23/389.html?FridayApril720000921am

As mentioned before, there is a bug with it reading the bookmarks. I am not familiar enough with the docfile format to investigate a solution myself. Anybody willing to tackle this?

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Lists Again

By **Mike Will** on Monday, January 22, 2001 - 06:23 pm: Edit

Having problems with Lists.
Here is a slightly modified version of the code Wade Carlson posted on Feb 16, 2000. The only change really is to write 2 strings to the list instead of 1.

```
<code>
\ TestList
needs forms
needs resources
needs ids
needs zstrings

(id) Test (id) rsrc use-resources

1000 constant MainForm
4000 constant ListID
variable x \ numItems
create sBuf 100 allot

: LstSetListChoices ( numItems &itemsText. &list. -- )
>r >r >r >r >r 0 0 r> r> r> r> r>
LstSetListChoices ;

: go
2 x !
MainForm ShowForm
x @
sBuf 0
z" 1st Item" 1+ append
z" 2nd Item" 1+ append
drop >abs
SysFormPointerArrayToStrings ( stringCount &c. -- VoidHand. )
MemHandleLock 2dup ( &ItemsH. &ItemsH. )
x @ rot rot ListID GetObjectPtr ( &ItemsH. x &ItemsH. &list. )
LstSetListChoices ( &ItemsH. )
ListID GetObjectPtr ( &ItemsH. &list. )
LstDrawList ( &ItemsH. )
begin ekey? until ;
</code>
```

Three questions:

1) This works, but only after throwing about ten "Quartus has read directly from memory manager ..." errors in the Emulator (3.0a8). These errors do *not* occur if there is only 1 list item. Any ideas?

2) I'm using Quartus 1.2.6R built August 10, 2000. Is there a later version that fixes the stack bug in LstSetListChoices?

3) How should I unlock the handle properly?

Thanks

Mike

By **Neal Bridges (Nbridges)** on Monday, January 22, 2001 - 06:34 pm:
Edit

What system call generates the 'read directly' errors?

There's a later 1.2.6r, but I haven't built in the fix to the systraps yet; that's part of a different build that's not released yet.

Unlock a handle the way you always unlock a handle -- MemHandleUnlock.

Neal

By **Mike Will** on Monday, January 22, 2001 - 08:13 pm: Edit

It's LstSetListChoices that causes the memory errors (warnings, actually, because the program successfully completes if I just say 'Continue' in the Emulator).

Ummm. It's working now (same code). I shut down the Emulator (it had been running for a few hours), then started it again. Presto -- no more errors. It seems to be an instability bug with the Emulator. My apologies, Neal.

Thanks for your help and the info about 1.2.6R as well.

Mike

By **Neal Bridges (Nbridges)** on Monday, January 22, 2001 - 08:24 pm:
Edit

I have some faint memory that the string table requires an empty zero-terminated string at the end, or in other words, an extra zero byte at

the end of it. Give that a try. That might account for why some runs work, and some don't; it'd depend on the coicidental state of memory.

Neal

By **Mike Will** on Tuesday, January 23, 2001 - 10:55 am: <u>Edit</u>

Ok, I played around with the string table, it doesn't seem to matter whether there's an extra zero byte or not. I'll keep that tip kicking around for a bit, though, just in case.

My previous question about MemHandleUnlock wasn't meant to be quite so trivial. In Neil Rhodes' book, he uses MemHandleFree instead (page 114). Also, you do indeed need to 'detach' the list control from the string table before you can do either Free or Unlock as Wade alluded to last year in reply to someone's post. Strangely, the list gets cleared on setting LstSetListChoices to null, without an ensuing LstDrawList. More PalmOS weirdness.

All is working now, looking forward to coding logic stuff again. This GUI work is difficult.

Thanks Neal (and Wade).

Mike

By **Wade Carlson** on Tuesday, January 23, 2001 - 08:26 pm: <u>Edit</u>

Wow, I get credit and I didn't even post anything! Just 8 months ago I was a complete newbie, now people think I actually know something! (sorry, just had to chime in here).

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1/10th degree integer trig routines (sort of) ready

By **Mike Ressler** on Monday, January 22, 2001 - 03:37 pm: Edit

Hello,

After threatening to do so a while back, here are my routines for single-cell integer calculations of trig functions with 1/10 degree resolution. I have sin_t, cos_t, asin_t, and acos_t implemented so far; tan functions (a bit smarter than simply sin_t/cos_t) will come some time later. I have called the package "dectrig". There are also a bunch of diagnostics included.

You can grab everything as a zip file (dectrig.zip) from http://briefcase.yahoo.com/mike_ressler in the QForth folder. There is a README file there (which is much larger than the code) which discusses implementation, usage, and diagnostics in much greater detail. Please read it if you intend to play with these functions. One thing I learned while working on this is that there are a million ways to do this, so understanding the author's motivation (and psychoses) is crucial if you want to use them successfully.

I would dearly like comments, suggestions for improvement, etc., but be gentle - I'm an astronomer, not a programmer, and I feel a bit like I have my underwear hanging out; I'm not used to admitting that something is my code.

For what its worth, I've measured the execution time for 36,000 occurrences of each trig function (see the README) in "ticks". Here are the results:

```
Func      #Ticks Memo Name
sin          195 trig
cos          269 trig
sin_t        439 dectrig
cos_t        451 dectrig
asin_t       342 dectrig-inv
acos_t       367 dectrig-inv
dfsin     19,349 mathlib
dfcos     20,226 mathlib
dfasin    24,854 mathlib
dfacos    23,996 mathlib
```

Result: avoid floating routines unless you really need that kind of accuracy!

Mike

P.S. Since sin_t and cos_t are trivial extensions of Neal's routines (lookup table with interpolation), here they are:

```
\ dectrig 2001/01/22 MER

needs trig

: (sin_t) ( n -- n')
   dup 900 > if  1800 swap -   then
   10 /mod dup tsin swap 1+ tsin
   over - rot 10 */ + ;

: sin_t ( n -- n')
   3600 mod
   dup 0 < if  3600 +  then
   dup 1800 > if  1800 - (sin_t) negate
   else  (sin_t)  then ;

: cos_t ( n -- n') 900 + sin_t ;
```

Grab the zip file for everything else.

Thanks, Mike!

Neal

Now available in the Contrib File Area.

Neal

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By **Mike Will** on Monday, January 22, 2001 - 01:40 pm: Edit

Hi Neal,

Forgive me for the triviality of this question, but I'm missing something. What is the purpose of the SWAPs in these core-ext definitions?

```
: 2R> r> r> swap ; inline
: 2>R swap >r >r ; inline
```

Getting back into Quartus, trying to scrape off the cranial rust.

Mike

By **Neal Bridges (Nbridges)** on Monday, January 22, 2001 - 03:18 pm: Edit

Those are the Standard requirements for those words. It's done that way so that the high-cell of a pair on the stack -- the cell on top -- is also the cell on top of the return stack after 2>R.

Neal

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Clearing a form

By **Tel Monks (Tel)** on Sunday, January 21, 2001 - 04:52 pm: Edit

I have an application that puts up a form and draws into it. What is the best way to "clear out" the form - do I delete it and call ShowForm again, or draw a big clear rectangle? Or is there a specific way to do what I want - reload the "blank" screen including any buttons that might be there?

It looks something like this:

```
2001 constant HelloForm
2003 constant NewHandItem

: show-panel ( -- )
HelloForm ShowForm
;

: clearscreen ( -- )
\ WHAT GOES IN HERE?
;

: drawscreen ( -- )
\ draws what I want on the screen
;

: nh ( -- )
clearscreen
\ sets up a new game
drawscreen
;

: do_event ( ekey -- )
menuEvent = if
event >abs itemid
NewHandItem = if nh then
then
;

: go show-panel
drawscreen
begin ekey do_event again ;
```

By **Neal Bridges (Nbridges)** on Monday, January 22, 2001 - 03:20 pm:

The simplest route is ShowForm, though a blank rectangle might be quicker depending on how much of the form you need to erase.

Neal

By **Tel Monks (Tel)** on Monday, January 22, 2001 - 03:45 pm:

But can you ShowForm twice, or do you have to "HideForm" first?

By **Neal Bridges (Nbridges)** on Monday, January 22, 2001 - 03:47 pm:

You can ShowForm repeatedly; it'll erase and re-draw the entire form.

Neal

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Conditional tests and floating point

By **Wayne Hilliard** on Saturday, January 20, 2001 - 11:33 pm: Edit

Are there counterparts of < > = etc. for floating point tests? In the documentation that I've been able to scare up on the net I see where f< etc. is supposed to be tests for floating point values. However when I try them out I get a unsupported word error. I suppose I can try to write them my self but don't really want to if I don't have to.

Thanks in advance.

PS Great product I plan on purchasing it soon assuming I can transition from C to forth!!!

By **Neal Bridges (Nbridges)** on Sunday, January 21, 2001 - 12:08 am: Edit

The Standard (and thus Quartus Forth) provides:

F0<
F0=
F<

What trouble are you having with **F<**?

Neal

By **wayne hilliard** on Sunday, January 21, 2001 - 02:51 pm: Edit

Actually I was having problems with F> I guess this isn't a defined word? Also what words are used for string to int or string to float conversion? Thanks again

By **Neal Bridges (Nbridges)** on Sunday, January 21, 2001 - 05:11 pm: Edit

Here's F>:

: F> FSWAP F< ;

For string to float conversion, have a look at

http://www.quartus.net/files/PalmOS/Forth/Contrib/stringtofloat.txt

Neal

I've tried the stringtofloat contribed file but I get a undefined word error on -trailing in the file. Any ideas??

A quick search finds **-TRAILING** in string.txt -- do

needs string

first. I'll have to amend that file to include that line. Thanks!

Neal

Well it's working. The prototype program I'm using to learn forth with. I'm writing a program to perform Gauss-Jorden elimination on a 3x2 matrix.

I needed to have input in floating point as well as output. I have it to the point of putting the first row into proper form ie. with a 1 in the first row-col position.

Right now I'm just working with the forth and using the console for io. I'll worry about using the palms GUI (fields etc.) after I learn the forth language.

Thanks for the help and after this winters heating season is over I plan on buying your package. I'm sure I'll have more questions later on!!!!

Thanks again..

Anytime, Wayne. Keep us posted if any questions come up as you go.

Neal

A quick question about that -trailing undefined word error I'm not clear on how that is going to impact me. Do I need to update a lib file or just

comment it out of my existing file?

Just add

needs strings

to the stringtofloat.txt file.

Neal

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Help w/ structures

By **Wes Matchett (Wesm)** on Saturday, January 20, 2001 - 12:26 am:
Edit

I've just started using the struct word and need some help. I need to define a word that creates a specific structure each time it is called and store its location in an array. Other words will manipulate these structures.

The problem is, I can't figure out how to use 'sizeof' within a word so I can pass the structure size to 'allocate'. Here is what I've tried (sample struct from deiscussion by Kris Johnson):

struct
1 cells field >firstfield
2 cells field >secondfield
1 cells field >thirdfield
end-struct myfield

myfield teststruct
sizeof myfield . (this works and prints 8)

: fieldsize (--)
sizeof myfield .
;

fieldsize (this gives a '? name arg missing' error)

What am I missing?

By **Neal Bridges (Nbridges)** on Saturday, January 20, 2001 - 12:34 am: Edit

Use **sizeof** only outside of a definition. Do this:

```
sizeof myfield constant myfieldsize

: fieldsize ( -- )
  myfieldsize . ;
```

Neal

By **Wes Matchett (Wesm)** on Saturday, January 20, 2001 - 11:08 am:
Edit

Thanks Neal. The obvious escaped me.

-Wes

You can also declare these as constants, e.g.,

```
sizeof myfield constant myfieldsize
```

-- Kris

Whoops, I repeated exactly what Neal said. Too early in the morning.

-- Kris

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FileOpen - using flash?

By **Ken Samson** on Thursday, January 18, 2001 - 10:42 pm: Edit

Has anyone tried to use the FileOpen API, but pass it a number other than 0 for the card?

Here's the deal: I have a Sony Clie with the 3.5 OS, and I want to open a file that is on the flash only.

How would I perform the effect of FileOpen within Quartus, but provide the number 1 for the card attribute?

I'm still very new… so if this should be obvious just point me at the correct documentation…

Ken

By **Neal Bridges (Nbridges)** on Thursday, January 18, 2001 - 11:44 pm: Edit

The C prototype:

FileHand FileOpen (UInt16 cardNo, Char* nameP, UInt32 type, UInt32 creator, UInt32 openMode, Err* errP)

This becomes, in Quartus Forth:

FileOpen (&errP. openMode. creator. type. &nameP. cardNo -- FileHand.)

The cardNo is the parameter on the top of the stack -- change that, and you're accessing a different card.

Neal

By **Steve Bohrer (Skb)** on Friday, January 19, 2001 - 02:04 pm: Edit

Or, if you use the Quartus library DataMgr routines, the card number comes from the variable cardnum, which is set by the helper word **UseCard**. So, a sample fragment:

```
 1 UseCard
```

```
dmModeReadWrite
z" SomeDbName" OpenDB
```

By **Neal Bridges (Nbridges)** on Friday, January 19, 2001 - 02:50 pm:
Edit

Yes -- there would certainly be benefits to sticking to the same infrastructure, and using cardnum for the file-streaming API calls also.

Neal

By **Ken Samson** on Friday, January 19, 2001 - 09:06 pm: Edit

Thanks for the help.

Has anyone tried to write back to a different card to store data there? I would imagine that there are different rules, such as perhaps having to write an entire file at a time.

I don't have any API documents for the 3.5 OS on the Sony Clie that tell me the specifics, though.

Any ideas?

Ken

By **Steve Bohrer (Skb)** on Saturday, January 20, 2001 - 05:19 pm: Edit

What do you mean by "write back to a different card to store data there"?

Are you asking if you can somehow open a file on one card, and then make FileWrite calls for that file which go to a different card? I can't think that this is what you mean, as the FileWrite call does not take a card parameter, but uses the stream returned by FileOpen. The "stream" structure knows what card it needs to use.

If you are trying to copy the file from one card to another, I think you must create a new destination file on the card you want to copy to, and then read from the source and write to the destination. Again, the card parameter is used only when you open the file, not as you read and write.

It would certainly be most straight foreward to do this with the entire file at a time if you wished to copy the entire file. Of course, if you only wanted to copy a small part of a large flash ROM file to RAM, you could certainly seek to and copy only the parts you wanted. (However, if you do intend to use the file in logical chunks, you might do better with using the DM routines rather than the File routines. Then you can let the OS keep track of the record boundries for you.)

But, I fear I've totally mis-understood what you are asking.

By **Neal Bridges (Nbridges)** on Saturday, January 20, 2001 - 07:54 pm: Edit

Perhaps he is referring to the new Palm OS 4.0 file-system APIs, present in the Sony Clie. I haven't had any direct experience with those myself, aside from the presentations at PalmSource, but the Palm OS 4.0 docs available through the Palm site should give you some guidance.

Neal

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Structures with Variable Length Fields

By **Vaughn Wine (Vwine)** on Thursday, January 18, 2001 - 04:46 pm:
Edit

Here's a question from a newbie to Forth about using structures.

Are structures only used when each field in the structure has a fixed size?

For example, can I create a structure that has two fields: an integer named "type" and a null terminated string named "value" (with dynamic length)?

Thanks!

Vaughn

By **Neal Bridges (Nbridges)** on Thursday, January 18, 2001 - 05:30 pm: Edit

That structure would be, in effect, a pointer to an integer named 'type' and a pointer to a null-terminated string named 'value'. That'd work fine, assuming that when you allocate space for such a structure, you allocate sufficient space for the maximum length of the string.

Neal

By **Vaughn Wine (Vwine)** on Thursday, January 18, 2001 - 05:45 pm: Edit

Doesn't allocating space for the maximum length string waste space (when in practice the string may be much smaller)?

Vaughn

By **Neal Bridges (Nbridges)** on Thursday, January 18, 2001 - 05:54 pm: Edit

When you store your data to a database, you'd only store the string up to its length; the allocation in RAM would be working space.

It's difficult to be more concrete about recommendations without knowing more about the application, and how you need to manipulate your data.

Neal

Thanks Neil! What you've said so far has already been very helpful, but let me give you a bit more information. I'm writing a game that involves each player making a series of moves. All moves are really a series of sub-moves (and some moves have more sub-moves than others). I can describe a sub-move in the space of one cell. So, my structure might look something like this:

```
struct
1 cells field move-id
1 cells field num-sub-moves
6 cells field sub-moves
end-struct move
```

I think the largest number of sub-moves is 6, but usually it's 2 or three. The unused space over hundreds of moves can add up (although probably not enough to be troublesome). I could save each move to the database and then forget about it, but I have an additional constraint that I need to be able to traverse through the history of moves quickly, and I'm worried about database access slowing things down. Of course, when I save the moves to the database, I would trim off the unused space.

Most of my programming experience has been in Java, so I'm used to working with objects where memory allocated to fields can automatically grow in size, if required (for Strings and Vectors, for example). I was just wondering if there was something similar (without having to delve into an OO extension) in Forth.

Vaughn

For what you're describing, dynamic allocation is the wrong solution. You can just write the data sequentially in memory. Write a move-id, write a num-sub-moves, and then follow that with however many sub-moves are made. When the move is done, update num-sub-moves with the correct value, and start a new record. No terminating value is required.

Traversal should be pretty quick; just read the num-sub-moves from a record and advance your pointer accordingly.

Neal

By **Vaughn Wine (Vwine)** on Thursday, January 18, 2001 - 08:23 pm:
Edit

Thanks a lot, Neil. I'll have to give that a shot. I may have some questions about database access....

I have to say, these discussion forums have been extremely helpful. I've had to dig a bit, but most of my questions have already been answered. I haven't seen such active responses from any moderator, let alone the individual who wrote the software!

Thanks again,

Vaughn

By **Neal Bridges (Nbridges)** on Thursday, January 18, 2001 - 09:33 pm: Edit

Glad the forum is proving useful, Vaughn. There's quite a few megabytes of archives to search by now!

Neal

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"new" forth words

By **Robert Burkhardt** on Thursday, January 18, 2001 - 10:38 am: Edit

Greetings,
I recently acquired a PDA (Visor Prism) and was
delighted to discover Quartus. I have not used
Forth for almost 20 years, and it seems that the
language has changed a bit in that time. While
I wait for delivery of the Forth Inc. programmers
manual, I would appreciate it if somebody could
briefly explain, or direct me to some online
resource that could explain, the following words
which I do not find in my 1981 edition of Brodie:
nip tuck throw
(as an initial exercise, I would like to extend
Neal's bitmap word to include 8 and 16 deep
pixels, but I need to understand exactly what
his original is doing first!)

Thanks in advance,
Bob Burkhardt

By **Neal Bridges (Nbridges)** on Thursday, January 18, 2001 - 11:03 am: Edit

Hi Bob. A copy of the ANSI/ISO Forth Standard ships with Quartus Forth in
DOC and text formats; it's also available on the web in RTF and HTML via
the "Online Resources" page of the Quartus Forth manual. Have a look at
that as a reference for the new words.

Neal

By **Robert Burkhardt** on Thursday, January 18, 2001 - 11:26 am: Edit

Neal,

Thanks for the quick response- now I know
what I'll be working on this weekend!

-Bob Burkhardt

By **Jim Hendricks (Jimh)** on Thursday, January 18, 2001 - 11:31 am: Edit

Bob,

A while back I posted some suggested changes to bitmap that would allow for 4 color(2bpp) and 16 color (4bpp). I can't seem to find the original post about it so if you want me to repost it, just ask.

Jim

Jim,

Yes, if you can find your original post I
would appreciate seeing it (I looked through
only the most recent archive file when I
started out with this).

Thanks,
Bob

Bob, I typed this off my palm so any typo's are my fault, it has been tested and works with 4&16 color, not tested by me with 256 color.

```
\ bitmap 98.10.7 8:45 pm NAB

\ version is 1 : depth is 0 2 or 4
: cbitmap ( version depth height width "name" -- )
  create
  tuck , , \ width height
\ bytes/line (must be even)
  7 + 8 / dup 1 and + ,
  0 , \ flags
  c, c, 0 , 0 , 0 ,
  does> >abs WinDrawBitmap ;

:bitmap ( height width "name" -- )
  0 rot rot 0 rot rot cbitmap ;
```

Just a note, my actual implementation uses -rot in replacement of the rot rot. If you have any questions, fire away.

FYI, the original code is in
http://www.quartus.net/files/PalmOS/Forth/Archive/archive8.pdf -- search on 'cbitmap'.

Neal

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Quartus Forth Limitations?

By **Robb Canfield** on Wednesday, January 17, 2001 - 02:01 pm: Edit

Is there a document describing any limitations Quartus Forth has in regards to Palm Pilot programming?

Data Size
Code Size
Dictionary Size
Stack Size
Total size

If there are limitations are there any procedures to overcome them?

Can Quartus Forth be used to create stand-alone libraries that other Forth programs (or any other language) can call?

Any other limnitations a programmer should know before embarking on a design project utilizing Quartus Forth?

Thanks

By **Neal Bridges (Nbridges)** on Wednesday, January 17, 2001 - 02:32 pm: Edit

My two cents:

Data space: varies according to the version of the Palm OS. For complete backward compatibility, assume you've got about 10K. For OS3.x and later, you can go as high as 32K. Using (allocate) and friends, you can access all of the available dynamic RAM on a device, up to the limit of what the OS provides.

Code size: all Quartus Forth code is compiled into a single 64K segment. Some impressive apps have been created in this space, due to Forth's compactness, and strong code re-use. I'm working on expanding to multi-segment apps in a future release. For the moment, if you have ambitious requirements for multiple segment apps, you can create sub-apps and launch them from your main app, as has been done by a couple of developers here -- I'll let them talk about that.

Stack sizes: The return stack is defined by the OS. Assume it's 2K. The data

stack is of similar size.

Libraries: you can create and launch sub-apps, as discussed earlier; creating Palm shared libraries (like MathLib) with Quartus Forth hasn't been done to date, as far as I know. You can certainly access Palm shared libaries -- for example, the serial library, MathLib, and most recently NetLib.

The latest build -- out for beta test -- also cleanly handles Palm launch codes.

Neal

By **Robb Canfield** on Wednesday, January 17, 2001 - 04:16 pm: Edit

It sounds like the only limitation is in code size and I will try to work within that limit. I will also research sub-apps to see what their limitations are.

Thanks for the info

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Question reg. resources

By **Ludvig Svenonius** on Wednesday, January 17, 2001 - 08:47 am: Edit

I have a pretty simple questions regarding Palm resources. Are they read-only or is an application allowed to manipulate the resource data directly using instructions like c!a?

In most cases what one would like to do would probably be to allocate a temporary copy of the resource data rather than modify the resources directly, since they're not intended for data persistence, but in this particular case it would help if the resource could be directly modified.

When I try to use c!a to modify resource data directly using a pointer obtained through a call to MemHandleLock, the palm crashes with a "Fatal Exception" message.

Another question: when I try to run the same application in POSE, I get loads of error messages ("The application has performed an illegal operation. It performed a 'bus error'...") although the same code works just fine on the Palm. Anyone got a clue what might be causing this?

--
Ludvig

By **Neal Bridges (Nbridges)** on Wednesday, January 17, 2001 - 09:43 am: Edit

I'd need to see your code to determine what's failing in it, but yes, resources are read-only. You can modify them via DmWrite, but you'd need to carefully check that they are in a heap that can be written to, and not, for instance, stored in Flash or ROM.

Neal

By **Geert Bosch (Bosch)** on Wednesday, January 17, 2001 - 10:27 am: Edit

Hi Ludvig,

While you're experimenting, you might want to use the attached debugging words that redefine the various memory words like c!a to check them for validity.

These words make sure that you never access unaligned memory cells, and that you don't write to unwritable memory or read from unreadable locations. It saved me quite a few reboots working on my debugger.
-Geert

Memory debugging words
debug-mem.txt (2 k)

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```
\ debug-mem 8-1-01 GB
\ Words to safely access memory
\ for debugging purposes
needs double
needs core-ext


: checkaligned ( a--)
  1 and if (decimal) -23 throw then ;


: checkc@a ( a-addr.--a-addr.)
  \ Raise exception if a. not readable
  2dup HwrMemReadable d0=
  (decimal) -9 and throw ;


: check@a ( a-addr.--a-addr.)
  over checkaligned checkc@a ;


: checkc!a ( c-addr.--c-addr.)
  \ Raise exception if a. not writable
  checkc@a 2dup HwrMemWritable
   d0= (decimal) -20 and throw  ;


: check!a ( a-addr.--a-addr.)
  over checkaligned checkc!a ;


: @a ( a-addr.--n) check@a @a ;
: c@a ( c-addr.--n) checkc@a c@a ;
: 2@a ( a-addr.--d) check@a 2@a ;
: !a ( n a-addr.--) check!a !a ;
: c!a ( n c-addr.--) checkc!a c!a ;
: 2!a ( d a-addr.--) check!a 2!a ;
: @ ( a-addr--n) >abs @a ;
```

```
: c@ ( c-addr--n) >abs c@a ;

: ! ( n a-addr--) >abs !a ;

: c! ( n c-addr--) >abs c!a ;


: cs@ ( xt--n) dup checkaligned cs@ ;

: cs! ( n xt--) dup checkaligned cs! ;

: 2cs! ( d. xt--) swap over cs! cell+ cs! ;

: 2cs@ ( xt--d.)

  dup >r cell+ cs@ r> cs@ ;


: abs>xt ( a. --false | xt true)

  dup [ (hex) 290a cs, ] drop ( a. a2.)

  d- over swap (hex) 8000. d+ nip

  if drop false else true then ;


: call? ( xt--flag)

  cs@ (hex) 4EAA = ;


: pastcall? ( xt--flag)

  2 cells - call? ;


: nu. ( n|u--)

  \ Display number as signed or

  \ unsigned depending on base

  base @ (decimal) 10 =

  if . else u. then ;


: cstype ( cs-addr u -- )

  over + swap do  i csc@ emit  loop ;


: xt. ( xt--)
```

```
    dup nu. xt>name if

      [char] = emit cstype space

    then ;



: dumpcr? ( a. n--a.)

  \ special newline for memory dumps

  1 and 0= if cr 2dup d. 2 spaces then ;



: dumpa ( a. n--)

  2/ 0 ?do

    2dup 2@a abs>xt

    if >r 0 dumpcr?

      ." CS: " r@ xt.

      r@ pastcall? if

        ." called " r@ 1 cells - cs@ xt.

      then r> drop

      2 cells m+

    else

      i dumpcr?

      2dup @a nu.

     1 cells m+

    then

  loop 2drop ;



: dump ( a n--)

  >r >abs r> dumpa ;



: rp>call ( rp. -- a.) 2@a -2 cells m+ ;
```

Runtime word compilation in an application

By **Robb Canfield** on Tuesday, January 16, 2001 - 11:55 pm: Edit

Can a word be compiled at runtime within a distirbuted Forth application? I used this in a past life (80186 EForth based) to create very fast words by selectively building a word, handling all the options/conditions possible at runtime. The word was then used within a loop that executed 100's of times. It was very useful when I combined this strategy with a multitasker I added to Eforth. Made it very easy to rebuild sections by forgetting words in a process and then rebuilding with the new options.

Currently I would like to use this approach in the creation of a game where the world/characters can be randomly generated. By compiling the words once a huge speed increase can be achieved over re-interpreting structures of data. In general I tend to write languages to solve specific problems. I then use that language to write the final application that often dynamically changes its behavior at runtime. Also handy for spreadsheet like actions where equations can be compiled once and then execute at runtime speeds.

Just of the reasons I came to love Forth, SmallTalk and currently Perl. Dynamic, runtime optimizations.

Thanks

By **Neal Bridges (Nbridges)** on Tuesday, January 16, 2001 - 11:57 pm: Edit

Neither the dictionary structure nor the compiler exist in stand-alone apps, so this would be difficult.

You might find Quartus Forth fast enough for your purposes as it stands -- it's not a threaded Forth (as your EForth would have been), it's a native-code Forth that's much faster.

Neal

By **Robb Canfield** on Wednesday, January 17, 2001 - 12:45 am: Edit

You are correct in that Eforth was threaded and native code would be faster (but larger). But not being able to compile can effectivly reduce speeds by a huge factor.

In any case I will try Quartus once I finish the project I am currently

working on. I have been monitoring this group for a few months and never before have I seen such support! That alone makes Quartus worth trying.

Do you have a listing of applications written in Quartus? It would be nice to see what is possible and what isn't. Such as program size, inter-library calls, etc.

By **Neal Bridges (Nbridges)** on Wednesday, January 17, 2001 - 11:27 am: Edit

Here's a starting-point:

http://www.quartus.net/discus/messages/23/837.html?975937286

Neal

By **Hans Nordstrom** on Wednesday, January 17, 2001 - 06:12 pm: Edit

Another page, where I´ve a collection of links to different developers:

http://www.abc.se/%7Em989/Forth/Q4links.htm

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Best way to handle large number of globals

By **Gary A. Clark** on Tuesday, January 16, 2001 - 04:05 pm: _Edit_

Its been a while since I've worked in Forth, but its starting to come back. 🙂 I'm currently working on converting a large C program into forth. Although I'm familiar with the C program, converting it to forth and the PalmOS is a bit of a challenge. It will break down very easily, although I expect it to take a few months of spare time to get it done.

Now, on to the question. This program currently has a large number of global variables. Most, if not all, will need to be saved in a PalmOS database when the app closes and restored when it is opened again. The question I have is would it be better to just create one record (I expect it to be 1 to 2K) and use that for the globals or transfer them back and forth (<-pun?) at startup and shutdown?

By **Neal Bridges (Nbridges)** on Tuesday, January 16, 2001 - 04:30 pm: _Edit_

You should be able to store those global variables as an app preference. Have a look at the way Swatch does it (sources are available in the File Area) -- you can just put a couple of lines of code around your variable declarations, and then saving and restoring them becomes quite painless.

Neal

By **Gary A. Clark** on Tuesday, January 16, 2001 - 04:42 pm: _Edit_

Thanks, I'll check that out and let you know if I have any questions.

By **Ron Doerfler** on Tuesday, January 16, 2001 - 05:18 pm: _Edit_

Is there a limit, though, on how many bytes you can save in the Saved Preferences? I've wondered this for some time (well, ever since I was having some problems with it that seem to go away when I decreased the size). And is this different for PrefSetAppPreferencesV10 compared to PrefSetAppPreferences?

Thanks,

Ron

I haven't researched that; the SDK docs should say something about the limits. Off the top of my head, I'd guess 1-2K would be acceptable.

Neal

This is what I've come up with. The load-vars and save-vars words to the real work, the rest is just setup. I know this could be done in a cleaner way by creating two words, but call me lazy. 🙂

BTW, I tried adding 8192 cells allot after s3 and it loaded and saved over 16K. 🙂

```
\ mark start of saved vars
here

\ Declare all variables here with
\ save-version as the first one
variable save-version
variable s1
variable s2
variable s3

\ current version of save vars
1 constant this-version

here swap - \ Calculate size of saved
variable save-size
save-size !

\ Load variables
\  returns false if not loaded
: load-vars ( --- flag )
 true save-size >abs
 save-version >abs 0 crid
 PrefGetAppPreferences
0=
;

\ Save variables
: save-vars ( --- )
```

```
 this-version save-version !
 true save-size @
 save-version >abs 0 0 crid
 PrefSetAppPreferences
;

: go
 load-vars if
   ." loaded " else
   ." error " then
 s1 @ .
 save-version @ .
 save-size @ .
 s1 @ 1+ s1 !
 save-vars
 begin ekey drop 0 until
;
```

By **Neal Bridges (Nbridges)** on Tuesday, January 16, 2001 - 08:24 pm: Edit

In Swatch, I set the variables to sensible default values, so that if the preferences are unavailable (as will happen on the first run), the app starts up properly.

Neal

By **Gary A. Clark** on Tuesday, January 16, 2001 - 10:35 pm: Edit

Normally I would agree, but this is for a game and the values will be randomly generated for each game. If the preferences are not available, a new game will be generated.

For those interested, its the classic Super Star Trek updated with color graphics. I'm not sure if I want to sell/support it or just make the source available. It will be a few months before I get anywhere near enough to release it.

By **Neal Bridges (Nbridges)** on Tuesday, January 16, 2001 - 10:36 pm: Edit

Sounds like fun!

Neal

By **Ron Doerfler** on Tuesday, January 16, 2001 - 11:41 pm: Edit

Thanks, Gary and Neal, for the info on the Saved Preferences limits. Guess

I was having problems other than the size of what I was saving. This is good information.

Ron

By **Gary A. Clark (Clarkg)** on Tuesday, January 16, 2001 - 11:54 pm:
Edit

Well, its fun when I'm not beating my head on the wall. 🙂 Although I spend a good deal of my time at work programming, I still have fun programming at home. I started with Forth on an Atari 800, so my IIIc is a much larger system to work on. 🙂 Quartus is a great implementation of a fun language. How could I go wrong?

By **Neal Bridges (Nbridges)** on Tuesday, January 16, 2001 - 11:58 pm:
Edit

Sounds to me like your ducks are all in a row, Gary 🙂

Neal

By **Gary A. Clark (Clarkg)** on Wednesday, January 17, 2001 - 12:28 am: Edit

If you bring up my forum profile, you can see the static screen that my program currently generates.

By **Richard Chamberlain (Rac)** on Wednesday, January 17, 2001 - 07:01 am: Edit

Nice screenshot Gary :-) Looking forward to the result.

Richard

By **Neal Bridges (Nbridges)** on Wednesday, January 17, 2001 - 02:33 pm: Edit

That's a nice screen layout, Gary. I remember a similar game on the C64.

Neal

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System Libraries

By **Matthew Burke** on Tuesday, January 16, 2001 - 12:37 pm: Edit

I was looking at the source code to TickHack and was thinking that you could use an analogous technique to create a system library. Or am I missing something?

The big drawback (for me, since I'm not a real assembly coding he-man) is that the functions would have to be done in assembly, no?

By **Neal Bridges (Nbridges)** on Tuesday, January 16, 2001 - 02:55 pm: Edit

In general terms, yes. I can envision a library module that did the necessary stack setup for Forth, but it'd require some research and work to create that scaffolding.

Neal

By **Barak Shilo (Barak)** on Tuesday, January 16, 2001 - 10:52 pm: Edit

Speaking of libraries, how would you incorporate (and call) a compiled C library in a Quartus Forth program?

By **Neal Bridges (Nbridges)** on Tuesday, January 16, 2001 - 10:53 pm: Edit

You mean, a Palm shared library?

Neal

By **Barak Shilo (Barak)** on Tuesday, January 16, 2001 - 10:58 pm: Edit

No, a library that was written to be used with C or C++ and to be compiled into palm programs written in C or C++.

By **Neal Bridges (Nbridges)** on Tuesday, January 16, 2001 - 11:32 pm: Edit

The easiest thing to do is wrap it up as a shared library -- there's documentation for this on the web, and a number of examples (MathLib among them). Then you can call it from anywhere.

Alternatively, you could bundle it up as a sub-app, and call it with a custom launch-code. That'd be a bit slower.

Neal

By **Barak Shilo (Barak)** on Tuesday, January 16, 2001 - 11:33 pm: Edit

Great, thanks.

By **Erwin Schomburg (Esc)** on Wednesday, January 17, 2001 - 09:10 am: Edit

Just a shameless plug, see my Quartus wrapper for FlashPlug's (no pun intended) pluglib shared library at
http://www.quartus.net/discus/messages/23/521.html?WednesdaySeptember1320000523pm#POST4458?WednesdaySeptember1320000523pm.
See the C prototypes from pluglib.h below for an idea how you'd do the mapping to Quartus from your own or any shared lib:

```
typedef enum {
sampleLibTrapGetLibAPIVersion = sysLibTrapCustom,
sampleLibTrapFPCopyDBToPlug,
sampleLibTrapFPCopyDBFromPlug,
sampleLibTrapFPFindNextByTypeCreator,
sampleLibTrapFPGetNumParts,
sampleLibTrapFPSetPart,
sampleLibTrapFPSetPartByName,
sampleLibTrapFPGetPartName,
sampleLibTrapFPDatabaseInfo,
sampleLibTrapFPNumRecords,
sampleLibTrapFPNumResources,
sampleLibTrapFPGetRecord,
sampleLibTrapFPGetResource,
sampleLibTrapFPGetHandle,
sampleLibTrapFPRecordInfo,
sampleLibTrapFPResourceInfo,
sampleLibTrapFPFindResource,
sampleLibTrapFPCopyDBToPlugWithRename,
sampleLibTrapFPCopyDBFromPlugWithRename,
sampleLibTrapFPPresent,
sampleLibTrapFPGetLastError,
sampleLibTrapFPPartSizeInfo,
sampleLibTrapFPDeleteDB,
sampleLibTrapLast
} SampleLibTrapNumberEnum;


extern Err FPLibOpen(UInt refNum, DWordPtr clientContextP)
SAMPLE_LIB_TRAP(sysLibTrapOpen);

extern Err FPLibClose(UInt refNum, DWord clientContext)
SAMPLE_LIB_TRAP(sysLibTrapClose);

extern Err FPLibSleep(UInt refNum)
SAMPLE_LIB_TRAP(sysLibTrapSleep);

extern Err FPLibWake(UInt refNum)
SAMPLE_LIB_TRAP(sysLibTrapWake);


extern Err FPLibGetLibAPIVersion(UInt refNum, DWordPtr dwVerP)
SAMPLE_LIB_TRAP(sampleLibTrapGetLibAPIVersion);
```

```c
extern Err FPCopyDBToPlug(UInt refNum, DWord clientContext, char *name)
SAMPLE_LIB_TRAP(sampleLibTrapFPCopyDBToPlug);

extern Err FPCopyDBFromPlug(UInt refNum, DWord clientContext, char *name)
SAMPLE_LIB_TRAP(sampleLibTrapFPCopyDBFromPlug);

extern Err FPFindNextByTypeCreator(UInt refNum, DWord clientContext, Boolean first, ULong type, ULong creator, UInt *handle, char *DBName)
SAMPLE_LIB_TRAP(sampleLibTrapFPFindNextByTypeCreator);

extern UInt FPGetNumParts(UInt refNum, DWord clientContext)
SAMPLE_LIB_TRAP(sampleLibTrapFPGetNumParts);

extern Err FPSetPart(UInt refNum, DWord clientContext, UInt partnum)
SAMPLE_LIB_TRAP(sampleLibTrapFPSetPart);


extern Err FPSetPartByName(UInt refNum, DWord clientContext, char *name)
SAMPLE_LIB_TRAP(sampleLibTrapFPSetPartByName);


extern Err FPGetPartName(UInt refNum, DWord clientContext, UInt partnum, char *name)
SAMPLE_LIB_TRAP(sampleLibTrapFPGetPartName);

extern Err FPDatabaseInfo (UInt refNum, DWord clientContext, UInt handle, const CharPtr nameP, UIntPtr attributesP,
UIntPtr versionP, ULongPtr crDateP, ULongPtr modDateP, ULongPtr bckUpDateP,
ULongPtr modNumP, UInt* appInfoPP, UInt* sortInfoPP, ULongPtr typeP,
ULongPtr creatorP)
SAMPLE_LIB_TRAP(sampleLibTrapFPDatabaseInfo);

extern UInt FPNumRecords(UInt refNum, DWord clientContext, UInt handle)
SAMPLE_LIB_TRAP(sampleLibTrapFPNumRecords);

extern UInt FPNumResources(UInt refNum, DWord clientContext, UInt handle)
SAMPLE_LIB_TRAP(sampleLibTrapFPNumResources);

extern VoidPtr FPGetRecord(UInt refNum, DWord clientContext, UInt handle, UInt recnum)
SAMPLE_LIB_TRAP(sampleLibTrapFPGetRecord);

extern VoidPtr FPGetResource(UInt refNum, DWord clientContext, UInt handle, UInt recnum)
SAMPLE_LIB_TRAP(sampleLibTrapFPGetResource);

extern UInt FPGetHandle(UInt refNum, DWord clientContext, char *name)
SAMPLE_LIB_TRAP(sampleLibTrapFPGetHandle);

extern Err FPRecordInfo(UInt refNum, DWord clientContext, UInt handle, UInt recnum, UIntPtr attrP, ULongPtr size)
SAMPLE_LIB_TRAP(sampleLibTrapFPRecordInfo);
```

extern Err FPResourceInfo(UInt refNum, DWord clientContext, UInt handle, UInt recnum, ULongPtr typeP, UIntPtr idP, ULongPtr size)
SAMPLE_LIB_TRAP(sampleLibTrapFPResourceInfo);

extern VoidPtr FPFindResource(UInt refNum, DWord clientContext, UInt handle, ULong type, UInt id)
SAMPLE_LIB_TRAP(sampleLibTrapFPFindResource);

extern Err FPCopyDBToPlugWithRename(UInt refNum, DWord clientContext, char *name, char *newname)
SAMPLE_LIB_TRAP(sampleLibTrapFPCopyDBToPlugWithRename);

extern Err FPCopyDBFromPlugWithRename(UInt refNum, DWord clientContext, char *name, char *newname)
SAMPLE_LIB_TRAP(sampleLibTrapFPCopyDBFromPlugWithRename);

extern Err FPPresent(UInt refNum, DWord clientContext)
SAMPLE_LIB_TRAP(sampleLibTrapFPPresent);

extern UInt FPGetLastError(UInt refNum, DWord clientContext)
SAMPLE_LIB_TRAP(sampleLibTrapFPGetLastError);

extern Err FPPartSizeInfo(UInt refNum, DWord clientContext, ULong *freesize, UInt *freefiles)
SAMPLE_LIB_TRAP(sampleLibTrapFPPartSizeInfo);

extern Err FPDeleteDB(UInt refNum, DWord clientContext, char *name)
SAMPLE_LIB_TRAP(sampleLibTrapFPDeleteDB);

extern Err FPLibInstall(UInt refNum, SysLibTblEntryPtr entryP);

/Erwin

By **Neal Bridges (Nbridges)** on Wednesday, January 17, 2001 - 02:35 pm: Edit

Erwin's code is a good example of how to call a shared library; serial.txt is another useful example.

Neal

By **Barak Shilo (Barak)** on Friday, January 19, 2001 - 11:09 am: Edit

Hi, can you basically explain what the above prototypes do? I'm also not familiar with the syntax: Err <function prototype> <function call>

Thanks.

By **Neal Bridges (Nbridges)** on Friday, January 19, 2001 - 11:30 am: Edit

Those are all C prototypes, so they have this format:

[extern] return_type FunctionName(type1 parametername1, type2 parametername2);

They're a bit like stack-diagrams in Forth, but the C compiler actually needs them to do its job. If you call a function in your C source before the C compiler has seen either the function itself, or the prototype, it won't know how to deal with it properly.

Neal

Yes, I'm familiar with C prototypes, but these seem to have calls to the function SAMPLE_LIB_TRAP() after each prototype and I don't know what this does.

Sorry, Barak; I misunderstood your question.

That form is pretty common in the Palm headers -- it maps that call to a specific trap number. The macro expands differently for CodeWarrior and GCC; have a look in the headers themselves to see all the ghastly details 🙂

Neal

Short excurse on how to write wrappers to be able to call shared libraries from within your Quartus applications. You may follow this through by looking at the pluglib wrapper sample and the corresponding C interface above:

a) Make sure you get the header- or interface-file, usually a "something".h file, with the library in question. That is the C prototype file you'd need to interface to the library no matter what language you intend to use.

b) Be aware that all parameters given in the interface will ultimately boil down to 8, 16 or 32 bit values (at least this applies to programming for PalmOS). You'll need to know which is which to feed the Quartus stack appropriately for any call to a library function. Since this "boiling down" may happen through several levels of indirection utilizing the C type system, you may need a full or extensive subset of PalmOS header files and PalmOS SDK description to be able to sort this out.

c) You need to feed the parameters to the Quartus stack in the reverse order prescribed by the respective C prototype. The stack has a 16bit "granularity", any 8bit values need to be left shifted by 8 bits after placed onto the Quartus stack. Use the >BYTE word to do this.

d) After the call to the function returns, you need to clean up the stack to the depth it had before you started to dump the parameters for the function call onto it, i.e. you now need to DROP all the parameters off the stack again or do a direct manipulation of the stack pointer.

e) Return values can be pulled from the D0 register, you can use the D0 word to retrieve all 32 bits to the Quartus stack, then "cut off" the slack if you rather expect an 8 or 16 bit value. An exception here, if the prototype says the function returns a pointer, this value will be put in register A0, use the Quartus word A0 respectively for retrieval.

f) All shared libraries (except some of the OS resident ones) need to be loaded and opened before you can use the functions offered. To check if its already loaded, you use SysLibFind. If you need to load you need its type and CreatorID, then use the SysLibLoad function to load it, this gives you a reference number or a handle to this specific library. Best store this in a variable, you'll need it for each and every subsequent usage of this library's functions. When you are finished with it and have closed it down, you use SysLibRemove to get rid of any connection to it again.

Don't worry, the latter call does *not* remove it from memory.

g) All functions available in a shared library are usually listed in a C enumeration before you find the prototypes. As this may be tricky to find out, the first function listed has order number five, numbers 1 to 4 are open, close, sleep and wake. The latter two are for system use only, but you as the user need to enact open and close.

h) To call a function in a shared library you call SysTrap number (hex) A800 plus the function number, pass the reference number for the particular library obtained from the SysLibLoad operation on top of stack, with all the parameters necessary for this call underneath. As you can see in the example, you may factor this out as far as possible, so you have to set up only the parameters specific to a certain function.

Come back if you have further questions in this matter.

May the Forth be with you!

/Erwin

By **Barak Shilo (Barak)** on Friday, January 19, 2001 - 11:25 pm: Edit

Thanks Neal and Erwin!

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Locking Memory

By **Tel Monks (Tel)** on Tuesday, January 16, 2001 - 08:32 am: Edit

Here is some code I use for displaying a bitmap. This was adapted from the Swatch LCD memo.

```
: b-draw ( n y x  -- )
  2>r  [ID] Tbmp DmGetResource
  2dup MemHandleLock
  2r> 2swap WinDrawBitmap
  MemHandleUnlock ;
```

My question is: how do you know which operations require the memory handles to be locked and which not? Is there a list?

By **Neal Bridges (Nbridges)** on Tuesday, January 16, 2001 - 03:02 pm: Edit

A number of calls return a handle, but very few take one as a parameter. **DmResizeResource** is one that takes a handle, as does **DmSearchRecord** and a few other Dm* calls; there are miscellaneous others.

The general rule -- work with the handle until you actually need to get at the data the handle represents, then you lock it to get a pointer to the data.

Neal

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Transitioning to Forms-Based Programming

By **James Steven Graham (Steve)** on Sunday, January 14, 2001 - 11:48 pm: Edit

Greetings,

I've spent ~20 years programming in roll-and-scroll and/or formatted screen formats. While I can understand some of what is mentioned in the posts on forms-based programming techniques, I find myself at a loss to know where to start. Is there a text which you have found useful in covering the fundamentals of such programming on the Palm and/or as a reference for questions on the same?

Thanks.

Steve Graham

By **Neal Bridges (Nbridges)** on Sunday, January 14, 2001 - 11:53 pm: Edit

The early parts of the Palm SDK docs are somewhat useful. What might help, though, is if you post what questions you have -- where you feel the most confused, and let us have a go at explaining things.

Neal

By **James Steven Graham (Steve)** on Monday, January 15, 2001 - 12:27 am: Edit

Neal,

I'm not sure I know enough what to ask.

Are there any books or texts which you have personally used to enhance your understanding of the Palm and programming on it?

Steve

By **Neal Bridges (Nbridges)** on Monday, January 15, 2001 - 12:35 am: Edit

Definitely read through the explanatory sections in the free Palm SDK docs; that's a good starting point.

There are a number of Palm Programming books on the market, but although I have a copy of all of them, I've never read any.

GUIs in a nutshell: you use special tools to create data structures ('resources') that describe buttons, fields, labels, menus, and so on. At run-time, you pass these resources to the OS, and it draws all those things for you, and then passes information about what buttons are pushed, what menu items are selected, and so on as 'events' back to your app.

The benefit of all of this is that each app has the same look and feel, and you're saved from trying to reproduce all that functionality in each app.

Neal

By **Ron Doerfler** on Monday, January 15, 2001 - 02:55 am: Edit

Hi Steve,

Steven Donahue's tutorial on writing Quartus apps would be helpful. It uses RsrcEdit to create the forms,menus, buttons, etc., a Palm app that I daresay nearly all of us use. The tutorial is in the Contrib file area at: http://www.quartus.net/files/PalmOS/Forth/Contrib/Tutorial-v1.02.zip

Don't forget to use the Preview function in RsrcEdit as you create your forms. But don't preview a form that has a menu ID assigned to it until you've created a Menu with that ID, or you get a soft reset (this may have been corrected in the newest version of RsrcEdit).

Ron

By **Neal Bridges (Nbridges)** on Monday, January 15, 2001 - 11:58 am: Edit

I also recommend studying the complete application sources available in the File Area.

Neal

By **Gary Wiese** on Monday, January 15, 2001 - 08:51 pm: Edit

Neal's right, I finally got some understanding from applications from the file area. And Dave Bennett's programs helped me with forms and the language, try some of these here. I don't have much programming experience so I need to learn the language as well as learn forms.

As you can see when you post here you will always get a prompt reply from

Neal.

Gary

To All,

I have to agree that the support by Neal and other members of this forum is outstanding! I actually got a response from Neal within about 5 minutes of posting a message late on a Sunday night! And I've received a number of other replies, too. Neal, take a break now and then: You need a life and we don't want you to burn out from exceptional customer support.

I have started to make some progress on using forms. The examples in the library have been useful and I'm getting the hang of RsrcEdit. It and Quartus make a great duo.

Thanks again, everyone.

Steve

A pleasure, Steve -- glad it's going well for you. Thanks for your kind words. Don't worry about me burning out! 🙂

Keep us posted with any questions that come up as you go.

Neal

Hey James,

We have trying to train Neal, and just about have him where we want him, don't go and suggest to him that he can slack off now!

Seriously Neal, is extremely good about getting answers out quickly. That is what makes this a good discussion board. Kudos also to several others who frequently are there to help also

Make it a good day!
Ross

Okay, have reached my first (temporary) impasse. I have set up a form with some lists and checkboxes. I've checked some of the documentation available and have not found out how to access the values of these. Any pointers?

TIA,
Steve

Have a look at Swatch -- it does both of those things.

Neal

Plug for my own package: I've written a UI library for Quartus that I call ezUI. It helps with input fields, handling checkboxes, and popup lists, and comes with a few examples. Even if you don't wind up using the library, it'll give you some more "how-to" examples.

I like that ezUI code, Travis. May I post it in the Contrib file area?

Neal

Sure thing... I'd be happy to see it there. :-)

--Travis

Done. Thanks!

Neal

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Words for displaying throw messages

By **Geert Bosch (Bosch)** on Sunday, January 14, 2001 - 04:02 pm: Edit

The following routines show how to show a message for a caught exception. I needed this functionality for my Quartus Forth debugger, but it seems useful as self-contained code too.

BTW, I cannot show the abort" message, as the variable for the message text is not exposed. One would need to redefine abort" to store an extra copy of the message text to do this.

Show throw message
throwmsg.txt (<1 k)

By **Neal Bridges (Nbridges)** on Sunday, January 14, 2001 - 04:05 pm: Edit

Geert, I'm guessing that your code only works for English. I daresay should expose the message printing words from within 1.2.6r, to make the other languages available also.

Neal

By **Geert Bosch (Bosch)** on Sunday, January 14, 2001 - 04:15 pm: Edit

I don't know what you mean with "works only for English". I retrieve the text from the thrw resource in Quartus, so if one would have a spanish version of Quartus, it would be in spanish. The one exception to this is the text for ABORT, as that is not in the thrw resource.

BTW, it would be nice if there would be one or two extra quartus predefined exceptions that could be used for situations like "resource not found", or in general "PalmOS error". Then one could use these for checking result codes for PalmOS calls.

-Geert

By **Neal Bridges (Nbridges)** on Sunday, January 14, 2001 - 04:19 pm: Edit

Sorry, should have clarified. 1.2.6r has multiple-language support for error messages, controlled by 'language'.

```
spanish language drop
-5 throw -> desbordamiento por exceso de pila de vuelta
```

The 'thrw' resources contains all translations of the error strings, and its format may change in the future, so it'd be a good idea if I exposed that printing functionality for you for future versions.

Neal

By **Yaakov Shlafman (Jacob)** on Monday, January 15, 2001 - 02:51 pm: Edit

Neal, I've immediately tried this. spanish is not defined, and if I give different numeric constants
to language (which IS defined), I get always an English message.

What should I include to see the spanish phrase?

(just out of curiosity, not that I really need this)

By **Neal Bridges (Nbridges)** on Monday, January 15, 2001 - 02:53 pm: Edit

… you tried this with 1.2.6r?

Neal

By **Geert Bosch (Bosch)** on Monday, January 15, 2001 - 08:24 pm: Edit

Below is an updated version that includes language support and should work with Quartus 1.2.[567]R.

Neal, if you'd expose any word, most useful would be the word that has the ABORT" message, as that's just impossible to get without redefining the ABORT" word.

-Geert

Throw message words
throwmsg.txt (1 k)

By **Neal Bridges (Nbridges)** on Monday, January 15, 2001 - 08:26 pm: Edit

Thanks Geert. I'll see about ABORT". Fortunately, it's rarely required to get at that message, and when it is, it's very simple to redefine ABORT".

Neal

By **Yaakov Shlafman (Jacob)** on Tuesday, January 16, 2001 - 09:30 am: Edit

Yeap, my Quartus claim it is 1.2.6R. Maybe I should inlucde a memo with language names constants?

-- Yaakov.

By **Neal Bridges (Nbridges)** on Tuesday, January 16, 2001 - 10:23 am: Edit

What's the build date?

Neal

By **Yaakov Shlafman (Jacob)** on Wednesday, January 17, 2001 - 11:41 am: Edit

Build: 199.12.16 9:04:07am

By **Neal Bridges (Nbridges)** on Wednesday, January 17, 2001 - 11:46 am: Edit

I'll send you the newest build tonight, Yaakov.

Neal

By **Yaakov Shlafman (Jacob)** on Friday, January 19, 2001 - 02:13 am: Edit

Haven't received it yet... 😦

But thanks anyway 😁

By **Neal Bridges (Nbridges)** on Friday, January 19, 2001 - 09:36 am: Edit

I'll re-send.

Neal

By **Yaakov Shlafman (Jacob)** on Sunday, January 21, 2001 - 10:59 am: Edit

No, it hasn't arrived yet... What email address did you use?

Thanks,
Yaakov.

___

Add a Message

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This is a public posting area. If you do not have an account, enter your full name into the "Username" box and leave the "Password" box empty. Your e-mail address is optional.

```
\ throwmsg
needs core-ext
needs double
needs ids

\ Indir. displaced, c=char, a=absolute
: c() ( a n--char) chars + c@ ;
: () ( a n--n) cells + @ ;
: c()a ( a. n--char) chars m+ c@a ;
: ()a ( a. n--n)        cells m+ @a ;

: Err? ( Err--) 0<> -9 and throw ;

: lock-resource ( id type. -- hnd. ptr.)
  DmGetResource 2dup d0= -38 and
  throw 2dup MemHandleLock ;

: release-resource ( hnd.--)
  2dup MemHandleUnlock Err? ( hnd.)
  DmReleaseResource Err? ;

: ztypea ( asciiz.--)
  begin 2dup c@a ?dup
    if emit 1 m+ else 2drop exit then
  again ;

: ztype ( asciiz--) >abs ztypea ;

: throwmsg? ( n--flag)
  dup >r -259 -2 within
  r> -255 -58 within invert and ;

: throwmsg. ( n--) dup throwmsg?
  if abs dup 58 > 197 and - >r ( r: n)
    1 [id] thrw lock-resource 2dup r>
    ()a  ztypea release-resource
  else ?dup if 1+ ?dup if 1+ ?dup if 2 - .
    else -1 recurse [char] " emit then
    else ." ABORT" then then
  then ;
```

```
\ throwmsg
needs core-ext
needs double
needs ids

\ Indir. displaced, c=char, a=absolute
: c() ( a n--char) chars + c@ ;
: () ( a n--n) cells + @ ;
: c()a ( a. n--char) chars m+ c@a ;
: ()a ( a. n--n)        cells m+ @a ;

: Err? ( Err--) 0<> -9 and throw ;

: lock-resource ( id type. -- hnd. ptr.)
  DmGetResource 2dup d0= -38 and
  throw 2dup MemHandleLock ;

: release-resource ( hnd.--)
  2dup MemHandleUnlock Err? ( hnd.)
  DmReleaseResource Err? ;

: ztypea ( asciiz.--)
  begin 2dup c@a ?dup
    if emit 1 m+ else 2drop exit then
  again ;

: ztype ( asciiz--) >abs ztypea ;

: throwmsg? ( n--flag)
  dup >r -259 -2 within
  r> -255 -58 within invert and ;

: get-language ( --n)
  s" language" (find)
  if lfa>xt 0 over execute dup >r
    swap execute drop r>
  else 0 then ;

: throwmsg. ( n--) dup throwmsg?
  if abs dup 58 > 197 and - >r ( r: n)
    1 [id] thrw lock-resource
    2dup 2dup get-language ()a m+
    r> ()a m+ ztypea release-resource
  else ?dup if 1+ ?dup if 1+ ?dup if 2 - .
    else -1 recurse [char] " emit then
    else ." ABORT" then then
  then ;
```

Automatic inlining

By **Geert Bosch (Bosch)** on Sunday, January 14, 2001 - 03:50 pm: <u>Edit</u>

The included memo implements automatic inlining, which marks any new word as "inline" if it's code size is less than or equal to the constant maxinline. This constant is by default 3 cells, but you can set it to two cells if you want to be sure that your program won't get bigger (you may still get some inlining!), or to a higher value if you want to see if more inlining could speed up your program.

These inlining words are an updated version of the words that I posted earlier. Now a final "EXIT" word is not included in the code size, as it will disappear during inlining anyway.

Neal, could you put this file in the contrib area?
-Geert

Attached memo:

inlining.txt
inlining.txt (<1 k)
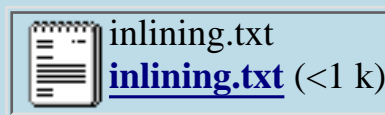
By **Neal Bridges (Nbridges)** on Sunday, January 14, 2001 - 03:56 pm: <u>Edit</u>

Done. Thanks, Geert!

Neal

Add a Message

Username:

Password:

E-mail:

This is a public posting area. If you do not have an account, enter your full name into the "Username" box and leave the "Password" box empty. Your e-mail address is optional.

```
\ inlining 12-12-00 GB
\ Automatic inlining for small words
3 cells constant maxinline
variable inlinestart

: : : cshere inlinestart ! ;

: ; postpone ; inlinestart @ negate
  cshere 1 cells - dup cs@ (hex) 1234
  = cells + + maxinline > 0=
  if inline then ; immediate
```

Menu event

By **Richard Chamberlain (Rac)** on Sunday, January 14, 2001 - 01:23 pm: Edit

Hi,

I realise that ekey returns system events but it allows them to propagate up. I need to stop this for the menu event, any easy way of doing this?

I need to switch of menu handling for one event loop and then have it back for the other.

Thanks,

Richard

By **Neal Bridges (Nbridges)** on Sunday, January 14, 2001 - 01:30 pm: Edit

I'm not quite sure I understand -- do you wish to disable the menu during one part of your application, and then re-enable it later?

Neal

By **Richard Chamberlain (Rac)** on Sunday, January 14, 2001 - 02:51 pm: Edit

Sorry it wasn't very clear was it...

I'll explain what's happening:

I have a particular form which is basically a black screen. When an event occur (such as a screen tap) the screen clears and I draw several bitmaps upon it.

When you click on the menu that also has the effect of attempting to clear the screen but it actually draws the bitmaps onto the dropped down menu.

So what I want to do is when I handle the event stop the menu event from propagating to the system so what happens is the screen clears but the menu doesn't drop down. The user would have to tap menu again to get the menu to display.

Thanks for any help,

Richard
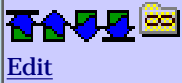
If what you want to do is avoid drawing into the menu, you can use **EMIT?** to see if it's presently ok to draw.

If instead, you need to prevent the menu from coming up unless the user taps on it twice, I'd define two forms, one with a menu and one without, and switch from the first to the second when the menu tap is detected.

There's another way to achieve that effect too, by detaching and reattaching the menu from the current form, but it's a bit more complicated. I'd go with the two-form idea.

Neal

Thanks Neal,

I used the two forms in the end - a very obvious idea that didn't even cross my mind :-(

It's actually a nice indication of the power of Quartus that it only took about two minutes to rig the whole thing up.

Thanks again,

Richard

Anytime, Richard! Hope you're having fun with it.

Neal

Add a Message

Username:

Password:

E-mail:

This is a public posting area. If you do not have an account, enter your full name into the "Username" box and leave the "Password" box empty. Your e-mail address is optional.

Code generated for "value" references

By **Geert Bosch (Bosch)** on Sunday, January 14, 2001 - 12:24 pm: Edit

It doesn't seem to be possible to inline/optimize DOES> code yet. Given that in some inner loops of my routines for arbitrary precision arithmetic I need to use too many values to keep all of them on top of the stacks, I use some globals which essentially are values.

Now I find that if I have

```
0 value x
: t x . ;
```

this generates the following code:

```
see t
  244 jsr 226(a2)=x
  248 jmp -24788(a2)=.
see x
  226 DUP
  228 move .w #1254,d7
  232 jmp -12026(a2)
-12026 see@
  53510 @
  53414 EXIT
```

It would be really nice to be able to have something more like:

```
see t
  0 DUP
  2 move .w 1254(a5),d7
  6 jmp -24788(a2)=.
```

I was trying to redefine DOES> to do this, but one main issue is that I can't get the generated code to be inlined.

Neal, would you think there would be any way to optimize this common case a bit?

-Geert

By **Neal Bridges (Nbridges)** on Sunday, January 14, 2001 - 12:34 pm: Edit

You can get halfway there with:

```
0 value x inline
: t x . ;

see t
0 DUP
2 move.w #526,d7
6 jsr -11314(a2) = @
10 jmp -24234(a2) = .
```

Neal

By **Geert Bosch (Bosch)** on Sunday, January 14, 2001 - 03:07 pm: Edit

Thanks a lot, that will help!

Add a Message

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This is a public posting area. If you do not have an account, enter your full name into the "Username" box and leave the "Password" box empty. Your e-mail address is optional.

Source for integer-based inverse trig functions?

By **Mike Ressler** on Sunday, January 14, 2001 - 05:46 am: Edit

More pestering from me - I've been searching for efficient integer-based inverse trig algorithms similar to the sine and cosine functions in trig.txt. I specifically need acos, but I'm interested in a complete collection, too. Nothing has turned up in the "usual" Forth web sites.

I could roll my own with a look-up table like the sine function; is that what people normally do? Or is Taylor series expansion preferred? I'd rather not fill all my memory with trig tables, but I'd like to keep the speed. I can't believe I'm the first person to need this - what do the "pros" do?

BTW, I have a trivial addition to trig.txt to allow 0.1 degree resolution to the sine and cosine routines that I'll contribute if anyone is interested. It's a simple linear interpolation between the 90 points in the tsin table, but the error is only a couple of parts out of 10,000 compared to a 900 point table. A factor of 2 speed penalty for a factor of 10 memory savings - not too shabby.

Mike

By **Geert Bosch (Bosch)** on Sunday, January 14, 2001 - 11:53 am: Edit

The best solution for accuracy in a limited domain is usually to use special polynomial approximations; there are better but much less obvious ones than Taylor expansions. Unfortunately such complex polynomials only make sense if you have reasonable floating point multplication and division, which is not the case on the m68k.

As you found out a practical solution between using higher-order polynomials and pure table lookup is interpolating between points. You'll find that when doing quadratic interpolation you can get away with even less points, but at the cost of more computing time.

Typical "professional" implementations of trig functions use different polynomials for different parts of the domain. The cut-off points to select between the different approximations, plus the various coefficients for the polynomials form in fact a kind of lookup table, while the polynomials themselves do the "interpolation".

A completely different approach is to use CORDIC rotations. It is not too

hard to implement a whole series of efficient fixed-point elementary functions all using simple bit-shifting and logical operations. This might in fact be the best approach for the 68k. Every "rotation" will give you another bit of precision.

An important difference of CORDIC versus polynomals is that you might be able to get 14 bits of precision without trouble, but these bits are fixed-point based. Calculating sin(0.001) (degrees) for example, might give you an answer where all the significant digits are the four leading zeroes, while using the simple approximation sin x = x, would yield an answer that would be correct to 10 digits here.

Which algorithm is best for your applition depends on your requirements, as usual J
-Geert

By **Neal Bridges (Nbridges)** on Sunday, January 14, 2001 - 02:04 pm:
Edit

Mike, I'd like to see your improvements!

Neal

By **Mike Ressler** on Monday, January 15, 2001 - 02:32 pm: Edit

Thanks for the comments, Geert. Neal, I'm going to take a stab at a set of table based inverse trig functions similar in philosophy to trig.txt. I'll submit everything at one time when I've satisfied myself that I've got a satisfactory speed/accuracy tradeoff. This is what I get for insisting on 1/2 degree final accuracy for spherical trig calculations - thus the motivation for 1/10th degree resolution for the individual trig functions.

Mike

By **Barry Ekstrand (Ekstrandbb)** on Monday, January 15, 2001 - 05:43 pm: Edit

Geert,

Your comments intrigue the engineer in me - I guess they touched some dormant mathmatics course memory from years past. Can you point me to any URL or documents that discuss the different approaches starting at ground zero?

Thanks,

Barry Ekstrand

Here's some Forth code for cubic interpolation, written by Brad Eckert:

http://www.tinyboot.com/cubic.txt

Neal

Add a Message

Username:

Password:

E-mail:

This is a public posting area. If you do not have an account, enter your full name into the "Username" box and leave the "Password" box empty. Your e-mail address is optional.

Newbie - How to use library.mpa

By **Tim Hulme** on Sunday, January 14, 2001 - 01:57 am: Edit

HELP - I'm new and don't understand clearly how to get the library modules (library.mpa) into my palm device (Visor). I hotsync with a Mac and it took me a while to realize that in the Mac palm desktop Memopad is called Note List. I can't find concise directions on how this file should be handled or if I'm supposed to import the .txt file versions from "libtxt.zip" as the setup instructions seem to indicate. Even doing that doesn't seem to work correctly (I know I'm not doing it right). How will I know when they are installed correctly on my device - Do they show up in memopad? Any help or concise direction will be greatly appreciated.

I posted the same question earlier but when I came back to check I didn't find it in the list. Sorry for double posting.

By **Mark Norton (Nortonmd)** on Sunday, January 14, 2001 - 12:31 pm: Edit

Well I'm using the Win98 version of the desktop software that came with the Visor, but I can't imagine that the process is much different.

1) Fire up the Palm software and click into the Memo section.
2) Create a new category like "Forth Library".
3) Choose File/Import and browse and find the library.mpa.
4) Import the file into your Forth Library category and sync with your Visor.
5) Voila'.

That should import the archive of memo notes that have the library words for Forth. Then you use them by putting 'needs <libraryname>' in the program you're trying to compile.

Hope this helps from one newbie to another.

Regards,
Mark Norton

By **Neal Bridges (Nbridges)** on Sunday, January 14, 2001 - 12:36 pm: Edit

Unfortunately the Mac version of the Palm Desktop Software doesn't support the .MPA file format. The library files are all provided in text format (libtxt.zip) also; these can be individually imported -- a pain, but only needs

to be done once.

There was a useful utility called TextToCNOT written by a Quartus Forth user for the Mac -- he vanished along with his website, and I've been trying to find a copy of that program ever since. Does anybody have it?

Neal

By **Neal Bridges (Nbridges)** on Sunday, January 14, 2001 - 12:42 pm:
Edit

One other (slightly radical) way to get the library memos in would be to install the Memo.PDB file that's available in the File Area. This would, however, overwrite any existing memos on your Palm; you'd need to preserve them first. Tricky, and I've never tried it on a Mac, but if some adventuresome soul wants to give it a shot, I'd be interested in the result.

Neal

By **Tim Hulme** on Sunday, January 14, 2001 - 02:00 pm: Edit

Thanks to everyone for the response. At about 2:00 am this morning I figured it out. On the Mac, if you view the .txt files in simpletext you will see it has a line feed character at the beginning of each line except the first. Importing to the Note List (Mac version of memopad on the Desktop) dumps it into the actual category (very messy). Here is what I found needs to be done. Open the .txt file (one at a time - ugh!) copy the file to the clipboard and then paste into an empty Note List window. All goes fine and the line feed character is handeled properly. All that's left to do is hotsync.

By **Mark OConnor** on Sunday, January 14, 2001 - 03:23 pm: Edit

Tim,

I also thought I was missing something, then I gave it a try on my Win98 machine. Dealing with an mpa is no problem in the Palm desktop software on the PC.

I have now created a Palm Macintosh style Note List Archive from the data on my Visor that I installed with the PC. The Macintosh Palm desktop software does deal with archives of sorts, check out the filter options in the categories pop up in the Note List.

I have named this archive 'library.nla' and can send you a text and .sit version if it is okay with Neal.

Neal, if there is a convenient spot to deposit a Mac version of the library.mpa and Ill send it there. Comment if you please on sending Tim a

copy directly to his email.

I have only had a few hours to play around with Quartus Forth, so far looks to me like a real gem.

Mark

By **Neal Bridges (Nbridges)** on Sunday, January 14, 2001 - 03:41 pm:
Edit

Hi, Mark. Please do send me that Mac archive, I'll make it available.

Thanks for the kind words about Quartus Forth!

Neal

By **Mark OConnor** on Sunday, January 14, 2001 - 03:43 pm: Edit

Using BB Edit with the grep based 'Find and Replace' it looks fairly straight forward to convert from PC .mpa file to the Macintosh 'Note List Import' format.

This might be easier than using the Palm device as a 'pipe'. As BB Edit is scriptable this could be made into an Apple Script.

Mark

By **Neal Bridges (Nbridges)** on Sunday, January 14, 2001 - 03:45 pm:
Edit

You've read my mind -- I'll see about writing a converter on the PC side.

Neal

By **francis_michel** on Saturday, March 10, 2001 - 04:36 am: Edit

How can I import the library.mpa in the memo of my Palm emulator on Windows98?

By **Neal Bridges (Nbridges)** on Saturday, March 10, 2001 - 10:47 pm:
Edit

The .mpa is for importing into the Palm Desktop software. For the emulator, use this file:

http://www.quartus.net/files/PalmOS/Forth/Library/MemoDB.zip

Neal

Add a Message

Username:

Password:

E-mail:

This is a public posting area. If you do not have an account, enter your full name into the "Username" box and leave the "Password" box empty. Your e-mail address is optional.

A RsrcEdit Question

By **Mark Norton (Nortonmd)** on Saturday, January 13, 2001 - 08:42 pm: Edit

I know this technically isn't the forum for RsrcEdit, but this is simple enough and I think many folks use it with their Quartus Forth development environment.

I would like to make an arrow button. I saw a tip that suggested using one of the Symbol fonts and use that character for the button. Indeed many other applications seem to do this. However the character for the arrow is unprintable.

Is there a way to read the character? Is there a way to type an ascii character in with Graffiti? Is this the same Symbol font that Windows uses?

Thanks for any help with this odd question.

By **Neal Bridges (Nbridges)** on Saturday, January 13, 2001 - 08:59 pm: Edit

What I've done in the past is to run the ASCII Chart app (found at PalmGear) and copy the required character, and paste it in where it's needed in RsrcEdit. You also have to select the correct Symbol font for the button.

Neal

By **kirk** on Tuesday, January 23, 2001 - 06:58 am: Edit

I used RsrcEdit to grab the character out of another app, like 'Address'. Just find a form with the arrow you want, then use 'copy' it. Go to your form and paste it in your control. The arrow I used to make an up and down page button was found in Symbol 7.

kirk

By **David Shenk** on Wednesday, January 24, 2001 - 04:21 pm: Edit

Try CharSet v1.1 by Midnight Dreams. It is freeware and you can just one-tap whichever character you need to copy, then create your control button and paste it in. You have to make sure that you select the appropriate Symbol, Symbol7, or Symbol11 font for it to appear on your

form. Some of the characters do not appear on the text line, but will show up when you preview and/or run the form.

Add a Message

Username:

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This is a public posting area. If you do not have an account, enter your full name into the "Username" box and leave the "Password" box empty. Your e-mail address is optional.

Debugging make file

By **Richard Chamberlain (Rac)** on Saturday, January 13, 2001 - 03:16 am: Edit

Hi Folks,

I'm having serious difficulties debugging a particular make file - any advice?

Basically at the moment I just get a fatal exception where I have to reset at the back.

I've checked I'm importing all the resources, It runs normally. So I'm not sure what to try now?

Can I catch the exception is some way so I can see what it is? (I've tried needs safe.)

Thanks,

Richard

By **Neal Bridges (Nbridges)** on Saturday, January 13, 2001 - 07:00 am: Edit

Richard, is the MakePRC failing, or is it one of your CopyRsrc or DelRsrc commands? Place an ABORT after each one in turn, see what fails.

Neal

By **Richard Chamberlain (Rac)** on Saturday, January 13, 2001 - 08:21 am: Edit

Thanks for the advice Neal,

I managed to get it compile eventually. I had a compiled version onboard which I had changed the creator ID on when it failed. I told makeprc a new name and it compiled ok.

I am presuming therefore that you cannot have two applications with the same name but different creator ids?

Richard

That's right. The name of the application must be unique. It should, however, generate an error and not crash; I'll check on that.

Neal

Add a Message

Username:

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E-mail:

This is a public posting area. If you do not have an account, enter your full name into the "Username" box and leave the "Password" box empty. Your e-mail address is optional.

ZDOC editor (free) now seems to be reliable

By **William Tanksley** on Friday, January 12, 2001 - 08:39 pm: Edit

I just found in a review at http://www.the-gadgeteer.com that ZDOCm, a free DOC editor, is finally reliable (earlier versions were not recommended). I'm playing with it, and the reviews at Palmgear seem positive; hopefully this will make Quartus a lot easier than memos (and cheaper than the commercial DOC editors).

Hmm, another idea: I could modify Progect to output Quartus-compatible code when it exports to DOC. That would be a lot of fun, and very useful, to boot. It would also probably be a VERY simple modification (if only I could compile C code for the Pilot). Anyone here interested?

BTW, if you haven't tried Progect yet, you're missing out on a GREAT outliner which happens to be completely free. Check out the page linked to from http://progect.sourceforge.net.

-Billy

By **Neal Bridges (Nbridges)** on Friday, January 12, 2001 - 08:43 pm: Edit

Thanks for the heads-up! I'll check out Progect. If you can identify the changes required to have it kick up Quartus Forth code, the best bet would be to submit the changes to the maintainers and get it built into the code directly.

Neal

By **WilliamTanksley** on Tuesday, January 23, 2001 - 06:30 pm: Edit

I guess I'll have to do that. The formatting changes are completely trivial -- prefix every line of every exported item with a backslash-space, and don't add any formatting characters to exported notes (so that the notes hold the code, while the outline holds the design). Of course, adding the UI code to allow the user to select Quartus-specific formatting is a little harder -- I have no idea how to do that.

I've been working with ZDOCm for a while, and had no problems. Looks great.

-Billy

Add a Message

Username:

Password:

E-mail:

This is a public posting area. If you do not have an account, enter your full name into the "Username" box and leave the "Password" box empty. Your e-mail address is optional.

Save App Preferences

By **Barak Shilo (Barak)** on Thursday, January 11, 2001 - 07:30 pm: Edit

Hi,
The main form of an application I'm writing has 5 checkboxes on it. I'd like to save the state of the checkboxes when the program is exited and restore them when the application is launched. Is there some easy way to save the form that I've overlooked? Or do I have to use CtlGetValue on each checkbox and then store a string in PrefSetAppPreferences, and parse these preferences when the app is launched? Thanks.

By **Neal Bridges (Nbridges)** on Thursday, January 11, 2001 - 07:32 pm: Edit

The latter. You'll have to record the settings and save them on exit, and retrieve them on startup.

Neal

By **Barak Shilo (Barak)** on Thursday, January 11, 2001 - 07:40 pm: Edit

Ok, thanks. You can save the state within the program (when modals popup, etc.), so I thought I might have been overlooking some equivalent API function. Heh, it took me longer to reply than you.

By **Neal Bridges (Nbridges)** on Thursday, January 11, 2001 - 07:41 pm: Edit

The sources to Swatch may be useful; they show a straightforward way to save and restore a group of variables as a preference, all at once.

Neal

By **Barak Shilo (Barak)** on Thursday, January 11, 2001 - 07:42 pm: Edit

Ok, I'll take a look, thanks again.

By **Neal Bridges (Nbridges)** on Thursday, January 11, 2001 - 07:43 pm: Edit

Anytime, Barak. Hope you're having fun!

Neal

By **Barak Shilo (Barak)** on Friday, January 12, 2001 - 01:46 pm: Edit

It says in the Palm OS Reference that FrmSaveAllForms "sends a frmSaveEvent to all open forms." and that frmSaveEvent "is a request that the application save any data stored in a form." What's its purpose?
Also, is it good to call FrmCloseAllForms before exiting?

By **Neal Bridges (Nbridges)** on Friday, January 12, 2001 - 01:50 pm: Edit

The Palm OS will close the forms for you, but you can close them yourself if you wish, yes.

You will not receive a frmSaveEvent from the Palm OS, as far as I can tell. It's something that if you generate, you can respond to -- it's a way of telling a form handler in your application that you want it to save the data on the form before you switch to another form. If you're handling your forms in the more straighforward way that Quartus Forth allows, you'll never need to do this.

Neal

By **Barak Shilo (Barak)** on Friday, January 12, 2001 - 02:07 pm: Edit

Does anything happen if you don't close your forms?

By **Neal Bridges (Nbridges)** on Friday, January 12, 2001 - 02:09 pm: Edit

Nothing happens. The Palm OS closes any open forms and frees the allocated memory when your app exits.

Neal

By **Barak Shilo (Barak)** on Friday, January 12, 2001 - 02:20 pm: Edit

Cool, thanks. Swatch has been helpful.

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Advice on LstSelectEvent

By **John Newell** on Thursday, January 11, 2001 - 12:59 pm: <u>Edit</u>

Hi Neal,
Me again. You sent me 1.2.6R some while ago. I thought it fixed not getting LstSelectEvents. However, it doesn't return that event (or in fact any Lst…Events). Is that still a problem in this version?
Regard
John
P.S. Happy (belated) New Year.

By **Neal Bridges (Nbridges)** on Thursday, January 11, 2001 - 02:29 pm: <u>Edit</u>

LstSelectEvent is definitely being passed; I just tested it. Can you post a code snippet that shows your problem?

Neal

By **John Newell** on Friday, January 12, 2001 - 07:16 am: <u>Edit</u>

Neal,
(May be) my fault. I do get LstSelectEvent if the list is displayed. I don't get it if it is attached to a popup trigger. In that case I get a popSelectEvent only.
I was assuming you would always get a LstSelectEvent whenever you select from a list.
…
I just found this is all in a previous posting. Hey! Ho!
Thank you.
John

By **Neal Bridges (Nbridges)** on Friday, January 12, 2001 - 10:20 am: <u>Edit</u>

You're right -- though they're both called 'lists', regular lists and popup lists return different events.

Neal

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Starting Forth by Leo Brodie 2nd Edition, Where?

Quartus Handheld Software: Discussion Forum: **Quartus Forth (PalmOS version)**: **Starting Forth by Leo Brodie 2nd Edition, Where?**

By **Richard Henderson** on Thursday, January 11, 2001 - 10:52 am: Edit

Wanting to start Forth again, my last experience
with Forth was with a product called MicroSpeed
on the Apple II around 1978. It was a FPP board
that came with a Forth compiler. Needless to say,
I've forgotten all of the Forth I learned 23 years
ago. Would like to get started with Quartus Forth
on my Palm IIIc. However I find the documentation
not meeting a beginners needs and would like to
get a book on beginning Forth. But I am finding
it difficult to find Leo Brodie's book. If there
are other, more modern beginning Forth books out
there, please recommend some.

Thanks All,

Richard

By **Neal Bridges (Nbridges)** on Thursday, January 11, 2001 - 11:56 am: Edit

Starting Forth and Thinking Forth are for sale here:
http://www.mpeltd.demon.co.uk/pricelist.htm

There are two books sold by Forth, Inc. -- The Forth Programmer's
Handbook, and Forth Application Techniques. http://www.forth.com

Quartus Forth also requires knowledge of the Palm OS; that's available free
in PDF format from http://www.palmos.com

Neal

By **Barry Ekstrand (Ekstrandbb)** on Thursday, January 11, 2001 - 12:01 pm: Edit

Richard,

When I started with Quartus Forth in Spring of '99 I found a place that sold
Starting Forth:

Glen B. Haydon
Mountain View Press
Route 2, Box 429
La Honda, CA 94020
(650)747-0760
website: http://theforthsource.com/homepage.html

I think they charged something like $25, and if I recall correctly (I don't have it here with me) it is the 1st edition, not the 2nd. I don't know for sure that they still have them but it would be worth a call to see; they also sold some other reference docs as well.

Good luck,

Barry Ekstrand

By **Chris Bucsko** on Thursday, January 11, 2001 - 05:31 pm: Edit

I use an old version Starting Forth all the time, but it is a bit dated. There's an excellent on-line resource at http://www.albany.net/%7Ehello/simple.htm as well. The advantage to newer docs and books is that they explain the current implementation of Forth. Forth has evolved a bit since the Brodie books were written, which can be confusing when you're just getting back into it. Check out the file area for tutorials as well, there's several good ones for folks just getting starting.

By **Kris Johnson (Kdj)** on Thursday, January 11, 2001 - 11:42 pm: Edit

Having re-taught myself Forth during the past year, I'll share my recommendations:

I'd recommend reading Starting Forth as a tutorial, and then using Forth Programmer's Handbook as a reference. I also browse through the DPANS Forth standard document once in a while, but I'm weird (I like reading dry specs).

Starting Forth is a good tutorial, but as others have mentioned, it is dated. Skip the sections on the editor and on block buffers. And take the "Under the Hood" chapter with a grain of salt--you're looking under the hood of a Model T.

Forth Application Techniques is a good "second book", but I don't think it's suitable for an absolute beginner. If you've used Forth before, then it may be suitable as a refresher.

Also look at the sample Quartus programs in the file area.

-- Kris

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Advice on Callback

By **John Newell** on Thursday, January 11, 2001 - 07:36 am: Edit

Hi Neal,
There are a number of messages posted about Callback but I wasn't clear what they were saying.
If I want to sort a database and have a callback, for DmComparF, to compare two records, must I use the allocCbStack, installCbStack and removeCbStack routines or can I just do my StrCompare on the arguments supplied to the Callback and return the result in D0?
I ask because the routines NEED asm68k which takes up 6K of dictionary space (which I can't afford).
Thank you.
Regards
John

By **Neal Bridges (Nbridges)** on Thursday, January 11, 2001 - 12:07 pm: Edit

Callbacks can pose difficulties without the CbStack routines. I want to build that functionality into the kernel, and it's on my list, but I'm not there yet. I think there may be a simpler way to achieve it, but it needs some work.

Neal

By **John Newell** on Thursday, January 11, 2001 - 12:47 pm: Edit

Sorry to be persistent but …
Are you saying that it is difficult (impossible?) to do this sort of callback at the present time without using the CbStack routines?
If so, I will just sort the database directly - I just assumed it would be quicker using e.g DmQuickSort.
I am not trying to do anything fancy - just sort the database in reverse alphabetic order.
Regards
John

By **Neal Bridges (Nbridges)** on Thursday, January 11, 2001 - 02:22 pm: Edit

Callbacks are not impossible without the CbStack routines, but some callbacks -- varying by OS revision -- corrupt the data stack pointer during the callback (that's what the CbStack routines correct).

At this moment, I recommend you sort your database directly; it's not tough and it'll get you there faster.

Neal

By **Steve Bohrer (Skb)** on Friday, January 12, 2001 - 12:18 am: Edit

The issue is that some OS routines use the A4 register internally, so that when they call your callback code, A4 no longer points to the forth data stack. Normal Quartus code reads and writes to the data stack at A4, so if A4 has been changed to point to some OS structure, Quartus code will trash arbitray system memory.

DmQuickSort (at least under OS 3.1, I haven't tried others) is a rouine that happens to use A4 for its own purposes. Thus, any Quartus callback called from DmQuickSort will trash system memory.

By **John Newell** on Friday, January 12, 2001 - 04:04 am: Edit

'Morning all,
Thanks for that - the situation is clearer now.
Regards
John

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FrmGetControlGroupSelection

By **Ron Doerfler** on Wednesday, January 10, 2001 - 10:53 pm: Edit

Hi Neal,

Here's a suggestion for a later release that you can take or leave. The Quartus Systrap listing for FrmGetControlGroupSelection is:

```
FrmGetControlGroupSelection (groupNum[>byte] &frm. -- Byte )
```

It appears to be the only Systrap that has "Byte" as the return value type.

The SDK docs say that if no control in a group is selected, you get 255--otherwise, you get the index of the control in the form.

I found out the hard way, when I was testing for 255, that the upper byte of the returned value above is not set consistently, so you have to strip it off before comparing it to 255. Fortunately, FrmGetObjectId (which is generally used to convert the index to a button ID) appears to ignore the upper byte of the index value passed on the stack.

My suggestion is that the upper byte be set to 0. The pseudo-consistency of this took awhile to discover. (Also, this is the first time I've needed a form that doesn't have a button selected from the start). After I explicitly stripped off the upper byte, the code below worked fine. But it might be less confusing to others if the mask is not needed.

Cheers,

Ron

```
: selectedbuttonid
( groupnum-- buttonid|255 )
>byte FrmGetActiveForm
FrmGetControlGroupSelection
255 and  \ Strip off upper byte.
dup 255 <> if  \ Selection exists.
   FrmGetActiveForm FrmGetObjectId
then ;
```

By **Neal Bridges (Nbridges)** on Thursday, January 11, 2001 - 11:56 am: Edit

Thanks, Ron. Yes, only the lower 8 bits are valid. I'll see what I can do.

Neal

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App update, help needed

By **Dave Bennett (Dbennett)** on Wednesday, January 10, 2001 - 06:37 pm: Edit

I've updated my InchCalc application to correct a bug that occurred when a user pressed the Feed button immediately upon starting the program. (Silly me! I never would have thought it.)

It's at www.micoks.net/~dbennett or on palmgear.

A user has reported that when he selects the kerf setting, he gets a fatal reset. I cannot duplicate this. He reported it happening on a Palm III and I have tried it on both of my IIIs and cannot get it to happen. I cannot duplicate it on my Palm V or my Vx either.

If you can duplicate this error can you give me some feedback on the circumstances? Thanks.

Dave

By **Wade Carlson** on Wednesday, January 10, 2001 - 09:29 pm: Edit

Not that I can say I really understand what the program does, but running it on the emulator, it crashes after 946 gremlin events saying that it underwent a divide by zero error. That probably doesn't help you much, but doing some testing on the emulator can be very helpful in finding out some bugs before it's released (I learned myself the hard way).

By **Dave Bennett (Dbennett)** on Thursday, January 11, 2001 - 05:45 pm: Edit

Thanks, Wade. I'll try to dig around in it some more. There is compile error with the emulator under Unix for the 3.0a7 and 3.0a8 isn't available yet. I don't have a previous version so I'll wait until they post it.

Dave

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Newbie (hex) question

By **Walter Roberson** on Wednesday, January 10, 2001 - 06:12 pm: Edit

I see that the description of (hex) [and kin]
is that it temporarily switches to hex, parses
and evaluates the next word, and switches
back the base. I realized that the following
word did not have to be "a number" -- that
a word could be given instead. And indeed,
something like this works:

: (base) base @ ;

after which, (hex)(base) . does display '16'.

I am not clear, though, on why the following
does not work:

: >hex < # (hex) #s #> ;

If I try 86. >hex type then what I get out
is '86' as if decimal was the base in effect.

Am I missing something completely about
execution semantics? The #s is being executed:
if it were not, then there wouldn't be
a counted string on the stack for 'type' to
process.

By **Neal Bridges (Nbridges)** on Wednesday, January 10, 2001 - 06:29
pm: Edit

(hex) is flagged IMMEDIATE, which is why what you've got there is failing.

```
: >hex ( d. -- c-addr len )
  base @ >r  hex
  <# #s #>
  r> base ! ;
```

Neal

Walter, I'm trying to send you an e-mail in response to yours; your mail system is rejecting any mail where the email address of the sender doesn't match the hostname of the mail relay. This makes it awkward to reply easily with my configuration; is there any hope you can relax the restrictions there?

Neal

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MIDI Words

By **Jim Cook** on Wednesday, January 10, 2001 - 04:21 pm: <u>Edit</u>

Is anyone working on MIDI words similar to that of Manx on iForth? Timing looks like a critical issue…

By **Neal Bridges (Nbridges)** on Wednesday, January 10, 2001 - 04:23 pm: <u>Edit</u>

There is at least one Palm MIDI player on the market that plays through an adapter on the serial port. I haven't looked at it closely, but if it comes with source you'd be halfway there.

Neal

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DateToDays usage

By **Chris Bucsko** on Wednesday, January 10, 2001 - 10:05 am: Edit

Has anyone ever used the DateToDays systrap? Palm defines it as the date in days from 1/1/1904. But the QF stack diagram is (date [>byte] -- ud.) I don't know how to format a date into a byte. I'm really looking for some kind of absolute reference like DayofYear, so I can tell if two days fall within the same week. Right now, I'm looking at the DayofWeek and the day in the month, which has some problems. Any ideas??

By **Neal Bridges (Nbridges)** on Wednesday, January 10, 2001 - 11:52 am: Edit

Hi Chris -- it doesn't take a [>byte] parameter, that's an error in the docs. It takes a DateType date.

For what you're doing, you might find it easier to use the calendar.txt library code from the Contrib file area. It gives you **dmy>date** and **date>iso**, which will give you week and day number for a given date.

Neal

By **Chris Bucsko** on Wednesday, January 10, 2001 - 04:25 pm: Edit

Thanks again. Calendar is in the Forth Library, so I have it already. I'll play with it tonite and let you know. It looks like date>iso is my best bet, since it already returns a week number.

By **Neal Bridges (Nbridges)** on Wednesday, January 10, 2001 - 04:26 pm: Edit

Ah so it is. Yes, **date>iso** should do the trick.

Neal

By **Chris Bucsko** on Thursday, January 11, 2001 - 02:36 pm: Edit

Yes, by golly, I spent several weeks trying to do this myself, and finally figured it out in less than an hour last night, using calendar. I just pass the day, month and year to dmy>date then call date>iso and get the day of week, week and year! (Doh!!) Just two quick questions: what is the 'd' returned by dmy>date? Is it the same as the Datetype format used by DaysToDate? Also, any particular reason why the weeks start and end on

Monday in calendar? I noticed this by passing the date 24 12 2000, and got 7 51 2000 back. But in the Palm date book calendar, it's really 0 52 2000. No big deal, of course, it's easy to fix...

The double-cell integer returned by the calendar functions is an integer count of the number of days since January 1, year 1. You'll need to adjust for the difference between that and the Palm formats; as you say, easy to fix.

Neal

Re your other point -- an ISO 8601 Standard week always starts on a Monday.

Neal

Just in case anyone should have need of this thread again, here's my solution to getting a weekday, week number and year given the day, month, year:

```
needs calendar
: dmy>dwy ( day mo yr--day wk yr )
\ returns day week no. & adj year
\ get day, wk, yr from calendar
    dmy>date date>iso
\ check for sun, adjust for weekstart
    rot dup >r 7 =
    weekstart @ 0=  and if
        r> drop 0 >r
        swap 1 + dup 53 = if
            drop 1 + 1 then
        swap then
    r>  swap rot swap ;
```

weekstart can be obtained from the system preferences ala the Year program in the file area. 0 starts the week on a Sunday, 1 starts the week on a Monday. This word will readjust the ISO week day if it's a sunday (7 in ISO format) and the week starts on a sunday. It also takes care of Sundays falling on the last day of the year like 12/31/00. In this case, if the week

starts on a Sunday, it includes that day in the first week of the following year.

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Another Newbie Question (Dialog Forms, Systraps)

By **Mark Norton (Nortonmd)** on Tuesday, January 9, 2001 - 05:17 pm:
Edit

I've been tinkering with the SDK functions to call up a modal dialog box, but so far all I'm getting are Fatal Exceptions.

I've got a form designed, the modal property set, etc. The systrap FrmDoDialog requires a 32 bit pointer to the FormStruct for that form.

The systrap FrmGetFormPtr takes in an ID and should spit out a 32 bit pointer to FormStruct.

However, I'm missing something, because the following:

1000 constant FormID
: someword <...> FormID FrmGetFormPtr FrmDoDialog <...> ;

crashes with a fatal exception.

The only difference I can see in the documentation for Quartus between the two is that FrmDoDialog has the stack behavior (&frm. -- n) and FrmGetFormPtr has the stack behavior (n -- &FormPtr.) I'm not sure if &frm and &FormPtr are supposed to be the same or different. The SDK says they should be the same thing, but if I'm addressing a wrong bit of memory, that would explain the fatal exceptions.

I'm probably missing something blindingly obvious. 🙂

Thanks.

By **Neal Bridges (Nbridges)** on Tuesday, January 9, 2001 - 05:52 pm:
Edit

You have to initialize a form before you can display it --

1000 constant FormID
FormID FrmInitForm FrmDoDialog

should do the trick for you.

Neal

..and then delete the dialog form, if I'm not mistaken. This handles the whole dialog for me, returning the ID of the button pressed:

```
: dialog (formid -- buttonid)
FrmInitForm 2dup FrmDoDialog
>r FrmDeleteForm r> ;
```

Ron

I think you're right, Ron. Thanks.

Neal

Thanks. I tried it out at work and it did the trick, then I started wondering if I needed a corresponding destroy function for repeated uses.

As Ron shows, **FrmDeleteForm** will do the necessary cleanup.

Neal

What about ShowForm intrinsic to Quartus Forth? I haven't found any documentation on a mirror image of it to destroy the form. Will repeated use of ShowForm eventually crash?

Mark

No, ShowForm is ok -- it doesn't reinitialize the form each time. Give it a try:

```
: test
```

```
20000 0 do 1000 ShowForm loop ;
```

Neal

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Another Hack?

By **Mark Norton (Nortonmd)** on Monday, January 8, 2001 - 03:27 pm:
Edit

I was wondering if there was a hack available to control how far a hard tab indented in MemoPad. I've been doodling up some sample forth programs and have been trying to keep a good hierarchy of
tabs and controls, however I rapidly reach the side of the screen. I could probably handle a tab width of half of what MemoPad currently gives me.

Does anyone know of a hack that exists already? If not I may need to investigate Hackmaster and the 68k assembly extensions to Forth and write my own. 🙂 (which would likely take longer than getting used to the way it currently is ;))

By **Neal Bridges (Nbridges)** on Monday, January 8, 2001 - 03:32 pm:
Edit

Hmm. I don't think such a hack exists, and I think it'd be very difficult to write, as you'd have to duplicate the entire functionality of the field-drawing code in order to override what it does for tabs. Have a quick look and see if there's a system-wide preference for tab width -- I don't think there is, but it's worth checking.

Neal

By **Kris Johnson (Kdj)** on Monday, January 8, 2001 - 08:03 pm: Edit

This is slightly off-topic (and maybe a little too pedantic), but if you find you're indenting more than a couple of levels, consider factoring into smaller words.

pedit provides a way to specify how far to indent, but I think it uses space characters rather than tab characters.

-- Kris

By **Neal Bridges (Nbridges)** on Monday, January 8, 2001 - 08:14 pm:
Edit

That's good advice, Kris.

Neal

Also a bit off topic, but pedit has a feature called AutoIndent that allows you to set how many spaces each tab should be. You can also set it to automatically indent, with subsequent lines following whatever indent is chosen, and you can set it to duplicate the "\" character (or any other) at the beginning of a line for sections of commenting. All in all a pretty nice editor; I use peditPro, which allows import and export of Doc files.

Barry

I suppose in similar fashion, you could define a shortcut-t that just had the desired number of spaces in it.

Neal

Well I don't think completely offtopic as the essential problem I was trying to solve was an editing one, the Field Hack was just a possible way to accomplish it.

I looked through the Palm 3.5 SDK and Field is responsible for Tab stops. However there was no documented way that I could find to define or modify an existing tab stop.

I appreciate the pointers to pedit. I've looked at that editor for some time but hadn't plunged in and gotten it yet. If it'll let me define tab stops, I'll give it another look (or wait for a sale ;)).

As far as Forth factoring, I really hadn't gotten that far. As I said, I was tinkering with some sample code mostly (seeing how to show a form, parse events, etc). In a larger serious application I would plan these things out better for sure.

Thanks for all the suggestions!

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Documentation again

By **Tel Monks (Tel)** on Sunday, January 7, 2001 - 07:00 pm: Edit

In your recent example Big Red Dot (\brd) there is a word "mainform." Is this described anywhere?

Also I note the definition of "enum." Is there a description of this too?

By **Neal Bridges (Nbridges)** on Sunday, January 7, 2001 - 07:07 pm: Edit

Yes. **mainform** is documented in the Quartus Forth manual here:

http://www.quartus.net/products/forth/manual/specific.htm

and **enum** is documented here:

http://www.quartus.net/products/forth/manual/libdocs.htm

I turned up both of those links using the main Quartus Search engine:

http://www.quartus.net/search

Neal

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E-mail:

the "Password" box empty. Your e-mail
address is optional.

Password:

E-mail:

Conditional compilation

By **Tel Monks (Tel)** on Sunday, January 7, 2001 - 06:57 pm: Edit

I know people think I am a wimp for cross-compiling on WinForth, but it is just so convenient. I have it at work and at home and it has a great debugger.

Now under Quartus I need to have
needs case
and a few other things. Is there a unique flag I can test to see if I am under Quartus or not? Then I could write, for example
QuartusFlag [IF] needs case [THEN]

By **Mark Beckman** on Sunday, January 7, 2001 - 07:04 pm: Edit

You could put:

1 constant QuartusFlag

in your \ Startup.Quartus memo

and then 0 constant… in the WinForth equivalent

By **Tel Monks (Tel)** on Sunday, January 7, 2001 - 07:07 pm: Edit

That is a great idea - I had not thought of the startup.quartus as anything beyond copy protection, but I now realize there are all sorts of possibilites. [I am not sure there is a WinForth equivalent, but I can probably use [UNDEFINED] over there]

Thanks
Tel

By **Neal Bridges (Nbridges)** on Sunday, January 7, 2001 - 07:10 pm: Edit

Right -- startup.quartus is a Forth source file like any other; you can put any code in there you want to have read in when Quartus Forth starts.

Neal

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Local variables

By **Ludvig Svenonius** on Sunday, January 7, 2001 - 04:27 pm: Edit

I'm having trouble with an algorithm I attempted to convert from Pascal to Forth. The problem is that the algorithm makes heavy use of local variables, to the point that I don't know how to re-write it in Forth without them. The below code sample illustrates how it would look if local variables existed in Forth. Could anyone give me some pointers on how to write this reasonably readably in Forth (without using global variables, preferably)?

```
: checkvisible ( y x - visible )
  variable a
  variable b
  variable c
  variable d
  variable u
  variable v
  variable d1x
  variable d1y
  variable d2x
  variable d2y
  variable m
  variable n
  variable s
  xpos @ a !
  ypos @ b !
  c ! d ! ( )
  c @ a @ - u !
  d @ b @ - v !
  u @ sgn d1x !
  v @ sgn d1y !
  u @ sgn d2x !
  0 d2y !
  u @ abs m !
  v @ abs n !
  m @ n @ <= if
     0 d2x !
     v @ sgn d2y !
     v @ abs m !
     u @ abs n !
  then
  m 2 / s !
  1 ( 1 )
  m @ 0 do
     i 0 > i m @ < and if
       b @ a @ tileat tiletranslucent and
     then
     n @ s +!
     s @ m @ >= if
       m @ s +!
       d1x @ a +!
```

```
          d1y @ b +!
      else
          d2x @ a +!
          d2y @ b +!
      then
    loop
;
```

I'm afraid I'm completely unable to figure out what that function would actually do if it worked. Can you describe its purpose? Then we can help you break it down into a series of factored parts.

Neal

Actually it's a bit complex, which is why I aimed at converting it straight from the working version in Pascal as closely as possible rather than re-writing it in Forth.

The function should operate on a square matrix map (such as the screen, for example, although it is actually to be used in a tile-based RPG). It is supposed to iterate over the tiles between a coordinate (a, b) and another (c, d) (where the variables with the same names in the source are used to store the coordinate values). For each tile on a straight line between these two points it should push the y and x coordinate on the stack and then call 'tileat' which translates the coordinates to a tile ID, and then 'tiletranslucent' to determine whether the tile type is supposed to obscure the character's vision. The code will be executed when every tile on the playfield is drawn to determine whether it is visible from the player's position, to implement line-of-sight. The function should return true if the entire path between the two coordinates provided is clear, and false if any of the tiles between the two coordinates obscure the character's vision (in which case 'tiletranslucent' will return false).

I understand if this is a bit more than you're willing to assist with, but I'd be thankful for help.

So at first glance, this would break down into a loop that iterates over all tiles, and each one that falls on the line between (a,b) and (c,d), you'd test whether it's obscuring or not.

Here's some pseudo-code:

```
: #Tiles ( -- #tiles ) ... ; ( could be a global variable )

: TileInLine? ( a b c d tile -- bool ) ... ;

: TileTranslucent? ( tile -- bool ) ... ;

: CheckPath ( a b c d -- clear? )
   true
   #Tiles 0 do
      >r
      2over 2over i TileInLine? if
        i TileTranslucent?
```

```
      else  true   then
    r> and
  loop
  >r 2drop 2drop r> ;
```

The other way would be to iterate over the points in the line, and test all tiles for each point, though that might be less efficient.

Neal

The main problem is knowing what tiles need to be tested for translucency, i.e. what tiles are located on the line between the two coordinates. The Pascal code I tried to convert did exactly this, iterating over only tiles or pixels between two arbitrary coordinates. Testing all tiles whether they are on the line between the two points would (besides me not knowing how to perform such a 'TileInLine' test either) would not be feasible in this case, since performance is an issue and the map will be pretty large.

Can't the Pascal code be cleanly converted to Forth in some way so that it works in an identical manner. I know it will meet my performance needs.

Here's the original Pascal source:

```
FUNCTION CheckVisible( a, b, c, d : Byte ) : Boolean;
VAR u, s, v, d1x, d1y, d2x, d2y, m, n : real;
    i : integer;
BEGIN
    CheckVisible := True;
    u := c - a;
    v := d - b;
    d1x := SGN( u );
    d1y := SGN( v );
    d2x := SGN( u );
    d2y := 0;
    m := ABS( u );
    n := ABS( v );
    IF ( M <= N ) then
    BEGIN
        d2x := 0 ;
        d2y := SGN( v );
        m := ABS( v );
        n := ABS( u );
    END;
    s := INT( m / 2 );
    FOR i := 0 TO round( m ) DO
    BEGIN
        IF ( i > 0 ) AND ( i < round( m ) ) THEN
        BEGIN
            IF InTown THEN
            BEGIN
                IF NOT Terrain[ TileVal( Towne, a + ScreenX, b + ScreenY )
].SeeThrough
                THEN CheckVisible := False;
            END
```

```
                    ELSE
                    BEGIN
                            IF NOT Terrain[ TileVal( Land, a + ScreenX, b + ScreenY )
].SeeThrough
                                THEN CheckVisible := False;
                    END;
              END;
              s := s + n;
              IF ( s >= m ) THEN
              BEGIN
                    s := s - m;
                    a :=  a + round( d1x );
                    b := b + round( d1y );
              END
              ELSE
              BEGIN
                    a := a + round( d2x );
                    b := b + round( d2y );
              END;
        END;
END;
```

The SGN() function simply returns -1 for negative numbers, 1 for positive numbers and 0 for 0. I don't think there's any reason why the local variables are declared real (floating-point) since as far as I can see they will all always carry integer values. The rest of the code should be pretty straightforward.

The algorithm, by the way, I got from the PCGPE (PC Game Programmer's Encyclopedia, a set of tips & tricks for game programmers). If I only can get it cleanly converted to Forth, I know it would work fine.

By **Neal Bridges (Nbridges)** on Sunday, January 7, 2001 - 05:14 pm:
Edit

The Pascal appears to be doing what I suggested last -- iterating over all the points in the line, and testing each tile that falls on that line.

It appears that each tile occupies one specific coordinate pair -- that it's not a rectangle of some kind, as I had initially thought. That simplifies things a bit.

Effectively what it is is a line-drawing algorithm, but instead of plotting points it's checking an array of values at each point for a certain value.

I recommend thinking it out and writing clean Forth for it; direct translation will be ugly indeed.

Neal

By **Ludvig Svenonius** on Sunday, January 7, 2001 - 05:19 pm: Edit

I'll try. It'll be good practice I guess. Thanks for your help.

By **Neal Bridges (Nbridges)** on Sunday, January 7, 2001 - 06:54 pm:
Edit

Let me know if I can provide additional assistance, Ludvig. Glad to help.

Neal

By **Neal Bridges (Nbridges)** on Tuesday, January 9, 2001 - 02:55 pm:
Edit

I posted on comp.lang.forth seeking an implementation of Bresenham's line-drawing algorithm; that'd be a good starting place. There are some code examples there, but I think the best lead is Neil Bawd's description of the algorithm.

Once you have that, instead of plotting the points in the line, you'd interrogate your 'tiles' array for transparency.

Neal

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Stack underflow

By **Jan Ruzicka (Honza)** on Saturday, January 6, 2001 - 06:00 pm: <u>Edit</u>

Hello

I found strange that Forth behaves non deterministic.

I tryed simple program that I copyied from simple forth page:

```
\ int
: INTEGERS ( +n -- )
1 BEGIN 2DUP < IF 2DROP EXIT THEN DUP . 1+ AGAIN ;
```

Ok it works when I pass a parameter on stack, but when I ommit it forth was working correcty only for the first time!
session is going like this:

include int ok

integers
integers? stack underflow
integers 1 2 3 4 5 6 7 8
integers? stack underflow
integers 1 2 3 4 5 6 7 8
integers? stack underflow

can any body explain to me why is it this way?
when I try .s it shows emty stack in all cases
Thank you
Honza

By **Neal Bridges (Nbridges)** on Saturday, January 6, 2001 - 06:36 pm: <u>Edit</u>

The stack depth is only checked for underflow after a command executes.

The way the stack is set up in Quartus Forth, there is data below it, but its contents are random; your **integers** word is responding to that random data.

I have a question, though -- why run a word that expects a parameter with no parameter?

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Suggestion for improvement of D0=

By **Geert Bosch (Bosch)** on Saturday, January 6, 2001 - 11:24 am: <u>Edit</u>

The following word would be shorter/faster:

```
: d0= ( d1 d2--flag) or 0= ;
```

Instead of

```
0000 move.w #0,-(a4)
0004 move.w #0,d7
0008 D=
```

we'd get

```
0000 OR
0002 tst.w d7
0004 seq d7
0006 ext.w d7
0008 EXIT
```

saving 1 cell and the execution overhead of D=, while still using regular Forth.

Of course, this is minor, but Neal could you consider changing this in a next version of Quartus? Thanks!

-Geert

By **Neal Bridges (Nbridges)** on Saturday, January 6, 2001 - 02:53 pm: <u>Edit</u>

I will indeed, Geert, thanks!

Neal

By **Geert Bosch (Bosch)** on Saturday, January 6, 2001 - 04:36 pm: <u>Edit</u>

I saw that these functions where defined in the memo "double", so I could actually update them myself. Below I've included an updated memo with updates for various words.

```
\ double 98.7.16 1:15 pm NAB

: M+  s>d d+ ;
: D0<  nip 0< ;
: D<  d- d0< ;
```

```
: D0=   or 0< ;
: D=   d- d0= ;
: D>S   drop ; inline
: D.   0 d.r space ;
: 2ROT   >r >r  2swap  r> r>  2swap ;
```

One other little thing: for 0< code is

```
0 tst.w d7
2 slt d7
4 ext.w d7
```

More efficient would be:

```
0 ext.l d7
2 swap d7
```

-Geert

Good catch, Geert. All the monadic comparators in Quartus Forth are
derived from the same template; clearly **0<** can be improved as you show.
I'll make that change.

Neal

Actually, you might not want to make that change, even if it generates
more compact codes. Contrary to all other current architectures that I know
of, the m68k CPU used in my Palm seems to prefer the 3-instruction variant
over the simple 2-instruction sign-extend swap version, even though it is 2
bytes bigger and one extra opcode.

One thing I found during benchmarking of various Quartus primitives is that
the memo "double" has a definition for M+, which is quite a bit worse than
the one that is in the default word set. The default M+ takes 7 us, while the
one in double takes 10 us on my Palm V.

For various other functions I found the following improvements:

```
Standard     Optimized
 6.9          6.3           2SWAP
19.2          8.1           2ROT
 2.8          2.8           2DUP 2DROP
 6.1          6.1           2OVER 2DROP
 2.2          2.2           DUP DUP 2DROP
```

```
7.7              4.7              2>R  2R>
 4.8              4.8              >R  >R  R>  R>
13.3              4.4              DUP  D0<
16.7              4.6              DUP  D0=
 7.2              6.6              DUP  DUP  D-
 7.2              6.6              DUP  DUP  D+
15.2             11.8              DUP  DUP  DUP  D=
11.6             11.7              DUP  DUP  DUP  D<
```

I also included some unchanged results, just as a relative measurement to see what the relative cost of the various primitives is. I'll include the code for my testing framework and new primitives below, please use it if you can.

```
\ fast
needs asm68k
needs double
needs core-ext
needs dblmath

code 2SWAP prefix
  swap d7
  move .w  a4 )+ d7
  move .l a4 ) d0
  move .l d7 a4 )
  move .w d0  a4 -)
  swap d0
  move .w d0 d7
end-code

code 2ROT prefix
  swap d7
  move .w a4 )+ d7
  move .l a4 )+ d0
  move .l a4 ) d1
  move .l d0 a4 )
  move .l d7 a4 -)
  move .w d1 a4 -)
  swap d1
  move .w d1 d7
end-code

code 2>R prefix
  swap d7
  move .w a4 )+ d7
  move .l d7 a7 -)
  move .w a4 )+ d7
```

```
end-code inline

code 2R> prefix
   move .w d7 a4 -)
   move .l a7 )+ d7
   move .w d7 a4 -)
   swap d7
end-code inline

code D- prefix
   swap d7
   move .w a4 )+ d7
   sub .l d7 a4 )
   move .w a4 )+ d7
end-code

code D+ prefix
   swap d7
   move .w a4 )+ d7
   add .l d7 a4 )
   move .w a4 )+ d7
end-code

: D0<   nip 0< ;
: D<   d- d0< ;
: D0=   or 0< ;
: D=   d- d0= ;
```

The testing framework:
```
\ timer
: time-init TimGetTicks
   0. 0. 0. 25000 4 ;

: time-fini drop 2drop 2drop 2drop
   TimGetTicks 2swap d-
   <# # [char] . hold #s #> type
    ." us " ;

: :time
    >in @ 0 parse cr type >in ! space
   :noname postpone time-init
   postpone for postpone >r
   postpone r@ postpone for ;
   immediate

 : time;
```

```
   postpone next postpone r>
   postpone next
   postpone time-fini postpone ;
   postpone execute ;
   immediate
```

And the tests themselves:

```
\ timings
needs double
needs core-ext
needs dblmath
needs timer
1 more
:time DUP U< time;
:time 0<> time;
:time 0< time;
:time 2SWAP time;
:time 2ROT time;
:time 2>R 2R> time;
:time DUP D0< time;
:time DUP D0= time;
:time DUP DUP D- time;
:time DUP DUP D+ time;
:time DUP DUP DUP D= time;
:time DUP DUP DUP D< time;

:time time;
more
```

By **Neal Bridges (Nbridges)** on Monday, January 8, 2001 - 12:08 pm:
Edit

Interesting stuff, Geert. I've been meaning to make **2>R** and **2R>** into in-kernel hand-optimized primitives for awhile now, and your **2ROT** is certainly significantly faster than the one I've implemented in high-level Forth.

The **M+** in double.txt is a hold-over from days of yore; it can be removed (and has been for the new release).

I'll integrate your improvements! Thanks again.

Neal

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Agenda VR3

By **James Steven Graham (Steve)** on Saturday, January 6, 2001 - 11:13 am: Edit

Neal,

Have you heard/seen anything about the Agenda VR3 - a Linux-based PDA (http://www.agendacomputing.com/about/vr30ncradle.html)?

Steve Graham

By **Kris Johnson (Kdj)** on Saturday, January 6, 2001 - 01:17 pm: Edit

This looks cool--a PDA with a "real operating system". I'm ordering one.

It's unclear whether gcc or other development tools will run on it. I wonder if the Linux Forth implementations (GForth, etc.) will run on it. Anyone know? I'm addicted to onboard development now--cross compilers suck.

I don't know whether Quartus Forth would be a good candidate for porting to this device. It uses a MIPS processor, and Linux is somewhat different from Palm OS. And a 32-bit Forth might be preferable to a 16-bit Forth. But Neal, I promise I'll buy it if you port it.

The VK3 keyboard looks pretty silly. I hope Targus will make a Stowaway for it.

-- Kris

By **Hans Nordstrom** on Saturday, January 6, 2001 - 03:55 pm: Edit

Strange order on the icons!

By **Steve Bohrer (Skb)** on Tuesday, January 9, 2001 - 01:43 am: Edit

Whee! Unix in your pocket. How long does it take to boot?

By **James Steven Graham (Steve)** on Tuesday, January 9, 2001 - 09:09 am: Edit

Compared to the Palm's instant on, it might take a while. But it should be faster than a system with disk drives, right?

By **Neal Bridges (Nbridges)** on Tuesday, January 9, 2001 - 10:27 am:
Edit

I wrote to ask them if they're actually shipping devices now; no response yet.

Neal

By **Kris Johnson (Kdj)** on Tuesday, January 9, 2001 - 08:25 pm: Edit

You can check out their mailing list archives at their site. Lots of people (well, several people anyway) already have them, and there is supposed to be a new shipment of units some time around now.

I went ahead and ordered one. Even if it's a failure as a product, it will be a good conversation piece.

-- Kris

By **Kris Johnson (Kdj)** on Wednesday, January 10, 2001 - 08:59 am:
Edit

Regarding "instant on", I would assume that the Agenda works like the Palm devices: turning it "off" just turns off the LCD and puts it into low-power mode. So turning it "on" wouldn't require a reboot.

However, the fact that it uses an X server and FLTK might mean that its user interface is not as quick as Palm's. Then again, it has a faster processor.

But I don't know--I can't find anything on the web site that directly addresses this.

-- Kris

By **Kris Johnson (Kdj)** on Saturday, January 13, 2001 - 03:07 am: Edit

This message appeared on one of the Agenda mailing lists today:

<quote>
Okay, I have updated info about shipping BTW. Limited offer is still valid…, no plans on retracting it, probably not until consumer release.

Second batch is shipping pretty soon now, contact Janet (janet@agendacomputing.com) if you want to know specifically when, or drop a
message to agenda-support and I'll ask her to answer it on Monday. We're

getting a smaller shipment this upcoming week, and a much larger one on the
27th or so. The smaller shipment may not even cover everyone that is already
on second shipment list. But the next delivery will cover that, and keep us
with a good supply for a little while. (I hope enough to open CC orders)

Thanks,
Shane.
</quote>

This seems to indicate that everyone who has ordered an Agenda should
get it by early February.

-- Kris

By **Travis Casey** on Wednesday, January 17, 2001 - 11:17 am: Edit

My Palm VII seems to be dying -- it won't connect to the network any more,
and its draining batteries quickly. I'm considering getting an Agenda VR as
a replacement, since I don't really need the wireless features. So, Neal,
mark me down as another customer who might be interested in a version of
Quartus for the Agenda. :-)

--Travis

By **Neal Bridges (Nbridges)** on Wednesday, January 17, 2001 - 11:19
am: Edit

Noted. After the failure of the daVinci, however, I'm going to wait to see if a
new PDA survives its initial entry into the market before making any
significant forward steps.

Neal

By **Kris Johnson (Kdj)** on Wednesday, January 17, 2001 - 09:47 pm:
Edit

I just got confirmation that my VR3 will be in my hands in 1-2 weeks.
Woo-hoo!

But I'll support Neal's decision to wait and see. Reading the Agenda
archives, it appears that they still have a way to go before they'll have a
product that will appeal to the mass market. And I really can't see them
making a dent in Palm's market share.

I guess I'll have to refamiliarize myself with gcc and the joys of
cross-compilation. And the joys of the X toolkit. What fun.

-- Kris

I've received my VR3, and will be happy to answer any questions anyone around here has about it.

First impressions:

- Device is smaller than I expected. My Visor seems incredibly bulky in comparison. Looks nice/stylish. Flip cover is nice touch. Seems a little flimsy, but it hasn't broken yet. <crossing fingers>

- Has buttons on the sides of the case. There is a power button, up and down buttons, and two big buttons (one on each side). Also two buttons on the front bottom of the case. I can't hold the device without unintentionally pressing the side buttons, so I hope they won't do anything destructive.

- The screen is bigger than Palm's. Actually, the pixels and the glass area are the same size as my Visor's, but the area that is covered by silkscreen Graffiti area on Palm OS devices is totally usable on Agenda. So the resolution is 160x240.

- The handwriting recognition is awful. It uses the same basic alphabet as Graffiti, but it took me several minutes to write the sentence "This is a test of handwriting recognition". (And I never got the 'w' or 'g' to work--I gave up and used the virtual keyboard.) In contrast, I can Graffiti over twenty words a minute.

- Multitasking works well. You can switch between different apps via a pop-up menu. And that's a good thing, because starting an app takes several seconds. If more than three or four apps are running, things slow down quite a bit, but the Agenda mailing lists seem to indicate that this is a problem specific to the current kernel version.

- Built-in apps are still under development, but are basically the same as Palm's.

- This works very well with a Linux desktop. Standard Unix tools like NFS, rsync, and FTP can be used to move files back and forth, or to mount remote partitions as shared drives.

- No documentation is included with the Developer Edition.

- This is still a long way from being a mainstream consumer product.

I am going to try to port gforth and/or pfe. But first, I may try to help get the handwriting recognizer to a usable state.

-- Kris

By **Dave Bennett (Dbennett)** on Friday, February 2, 2001 - 07:01 pm:
Edit

Acutally, I think Palm signed their own death warrant with the statement they'd have a file system in OS 4. If they are going to become "just another OS", who would opt for them when Linux is moving into the PDA world? A file system on Palm OS 4 means that it opens the OS up to virii delux, considering I doubt they go the Linux-like route; as they seem more Windows-centric despite their rhetoric to the contrary as to their opinion about Microsoft.

Linux OS appearing on PDA/Wearables is really where it is going for the mobile power user. I personally will miss the Palm although I have used Linux for several years. It was a refreshing change from anything before it that put real mobile computing power into the hands of the user. But now that "real" OSs are moving to the PDA space, I think Palm should be thinking "sell".

Dave

By **Neal Bridges (Nbridges)** on Friday, February 2, 2001 - 07:25 pm:
Edit

I'm not sure file system support is such a bad thing, Dave. The file system support is for external media, where you really need it; viruses aren't any more likely to be propagated via external storage than they are in any other channel.

The market will bear out whether Linux is a good fit for today's PDA hardware. I'm not optimistic about it just yet, but we'll see what happens.

The Palm OS isn't dead by a long shot -- it's clean and powerful, and it runs fast on minimal hardware. This means that as the hardware improves, they'll run faster than the rest of the pack. For the end-user, it's the interface that matters, not what's under the hood; the Palm OS wins there too.

Neal

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Launch Code Support -- testers needed

By **Neal Bridges (Nbridges)** on Friday, January 5, 2001 - 09:14 pm: Edit

Hi -- I need a couple of people to bang on the launchcode support I've built. I have another day's documentation to do on it, but I'd like to send it out soon. Send me an email, let me know.

Neal

By **Neal Bridges (Nbridges)** on Saturday, January 6, 2001 - 10:18 pm: Edit

Thanks, testers! The materials are on their way. I look forward to your feedback.

Neal

By **Wade Carlson** on Monday, January 8, 2001 - 11:21 pm: Edit

Some early testing with sysAppLaunchCmdExgReceiveData seems to show that it is working well. While your method of catching launchcodes seems fairly easy and straighforward, the calls that make use of them are not (i.e. Exchange Manager) - so it may take me a while to get a fully functioning beaming example going. Anyways, it looks great so far, keep up the good work.

By **Neal Bridges (Nbridges)** on Monday, January 8, 2001 - 11:29 pm: Edit

Thanks, Wade. I appreciate the feedback.

Neal

By **Neal Bridges (Nbridges)** on Friday, January 12, 2001 - 03:37 pm: Edit

Call for feedback! Some of you have given me feedback on the launch code support; I'd like to hear from all of you either here or via e-mail. If it's as stable as my testing shows, I'll be releasing it generally.

Neal

By **John McKeon (Jmckeon)** on Friday, January 12, 2001 - 06:35 pm: Edit

Hi Neal,

sorry for not getting back to you sooner.

The launchcode support is indeed working quite well for me. I still need to work on a live HotSync test which I will get to tonight.

I'm building a module that I can call from a conduit to then call Handbase and retrieve info to send back to the desktop. Onboard it works great! It is tricky to debug since the module has to be compiled (rewrite, delete old version in RsrcEdit, compile, run … crash, make changes, delete old version… 🙂 You get the idea.

Anyway I do want to say thanks for the laucnhcode support, Neal. It's just what I needed.

More later.

By **Neal Bridges (Nbridges)** on Friday, January 12, 2001 - 06:37 pm:
Edit

John -- no problem with the timing, I expected it to take a few days to test properly.

Glad it's working well so far!

Neal

By **Nigel Head** on Friday, February 9, 2001 - 03:18 am: Edit

Neal - is there an ETA for some form of launchcode support in a generally available version?

My explorations of various beginers texts all have sort of "Hello world" examples that check launch codes and so-on. I can skip it for now but it leaves a sort of unsatisfied feeling….

Plus which one of my little projects (for my wife you understand, so it's important to my well being not to take too long about it :-)would be greatly enhanced by being able to support global find …

Thanks, Nigel.

By **Neal Bridges (Nbridges)** on Friday, February 9, 2001 - 01:12 pm:
Edit

Yes, Nigel -- it's due out shortly. I'm integrating the launch code facility

with the other new features, and the documentation.

I'll put you on the beta team and send you the launch code version.

Neal

By **Nigel Head** on Saturday, February 10, 2001 - 01:51 am: Edit

Thanks Neal, looking forward to it … you need my REG code by private email or something before you can send ?

By **Neal Bridges (Nbridges)** on Saturday, February 10, 2001 - 08:32 am: Edit

I've sent it out, Nigel. Let me know if it arrived safely.

Neal

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How "expensive" is floating point?

By **Mike Ressler** on Friday, January 5, 2001 - 12:07 pm: Edit

Given the discussion of floating point recently, and my own confession of using floating point extensively ("What are you working on?" thread), I have to ask - just how time expensive are floating point calculations on a Palm? During my first Forth era 16 years ago, and in Brodie's books, floating point was a huge, multi-instruction penalty, so everyone used scaled integer arithmetic when speed was important. Almost every big telescope built during the 70's and early 80's ran completely on integer-based Forth.

With floating point instructions built into PC CPUs now, floats take only a couple of clock cycles just like ints. How does the Dragonball processor stack up? (No pun intended ;-) I have to admit that I was a bit disappointed by the speed of my airmass calculator compared to the original LispMe version - I thought the Forth equivalent would blow it away, but it's "only" about 50% faster. Am I just being slogged by floats? I'm using df arithmetic, dfsin, dfcos, dfacos, etc. from the floatlib and mathlib (and only the evaluation version of QForth, if that makes any difference). I can probably rewrite everything using double ints, but I'd like some assurance that I will gain some speed in doing so. Thanks for your input.

Mike

By **Neal Bridges (Nbridges)** on Friday, January 5, 2001 - 12:23 pm: Edit

You'll gain speed. There's no floating-point co-processor in the Palm; it's all done the hard way, so it's certainly slower than integer math.

Neal

By **Neal Bridges (Nbridges)** on Friday, January 5, 2001 - 12:39 pm: Edit

By the way -- apps compiled under the evaluation version of Quartus Forth runs just as fast as if the registered version was used -- they're just not stand-alone.

Neal

By **Neal Bridges (Nbridges)** on Friday, January 5, 2001 - 05:16 pm: Edit

I did a little rough benchmarking. Single-cell integer arithmetic is fastest;

double-cell integer arithmetic takes about twice as long (logical).

Quartus Forth built-in floats are three times slower than double-cell integer arithmetic, and double-precision floats are about 4 times slower than that.

In terms of your comparison -- double-cell integer arithmetic vs. double-precision floats -- the latter are about 12 times slower.

Neal

By **Mike Ressler** on Friday, January 5, 2001 - 10:06 pm: Edit

Thanks Neil - I'll let you know the results of my rewrite in a few days. I've already found that computation of the Julian day number (relative to Jan 1, 2000) can be done with single cell arithmetic for dates between about 1911 and 2089, well past my retirement date :-) I just have to deal with fractional days in a smarter manner now.

Mike

By **Dave Bennett (Dbennett)** on Saturday, January 6, 2001 - 04:34 pm: Edit

Hey Neal,

Thanks a lot for the benchmarking information on the math processes. This really helps in making real-world decisions of how to approach application design from a math perspective.

Dave

Add a Message

Username:

Password:

E-mail:

name into the "Username" box and leave the "Password" box empty. Your e-mail address is optional.

String to IEEE DF

By **Barry Ekstrand (Ekstrandbb)** on Friday, January 5, 2001 - 12:54 am: Edit

Neal,

You mentioned earlier that using the (dfloat) word was better accuracy-wise than converting from a Quartus float via F>SF and SF>DF. However, if I'm taking input in my app through a user-input field, I need to convert from a string to the DF value. If I avoid the String>Quartus Float>SF>DF routine, I need to go from the string to the DF directly. Am I right in assuming that I need to use FLpAToF for this, and watch out for the issues that Chapman Flack listed in his IEEE readme file? Along the same lines, am I correct in understanding that (dfloat) only works on a value that is listed in the program itself, as compared to a user-input numeric string?

FYI, the IEEE capabilities and your dfdot display code are working out great for me - many thanks for both!

Barry

By **Neal Bridges (Nbridges)** on Friday, January 5, 2001 - 12:58 am: Edit

You're right -- **(dfloat)** is a parsing word for use during compilation. FlpAToF is what you need. Have a look at the source to **(dfloat)** though -- should give you some idea as to how to call FlpAToF.

You're welcome -- glad it's helping!

Neal

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Memo conduit

By **Tel Monks (Tel)** on Thursday, January 4, 2001 - 06:17 pm: Edit

Has anyone thought of writing a memo conduit for a given category that would synchronize with a directory/folder on a P.C. or a Mac? This way you could develop on Quartus and WinForth32 using the same source code and be sure of having a good backup method too. This is far beyond my new capabilities, but I know I would find it very useful. anyone? Anyone?

By **Neal Bridges (Nbridges)** on Thursday, January 4, 2001 - 07:12 pm: Edit

It's probably easier to extract a given category of memos right out of the database that the Palm Desktop Software maintains.

Neal

By **Kris Johnson (Kdj)** on Thursday, January 4, 2001 - 07:53 pm: Edit

Such a utility is included with the pilot-link package for Linux.

-- Kris

By **Tel Monks (Tel)** on Friday, January 5, 2001 - 09:27 am: Edit

Neal:
I am not sure what you mean by easy. Once this was written, what could be easier than HotSynching your Palm to get the latest sources? And how do you extract memos from the Palm Desktop Software Database (and insert them too of course?) You cant use the File Link method because they won't allow files with .F names.

Kris:
Can you give any details? Could this be modified for use with windows?

By **Neal Bridges (Nbridges)** on Friday, January 5, 2001 - 12:33 pm: Edit

I was suggesting extracting memo data directly from the memopad.dat file that HotSync creates in the \palm\username\memopad directory.

Just a thought -- a conduit may or may not be a better route.

Neal

By **Dave Bennett (Dbennett)** on Saturday, January 6, 2001 - 04:39 pm: Edit

Tel,

The pilot-xfer package for Windows doesn't seem to be up to par with the version for Linux. I tried it out on an NT laptop recently when I learned it was available. I had a lot of problems with pilot-xfer for Windows and would not judge it to be reliable as it exists at this time.

By **Neal Bridges (Nbridges)** on Saturday, January 6, 2001 - 04:42 pm: Edit

I've used pilot-xfer under Windows quite a bit -- for full Palm backup, restore, and extraction/installation of individual files. What problems have you found, Dave?

Neal

By **Kris Johnson (Kdj)** on Sunday, January 7, 2001 - 01:06 am: Edit

The pilot-link package includes an application called "memos" that extracts the memo database, creates a subdirectory for each category, and creates a file corresponding to each memo. The files' names are the first lines of each memo.

(Actually, by default, the program converts the memos to Unix mailbox format, so you can browse them with a mail reader. But that seems almost completely useless to me. The -d option provides the behavior described above.)

There is also an "install-memo" utility that takes a text file and adds it as a memo.

I have no idea whether this has been or can be ported to Windows. The README mentions Unix and OS/2, but not Windows. The code is GPL, so you can take a look at it if you want.

-- Kris

By **Kris Johnson (Kdj)** on Sunday, January 7, 2001 - 01:08 am: Edit

The Palm Desktop application includes an "External Link" feature that will automatically synchronize a file on the desktop machine with a memo. Have you tried that?

(I'm not using Windows right now, so I can't take a look at it and give more

details. But I have done it, and it works.)

-- Kris

That's true, Kris -- there's a "File Link" facility. It works quite well, but it's one-way: PC -> Palm. That is, any changes to the file on the PC are reflected on the Palm, but changes on the Palm are not brought back down to the PC.

Neal

I used pilot-xfer to sync to a windows NT machine. It worked. Then I deleted an item from my Palm and sync'd again. pilot-xfer sync'd everything, then deleted the item from the PC directory that was no longer on my Palm. (Expected behavior.) However it seemed to take longer than I thought it should. While it only reported that it was removing the missing item, it actually deleted everything in the sync directory on the PC.

I repeated the test and got the same result.

Add a Message

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Creator ID questions

By **Mark Norton (Nortonmd)** on Thursday, January 4, 2001 - 05:02 pm: Edit

I've got a few questions about the creator ID handling that I haven't been able to puzzle out from the manual.

1) Does (ID) take a number from the stack or does it try to compile the word that comes after it?

2) Is there some nomenclature for words as to whether or not they work on a stack item, or something parsed after them? In the case of (ID) I'd guess it's the parenthesis, but I don't know if that's just a handy way to name it, or if it means something.

3) Is there a standard "No one uses this" creator ID that can be used for development, and then replace that with a registered one, when the application nears completion and release?

Thanks

Mark Norton

By **Neal Bridges (Nbridges)** on Thursday, January 4, 2001 - 05:13 pm: Edit

1. **(ID)** parses the four-character word that follows it into a 32-bit number on the stack. **[ID]** does the same thing, but within a definition.

2. No fixed nomenclature, as such -- just convention. **(ID)** is like **(hex)** and friends.

3. I frequently use 'test' for internal testing. The creator ID of an unreleased app is unimportant, so long as it doesn't conflict with anything on your Palm. Definitely use a registered ID for release, though.

Neal

Add a Message

Username:

Password:

E-mail:

This is a public posting area. If you do not have an account, enter your full name into the "Username" box and leave the "Password" box empty. Your e-mail address is optional.

Event handling trouble

By **Ludvig Svenonius** on Thursday, January 4, 2001 - 03:45 pm: Edit

Hello. I'm having quite some difficulty understanding how exceptions and events work and how they relate to each other. For one thing, what's the difference between 'key' and 'ekey'?

Anyway, my concrete problem is this: I added a custom program-termination procedure to an event-based application. I took example code for catching the -257 program exit exception code and added it to my mainloop like this:

```
: mainloop ( -- )
  begin
    msgdrawprompt
    ekey do-event     \ Event handler
    animate
    ['] key catch     \ New line 1
    byeThrow = if     \ New line 2
      exit            \ New line 4
    then drop         \ New line 5
  again
;
```

The problem is that this new addition (the lines marked with "New line #") seems to have disabled the ordinary event handling (the line marked with "Event handler"). It seems like the application no longer receives any events through the call to 'ekey'.

I would be thankful for any suggestions and pointers.

By **Neal Bridges (Nbridges)** on Thursday, January 4, 2001 - 04:10 pm: Edit

KEY returns only ASCII characters, while EKEY returns events of all sorts.

You're going about your CATCH a bit oddly. Try this:

```
: mainloop
  begin
```

```
    msgdrawprompt
    ekey do-event
    animate
  again ;

: go
  ['] mainloop catch
  dup byeThrow = if
    ... do something necessary before exiting
  then
  throw ;
```

Neal

Ah, I think I get it. It works fine now. Thanks. =)

I'm glad. In the example code, KEY is the entire app, if you follow me. I should re-do that example to make it more explicit.

Neal

This should go into the Quartus FAQ about a good main loop.

Add a Message

Username:

This is a public posting area. If you do not have an account, enter your full name into the "Username" box and leave

Password:

E-mail:

the "Password" box empty. Your e-mail
address is optional.

Access to a file on flash?

By **Ken Samson** on Wednesday, January 3, 2001 - 11:34 pm: Edit

I own a relatively new Sony Clie. I have purchased a 64 Megabyte flash card. What I would like to do is have a large database located in flash, and then open that database and scan through records and present reference data with an application running in RAM.

Do I have any hope, and what should I be reading to help me work through this?

Thanks!

Ken

By **Neal Bridges (Nbridges)** on Wednesday, January 3, 2001 - 11:37 pm: Edit

There's a new Palm library for that; the documentation is in the Palm OS 4.0 stuff at the www.PalmOS.com site, though I believe you have to register with them as a developer to see it. Should be no trouble to interface to it; I'll assist where I can. Let me know!

Neal

Add a Message

Username:

This is a public posting area. If you do not have an account, enter your full name into the "Username" box and leave

Password:

E-mail:

the "Password" box empty. Your e-mail
address is optional.

Cooperative Multitasking

By **Kris Johnson (Kdj)** on Wednesday, January 3, 2001 - 09:41 am: Edit

I've implemented a set of words to support cooperative multitasking. Follow this link for details: http://kristopher_d_johnson.tripod.com/mtask.html

It hasn't been thoroughly tested yet, but the demos work. Make sure you read the "Limitations and Caveats" section of the document. (And if you know how to overcome some of those issues, please let me know.)

If you have questions, comments, or suggestions, please post them here.

-- Kris

By **Neal Bridges (Nbridges)** on Wednesday, January 3, 2001 - 01:11 pm: Edit

Kris, that's fantastic work. I'll be taking a close look!

Neal

By **Jim N. Deakin (Jndeakin)** on Thursday, January 4, 2001 - 06:41 am: Edit

I've tried connecting to it, but get an error message saying underscores are not allowed in hostnames. Is the URL right Kris?

By **Barry Ekstrand (Ekstrandbb)** on Thursday, January 4, 2001 - 08:12 am: Edit

Jim,

I'm able to connect through Kris's link without problems.

Barry

By **Kris Johnson (Kdj)** on Thursday, January 4, 2001 - 09:10 am: Edit

Jim,

Try this: http://members.tripod.com/kristopher_d_johnson/mtask.html

The URL I posted is correct. I have no problems using it with IE on Windows

or Mozilla on Linux. What browser are you using?

I think it may be true that underscores are technically not allowed in URLs, but I've never seen a browser that enforced the restriction. That URL was assigned to me by Tripod based upon my user name.

If you continue to have problems, let me know and I can e-mail you the .zip file. Also, Neal is planning to post it to the Contrib area, so maybe you can wait for that.

-- Kris

By **Travis Casey** on Thursday, January 4, 2001 - 11:30 am: Edit

Underscores are allowed in the path part of URLs, but underscores are not legal in Internet hostnames; see RFC 1123. There's some confusion about this, because RFC 1033 does allow underscores; however, RFC 1033 is not a Required Standard, while RFC 1123 is, so RFC 1123 wins.

Clients are allowed to refuse to take invalid hostnames, but I've never heard of one that actually did that before. Recent versions of BIND, however, will refuse to mark a DNS zone that contains hostnames with underscores in it as authoritative, which can cause problems.

I have to wonder what the heck Tripod's people are thinking in assigning "illegal" hostnames like that. The fact that you shouldn't use underscores in host names was one of the first things I learned when I became a DNS admin -- I learned it the hard way, when my zones weren't authoritative and I had to go digging in FAQs to find out what the problem was.

--Travis

By **Kris Johnson (Kdj)** on Thursday, January 4, 2001 - 12:24 pm: Edit

Something I want to add to the documentation is a set of recommendations for task stack sizes. The data stack and return stack for each task are allocated from dynamic memory, which is somewhat limited. So you want to keep the stacks fairly small, but not so small that overflows happen.

These stacks are used by the Palm OS APIs and by Quartus Forth words, so they need to be big enough for the largest use.

I've found that my test apps crash if the return stack size is less than a couple hundred bytes. But I haven't done a substantial amount of testing yet, and I don't know if the results on my Visor reflect what will happen on other devices.

Does anyone have suggestions for good minimum data and return stack sizes? And are there any particular Palm OS APIs or Quartus Forth words that use a lot of stack space?

-- Kris

The Database Manager APIs are stack-hungry. I'd say you need at least 1K for the return stack, 2K for the data stack.

Neal

I'm curious: why 2K for the data stack? I was under the impression that good Forth practices generally keep the stack depth to less than a couple dozen cells.

-- Kris

To answer my own question: when system traps are called, the Forth data stack is used as the system stack, right?

I think I'm going to add the following definitions to coop.txt:

```
\ Reasonable values for task area sizes
16 cells constant #task-user
2048 constant #task-ds
1024 constant #task-rs
```

-- Kris

Thanks Kris, the
http://members.tripod.com/kristopher_d_johnson/mtask.html
address works fine.

I'm using Netscape 4.7 by the way.

Cheers,
Jim

I've found a problem: I was not using ABORT" correctly. I didn't realize it used a parameter from the stack; I thought it was just like ABORT but with a string. So now I have to go replace a few IF ABORT" yada yada" THEN sequences with just ABORT" yada yada".

I'll be posting fixed versions to my web site later this week.

Has anyone tried using this stuff yet? Any comments?

-- Kris

Kris, I've examined some of the code, but haven't played with it extensively yet -- looking forward to it.

Neal

I´ve tried the Snowflakes emulation. I did compare it to the outside snowfall and was close, trying to make a snowball, like I do when going outside :-)
But I noticed something. If you tap and bring forward the Quartus menu bar, strange things happens. After a while the content of the menu bar disappears. It is covered with snow, so to speak.

EMIT? is the function to use to see if it's presently ok to draw on the screen. It should be possible to modify the Snowflakes app to do this.

Neal

Thanks for the tip about EMIT?. Snowflakes isn't intended to be a "real program": it is just supposed to demonstrate that the cooperative multitasking works with a fairly large number of tasks, both in the Quartus console and as a standalone app. I never really considered the menu.

Interestingly, when the menu bar is up, the snowflakes only appear inside

the menus and not on the main form. I guess that's because I'm drawing to the active window, which happens to be the menu when it is visible.

And I guess I assumed that when the menu comes up, the application's main event loop would be blocked until the menu goes away. But no, the main loop handles all events, so the context switches happen while the menu is up. This is more multitasking than I expected!

I've tried a couple of hacks (PopUp Note and SwitchHack), and the snow doesn't draw while their windows are showing. I don't know if all hacks work like this.

BTW, the standalone Snowflakes app has no menu bar. But it would be useful to add a menu bar and maybe a few controls (speed up snowfall, etc.), just to see if other issues crop up.

-- Kris

By **Neal Bridges (Nbridges)** on Thursday, January 11, 2001 - 11:58 am: Edit

When control is transferred to another program (say, a HackMaster module, as you mention) your Snowflakes app is suspended, so that's why the snow doesn't draw in their windows.

Neal

By **Kris Johnson (Kdj)** on Saturday, January 13, 2001 - 02:34 pm: Edit

I've updated all the files and posted them to the web site: http://members.tripod.com/kristopher_d_johnson/mtask.html

I don't plan to do much more with these (until someone complains), so now might be a good time to move them to the Contrib area.

-- Kris

By **Neal Bridges (Nbridges)** on Saturday, January 13, 2001 - 03:18 pm: Edit

Thanks, Kris!

Neal

By **Neal Bridges (Nbridges)** on Sunday, January 14, 2001 - 02:37 pm: Edit

I've posted mtask.zip in the Contrib File Area.

Neal

By **Kris Johnson (Kdj)** on Wednesday, March 7, 2001 - 04:03 pm: Edit

Has anyone used this stuff for anything "real"?

-- Kris

By **Neal Bridges (Nbridges)** on Wednesday, March 7, 2001 - 10:31 pm: Edit

I've experimented with it, but nothing for production yet.

Neal

By **Doug Philips (Dgou)** on Friday, March 9, 2001 - 07:36 am: Edit

Cool beans. Now, if only I had enough multitasking to play with it! Arg, between a change of projects at work and intensive house searching, I've had no time for Palm stuff. "This too shall change".
-Doug

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Displaying Floats (QF & IEEE)

By **Barry Ekstrand (Ekstrandbb)** on Tuesday, January 2, 2001 - 06:16 pm: Edit

I have been playing with the recently-added support for IEEE floats a bit, and find that the increased precision solves one of the issues I have with my current development project. That's the good news. The bad news is that I am not able to display the the more accurate calculations in the manner needed, which is standard financial format (non-scientific format, 2 decimal places, dollars-and-cents-style).

As I currently understand it, to get the results that are in either QF or IEEE floating-point format and display as I need, I first need to convert from the float to double-cell fixed-point, then format with something like:

```
: d>#.## ( d -- c-addr u )
tuck dabs
\ put the decimal point so 2 places are to the
\ right
<# # # [char] . hold #s rot sign #> ;
```

and finally display.

The problem with this for me is that in the using a formatting word like the one above is: to account for the decimal point being in 2 places from the right I need to multiply my value by 100 to make the display correct. With large values, this puts the result above the upper limit for a double-cell value, resulting in an error.

(By the way, I need to be able to deal with results that can be as high as hundreds of millions or even 1 billion, and still be accurate to the hundredth. I understand the IEEE DF precision to be about 15 places, so with 2 decimal places I am covered).

What I need is a way to take an IEEE DF (and, for that matter, a QF float) value and display it formatted as a financial value, without converting to a double-cell fixed-point value. Is it possible, and if so, can anyone point me in the right direction?

Thanks,

Barry Ekstrand

Barry, one approach is to bring the double float down to a single, and then to a Quartus Forth internal float, and use the existing **F.** or **(F.)** functions to display it. For example:

Example:

```
needs fdot
needs float-ext

2 set-places

(dfloat) 51 (dfloat) 7 df/

df>sf sf>f f. -> 7.28  ok
```

Will that do the trick for you?

Neal

Neal,

Thanks for the quick reply. It appears that it won't quite get me there, as I drop to 7 or 8 places of precision by converting from DF>SF and SF>F. When I tried the following:

```
\ testdf

needs float
needs float-ext
needs graphics
needs fsfdf
needs newfloatmgr
needs sfdf
needs fdot

dfvariable x1
dfvariable x2

2 set-places
```

```
2.9714632e6 f>sf sf>df x1 df!df
3.32114e3 f>sf sf>df x2 df!df

: go
x1 df@df x2 df@df df*
\ dfdup cr dfs. cr

df>sf sf>f
f.
;

go
```

I got a display of:
9868645300.

If I do a dfs. to see the df value, it shows:
9.8686451e09

In Excel, the resulting value is shown to be:
9868645292.048

For the purpose of my program, I would need to display the answer as:
9868645292.05

Any other thoughts?

Thanks,

Barry

Those are some really big numbers, Barry 🙂 The direct way would be to break the number down into its binary components, and directly calculate the digits to display. **DF.**, in other words. It's on my list of things to write, but I haven't got it done yet.

Neal

Neal,

As I think more about it, I really need to convert the DF value to a string that has the format I want. This would allow me to save the result to a memo (another aspect of the program). Do you mean by breaking the number into its binary components to get the DF value and somehow read the mantissa and exponent, both digit-by-digit? This would seem to be where I need to head, but as it is unknown territory for me, I'm not sure how daunting a task it would be.

Barry

Depending on the range of your numbers and the precision you want, this can be any where from a bit tricky to a very hard problem to solve, especilly if you want an efficient and accurate algorithm that doesn't use up kilobytes of space.

A whole lot of research has been done on the topic of binary/decimal conversions. The problem can be stated as follows: find, for a number of the form bmant * 2^{bexp}, a number of the form dmant * 2^{dexp}, such that both numbers are as close as possible.

Basically you need to take the following steps:
1. find dexp = floor(bexp * $\log_{10} 2$)
2. calculate dmant = bmant * $2^{bexp} \div 10^{dexp}$
3. convert the number dmant * 10^{dexp} to a string

You don't have to be very precise in calculating the decimal exponent (which is why I don't take into account the mantissa at all), if you're off by one you'll only have to do one multiplication by 10 more in the last step and this only has a minor impact on precision.

On the other hand you need to calculate both 10^{dexp} and the following division very exactly as this has a big impact on precision of numbers with large exponents. Usually one uses a table with strategically chosen powers of ten that can be represented in the binary floating point format with maximum precision, and then multiply a number of these powers together to get the final result. You want to do all of this in maximum precision.

I can dig up some URL's if you want to look up some of the papers on these topics, although you might not want to bother and either follow above recipe or hunt the net for a reusable implementation that meets your needs.

-Geert

Repost of Geert Bosch's message (the software is stubbornly not displaying it in the index):

Depending on the range of your numbers and the precision you want, this can be any where from a bit tricky to a very hard problem to solve, especilly if you want an efficient and accurate algorithm that doesn't use up kilobytes of space.

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I can dig up some URL's if you want to look up some of the papers on these topics, although you might not want to bother and either follow above recipe or hunt the net for a reusable implementation that meets your needs.

-Geert

I've begun the process of writing a (df.). It's no fun and it'll take me a while to finish; stay tuned.

Neal

Well, it's done -- and it was actually fun and didn't take long to finish. 😊

http://www.quartus.net/files/PalmOS/Forth/Contrib/dfdot.txt

This provides **(df.)** and **df.**. They both pay attention to **set-places**. Use them to display double-precision floats (from floatlib.zip) up to 30 digits or so; anything larger should use **dfs.**. (This code could be extended to intelligently decide what to do with really big numbers.)

Neal

Sorry; misspoke. It'll convert numbers up to 15 digits long.

Neal

Wait! I've made the cardinal error of 'tidying' the code before posting; managed to break it. Stay tuned.

Neal

There we go. Much better now.

http://www.quartus.net/files/PalmOS/Forth/Contrib/dfdot.txt

Give it a try. Bear in mind the old adage about code written hastily. 😊

```
needs dfdot
(dfloat) 355 (dfloat) 113 df/ df. -> 3.14159292035398
```

Neal

By the way, I recommend the use of **(dfloat)** for your double-precision floating-point constants -- using Quartus Forth floats, followed by **f>sf sf>df** as you show, will lead to slight conversion errors.

Here's your earlier example:

```
needs dfdot

dfvariable x1
dfvariable x2

2 set-places

(dfloat) 2.9714632e6 x1 df!df
(dfloat) 3.32114e3 x2 df!df

: go
  x1 df@df x2 df@df df*
  (dfloat) 0.005 df+
  df. ;

go -> 9868645292.05
```

Note the rounding step of adding 0.005.

Neal

Where do I get fdot, I don't have it.

Gary

fdot.txt is found in floatlib.zip, also in the Contrib file area.

Neal

When I try the obove example I get

places? undefined work

Gary

"undefined word" I presume. Do you have the newest float-ext.txt?

Neal

This is the only version I have and I don't know if it's the latest.

\float-ext 99.2.24 2:42 pm NAB

Gary

That's the old one. Grab the update from the Forth/Library file area.

\ float-ext 99.3.13 5:33 pm NAB

Neal

Thanks Neal I found it just after my last post. It works ok now. This also answers my last question I had posted. One more thing, can I take the result of the above example and use it in < # #> to set the decimal places or can I do it with set precision.

Gary

Use **set-places** to set the number of places after the decimal.

Neal

Note -- I've made another small fix to dfdot.txt. If you downloaded it

earlier, please grab the latest copy (9:23 pm).

Thanks!

Neal

By **Barry Ekstrand (Ekstrandbb)** on Thursday, January 4, 2001 - 08:05 am: Edit

Neal,

Many thanks for the very fast response to the need - once again you have shown why Quartus support is the very best.

Barry

By **Neal Bridges (Nbridges)** on Thursday, January 4, 2001 - 11:44 am: Edit

Glad to help, Barry. Let me know how it works!

Neal

Add a Message

Username:

Password:

E-mail:

This is a public posting area. If you do not have an account, enter your full name into the "Username" box and leave the "Password" box empty. Your e-mail address is optional.

Problem with D< ?

By **Wade Carlson** on Tuesday, January 2, 2001 - 10:45 am: Edit

There seems to be a problem with D< in that it fails when comparing large numbers. Try the following:

0. TimGetSeconds D<

returns 0 (false). Anybody know of a simple workaround?

By **Neal Bridges (Nbridges)** on Tuesday, January 2, 2001 - 11:09 am: Edit

That's not a bug -- D< performs a signed comparison.

Neal

By **Wade Carlson** on Tuesday, January 2, 2001 - 11:19 am: Edit

Darn, I was hoping for a simple way to compare unsigned doubles. I will see what I can come up with.

By **Neal Bridges (Nbridges)** on Tuesday, January 2, 2001 - 11:43 am: Edit

Take a shot at writing UD< -- if it proves difficult I can help out.

Neal

By **Neal Bridges (Nbridges)** on Tuesday, January 2, 2001 - 11:44 am: Edit

Better yet -- use DU<, it's already defined. Sorry, no coffee in the brain yet today.

Neal

By **Wade Carlson** on Tuesday, January 2, 2001 - 02:00 pm: Edit

DU< seems to work perfectly. Thanks. But now I am really confused. What is the difference between UD< and DU< ?

Is this the notation for both?

UD< (unsigned. signed. -- T|F)
DU< (signed. unsigned. -- T|F)

or are they both equivalent, taking two unsigned variables?

UD< is a fictional word -- blame it on my low caffeine levels. DU< is the Standard word for comparing two unsigned double numbers.

DU< (ud1 ud2 -- boolean)

Neal

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Large Files

By **James Steven Graham (Steve)** on Tuesday, January 2, 2001 - 08:52 am: Edit

Greetings,

I need to load in a single large (>4K) data file onto the Palm which can be read by my QF app. Any ideas?

TIA,

Steve

By **Wade Carlson** on Tuesday, January 2, 2001 - 10:48 am: Edit

Is the file made up of multiple smaller records? If so, you can easily read a file that large, just 1 record at a time using DmQueryRecord and friends.

By **Steve Bohrer (Skb)** on Tuesday, January 2, 2001 - 04:47 pm: Edit

Are you talking about gettting the file from a desktop computer into the Palm, or about dealing with it once it is in the Palm?

By **James Steven Graham (Steve)** on Tuesday, January 2, 2001 - 05:00 pm: Edit

What I want to do is to develop an application which will enable me to drastically shrink a large text file and allow the shrunken version to be read on a Palm.

I have in mind how to shrink it. I need help in finding out how to get it from the Desktop to the Palm (memo documents are way too small) and how to access such a large document on the Palm once it gets there.

Thanks,
Steve

By **Wade Carlson** on Tuesday, January 2, 2001 - 09:24 pm: Edit

Why not convert it into a Doc file? There are many Windows Doc file editors/creators out there. Quartus can access doc files thanks to the doc library.

By **James Steven Graham (Steve)** on Wednesday, January 3, 2001 - 09:06 am:

So, if I have a large .txt file on my PC, I can convert it to Doc format, HotSync it to my Palm and use the doc library in QF to access it, right?

If so, how do I convert it to Doc format? If I missed anything, please let me know.

Thanks to all,
Steve

By **Wade Carlson** on Wednesday, January 3, 2001 - 09:34 am:

I use DocInOut or Doc Convertor, but there are a ton available on palm gear. Any of them should be fine.

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This is a public posting area. If you do not have an account, enter your full name into the "Username" box and leave the "Password" box empty. Your e-mail address is optional.

New files: BASIC words

By **Neal Bridges (Nbridges)** on Monday, January 1, 2001 - 10:08 pm:
Edit

Hi! To start out the new millenium, there are three new files in the Contrib file area -- bnf.txt, infix.txt and basic.txt.

basic needs the other two. It implements **LET**, **PRINT**, and **INPUT**, just as found in BASIC. It's an interesting example of how Forth can be used to implement other languages.

Here's an example:

needs basic

variable a
variable b

input "Enter a value for A: ";a
print
let b=7
print "A=";a,"B=";b
let a=(b-2)*a
print "A now =";a

These new words work both inside and outside definitions. Enjoy!

Neal

By **Neal Bridges (Nbridges)** on Monday, January 1, 2001 - 10:10 pm:
Edit

An additional point -- after **needs basic**, you can

let debug=1

and then you'll see the generated Forth code for each Basic instruction.

Neal

By **Mark Browne (Markbrowne)** on Wednesday, January 3, 2001 - 10:19 am: Edit

When I try running this, I get

"Exception in file: basic
included by: Startup.Quartus"

Any ideas? It is not important, but the idea interested me.

Mark, that's odd. Please do

1 echo drop
include basic

and let me know what line it fails on.

Neal

I always wondered how to get the code to echo as it loads - perhaps I should RTFM.

Anyway, I have tried it, and it fails on the line

needs file

It appears that I have deleted a memo (or never had it). Is this one in the download area?

Thanks,

Mark

It is, yes --

http://www.quartus.net/files/PalmOS/Forth/Library/file.txt

Thanks for pointing that out!

Neal

By **Neal Bridges (Nbridges)** on Wednesday, January 3, 2001 - 09:53 pm: Edit

Has anyone given these a try?

Neal

By **Travis Casey** on Thursday, January 4, 2001 - 11:38 am: Edit

Played around with it for a few minutes, but didn't do anything interesting with it. Seems to work fine for me. I like the debug feature... neat to see the generated code.

--Travis

By **Neal Bridges (Nbridges)** on Thursday, January 4, 2001 - 11:38 am: Edit

Thanks, Travis!

Neal

By **Mark Browne (Markbrowne)** on Monday, January 8, 2001 - 09:25 am: Edit

Now that I have file.txt, it works (Thanks). I also played around with it for half-an-hour or so, and it is a bit of fun, but I don't see myself using it - BASIC may be a much underrated language, but not when it is this tiny 🙂

Mark

By **Neal Bridges (Nbridges)** on Monday, January 8, 2001 - 12:04 pm: Edit

Thanks for the feedback, Mark. It wasn't intended as a full BASIC of any sort; more as part demonstration of the implementation of other languages, part stepping-stone for newcomers.

Neal

By **Mike Will** on Thursday, January 11, 2001 - 09:55 am: Edit

Huh. Very interesting.
That kind of stuff is what Forth is truly great at. Neal, have you ever seen this file? It's a tiny BASIC in FORTH, written in the 80's. Sorry, but I don't know who RDM is/was. I tried to find him/her when this was written with no luck.

I tried porting it to a small 6809 Forth years ago, but got stuck on a few non-implemented words (mainly dictionary stuff). What do you think the odds are of a Quartus port?

BTW I had to split the file in two because of the 15k message limit.

Cheers
Mike


```
\ Documentation for Basic Compiler Demo                26apr86rdm
  This is a simple implementation of Basic. As such, it has
  the bare minimum of array, I/O and language features needed
  to implement Basic. It is primarily intended to demonstrate
  some of the capabilities of CorrectForth Version 1.1b. This
  demo is hereby placed into the public domain. Input requires
  that each item to be gotten be separated by at least one
  blank. The last item is indicated by a carriage return. This
  version of Basic is a good deal faster than GWBASIC, but then
  it is actually compiled into the dictionary and treated as
  usual. Written entirely in high level CorrectForth.
```


```
\ BASIC compiler                                        28APR86RDM
ONLY FORTH ALSO DEFINITIONS
: .R   RP0 @ RP@ ?DO   I @ 2- @ >NAME .ID   2 +LOOP ;
VOCABULARY ARITHMETIC    ARITHMETIC ALSO DEFINITIONS
VOCABULARY LOGIC    VOCABULARY INPUTS    VOCABULARY OUTPUTS
: [    ASCII ] WORD DROP ;   IMMEDIATE
: GET    BL WORD NUMBER DROP  ;
CREATE #S   130 ALLOT
FORTH DEFINITIONS
1 2 +THRU    ( precedence and variables )
: BASIC   [ ARITHMETIC ]   0 #S 2+ #S 2!   START ALSO ; IMMEDIATE
ARITHMETIC DEFINITIONS
3 7 +THRU    ( BASIC )
: (     10 #( +! ;   IMMEDIATE
: ;     [ n]    . ;    1 PRECEDENCE ;
FORTH DEFINITIONS
\ Precedence                                            28APR86RDM
VARIABLE ADDRESS    VARIABLE #(
: )     -10 #( +!  #( @ 0< ABORT" Unmatched )" ;   IMMEDIATE
: DEFER  ( a n a n - a n)  #( @ +
```

```
      BEGIN  2OVER NIP OVER  >= WHILE   2SWAP DROP  ,  REPEAT ;
: PRECEDENCE  ( n)    >IN @  ' >R  >IN !  CONSTANT  R> ,
   IMMEDIATE  DOES>  2@  DEFER ;
: RPN ( n)  0 1 DEFER  2DROP  #( @ OR  ABORT" Syntax" ;
: ?IGNORE   #( @  IF  0 1 DEFER  2DROP  R> DROP  THEN ;

: NOTHING  ;
: START ( - n)   0 #( !  0 ADDRESS !  ['] NOTHING 0
   ARITHMETIC  ;



\ Variables                                    28APR86RDM
: INTEGER   VARIABLE  IMMEDIATE  DOES> [COMPILE] LITERAL
   ADDRESS @ IF  ADDRESS OFF  ELSE  COMPILE @  THEN ;

: (ARRAY) ( a a)  SWAP >R   7 DEFER  R> [COMPILE] LITERAL
   ADDRESS @ IF ADDRESS OFF ELSE  ['] @  7 #( @ +  2SWAP  THEN ;

: [+] ( a i - a)   1- 2* + ;
: ARRAY   INTEGER  1- 2* ALLOT   DOES>  ['] [+] (ARRAY) ;

: [*+] ( a x y - a)   >R  1-  OVER @ *  R> +  2* + ;
: 2ARRAY ( y x)   DUP CONSTANT  IMMEDIATE  * 2* ALLOT
   DOES>  ['] [*+] (ARRAY) ;



\ Statement numbers  ( works at any address )     28APR86RDM
: FIND ( line# -- entry-adr )   TRUE  #S @ #S 2+
   ?DO  OVER I @ ABS = IF  2DROP I FALSE LEAVE  THEN  4 +LOOP
   IF  0 SWAP  #S @ 2!  #S @  4 #S +!  THEN ;
: RESOLVE ( n -- )   FIND  DUP @  0< ABORT" duplicated"
   DUP @ NEGATE OVER !   2+ DUP @
   BEGIN  ?DUP  WHILE  DUP @  HERE ROT !  REPEAT  HERE SWAP ! ;

: CHAIN ( n - a)   FIND  LENGTH 0<
   IF  @   ELSE  DUP @  HERE ROT !  THEN ;

: STATEMENT ( n -- )   HERE 2- @ >R  -4 ALLOT  RPN EXECUTE
   R> RESOLVE  START ;



\ B!ing - high level                            28APR86RDM

: JUMP   R> @ >R ;
```

```
: CALL    R> DUP @ SWAP 2+ >R >R ;
: SKIP    0= IF  R> 4 + >R   THEN ;
: (NEXT)
   2DUP +!  >R 2DUP R> @ SWAP
   0< IF  SWAP  THEN -
   0< IF  2DROP R> 2+  ELSE  R> @  THEN  >R ;


: [1]        COMPILE 1  HERE ;
: [NEXT]    COMPILE (NEXT) , ;
: (GOTO)    GET  COMPILE JUMP  CHAIN , ;
: (RET)     R> DROP ;


\ BASIC                                           28APR86RDM
: LET    STATEMENT  ADDRESS ON ; IMMEDIATE
: FOR    [COMPILE] LET ;   IMMEDIATE
: TO     RPN DROP  ['] [1] 0 ;   IMMEDIATE
: STEP   RPN DROP  ['] HERE 0 ;   IMMEDIATE
: NEXT   STATEMENT 2DROP ['] [NEXT] 0   ADDRESS ON ; IMMEDIATE
: REM    STATEMENT  [COMPILE] \  ; IMMEDIATE
: DIM    [COMPILE] REM ; IMMEDIATE
: STOP   STATEMENT  COMPILE (RET) ; IMMEDIATE
: END    STATEMENT 2DROP [COMPILE] ; PREVIOUS FORTH ; IMMEDIATE
: GOTO   STATEMENT  (GOTO) ;   IMMEDIATE
: IF     STATEMENT  LOGIC ;   IMMEDIATE
: THEN   RPN 0  COMPILE SKIP  (GOTO) ; IMMEDIATE
: RETURN   STATEMENT  COMPILE (RET)  ; IMMEDIATE
: GOSUB  STATEMENT  GET  COMPILE CALL  CHAIN ,  ; IMMEDIATE

\ Input and Output                                28APR86RDM
: ASK    ." ? "  QUERY ;
: PUT    GET  SWAP ! ;
: (INPUT)   COMPILE PUT ;
: (,) ( n)    (.)  14 OVER - SPACES  TYPE SPACE ;
OUTPUTS DEFINITIONS
: , ( n)   ?IGNORE  ['] (,)  1 DEFER  ;   IMMEDIATE
: "   [COMPILE] ."  2DROP ;   IMMEDIATE
INPUTS DEFINITIONS
: ,    ?IGNORE  RPN 0  (INPUT)  ADDRESS ON ;   IMMEDIATE


ARITHMETIC DEFINITIONS
: PRINT   STATEMENT  COMPILE CR  ['] (,) 1 OUTPUTS ; IMMEDIATE
: INPUT   STATEMENT  2DROP  COMPILE ASK  ['] (INPUT) 0  INPUTS
   ADDRESS ON ;   IMMEDIATE

\ Operators                                       28APR86RDM
LOGIC DEFINITIONS
```

```
2 PRECEDENCE <>   2 PRECEDENCE <=   2 PRECEDENCE >=
2 PRECEDENCE =    2 PRECEDENCE <    2 PRECEDENCE >

ARITHMETIC DEFINITIONS
: = ( a n)   SWAP ! ;   1 PRECEDENCE =
: ** ( n n - n)   1  SWAP 1 DO  OVER * LOOP  * ;
6 PRECEDENCE ABS
5 PRECEDENCE **
4 PRECEDENCE *   4 PRECEDENCE /   4 PRECEDENCE */
3 PRECEDENCE +   3 PRECEDENCE -
```

end of code
see next message for examples

… and here are the examples

Mike

```
\ [ Dwyer, page 17, Program 1]   ( works )              28APR86RDM
INTEGER J    INTEGER K

: RUN    BASIC
10 PRINT " THIS IS A COMPUTER"
20 FOR K = 1 TO 4
30 PRINT " NOTHING CAN GO"
40 FOR J = 1 TO 3
50 PRINT " WRONG"
60 NEXT J
70 NEXT K
80 END

RUN


\ [ basic: branching demo ]   ( works )                28APR86RDM
INTEGER J    INTEGER K

: RUN    BASIC
10 FOR K = 1 TO 15 STEP 3
15 LET J = J + K
20 IF K >= 8 THEN 35
25 PRINT K
30 GOTO 40
```

```
35 PRINT K , J , " SUM "
40 NEXT K
50 PRINT " DONE   "
80 END

RUN

\ [ basic: array demo ]  ( works )                        28APR86RDM
INTEGER K    9 ARRAY COORDINATE

: RUN    BASIC
10 FOR K = 1 TO 9
20 LET COORDINATE K = ( 10 - K ) ** 3
40 PRINT COORDINATE K + 5
60 NEXT K
80 END

RUN




\  [ basic string printing demo ]                         28APR86RDM
INTEGER X   INTEGER Y   INTEGER Z

: RUN    BASIC
10 LET X = 5
20 LET Y = 7
30 PRINT  X ,    Y
60 PRINT X , " TEST "
90 END

RUN




\ [ basic program # 1 ]  ( works )                        28APR86RDM
INTEGER K   INTEGER X   3 ARRAY Z

: RUN    BASIC
10 LET Z 1 = 1
15 LET Z 2 = 22
20 LET Z 3 = 333
30 FOR K = 1 TO 3
```

```
40 LET X = Z K
50 PRINT X
60 NEXT K
80 END

RUN


\ [ basic inputting demo ]                          28APR86RDM
INTEGER K   INTEGER X   INTEGER Y

: RUN    BASIC
10 INPUT X , Y
20 LET K = X * Y ** 3
40 PRINT X , Y , K
80 END

RUN




\ [ basic: GOSUB demo ]                             28APR86RDM
INTEGER K
9 ARRAY COORDINATE

: RUN    BASIC
10 FOR K = 1 TO 9
20 LET COORDINATE K = 10 - K
30 GOSUB 60
40 NEXT K
50 GOTO 80
60 PRINT COORDINATE K
70 RETURN
80 END


 \ Documentation                                    28APR86RDM
 EXIT
 There is an old, old saying that when one writes a language
 you should have something like a Hello, World! program around
 written in that language to reassure your user that something
 can be done with it.  Forth is a language, a philosophy and
 something of an operating system all rolled up into one. That's
```

```
why I chose to implement a variety of BASIC, just as a demo of
what you can do with CorrectForth Version 1.1. This is a weird
case of one time you can write an interpreter that is as fast
as the object code put out by some compilers, just so long as
you stay away (!!!) from the uselessness of floating point.
You really shouldn't get in the habit of thinking floating poin
t math is all that necessary in Forth, since some VERY good
math packages using sine, cosine, etc. have been written in
Forth using a straightforward fixed point integer setup.
EXIT \ Documentation                                28APR86RDM
If you are absolutely, screamingly sure you NEED floating pt.
math, then buy an 8087 chip and write a few CODE definitions
using the 8087/287 opcodes. They are mucho faster than anything
I have EVER written a floating point package for and better
accuracy is hard to find.  Someone may have goofed and said I
put floating point into CorrectForth Version 1.1 - rest assured
that the advertising is dead wrong, the ONLY floating pt. you
will get is from using the native 8086/286/87/287 assembler and
a few judicious CODE definitions that YOU get to write, as it's
getting really late and I am going to head on home and go to
sleep instead of writing something I NEVER contracted to do!!
```

By **Neal Bridges (Nbridges)** on Thursday, January 11, 2001 - 12:05 pm: Edit

Hi, Mike. Yes, I've seen that BASIC -- it suffers, in my view, from a couple of things: 1) it needs line numbers and 2) it is all built from scraps, there's no solid foundation.

With LET, PRINT, and INPUT as defined in basic.txt, you're more than halfway there for a BASIC programmer -- pick up the Forth versions of DO/LOOP, and IF/THEN, and you're off to the races.

Neal

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Unicode

By **Neal Bridges (Nbridges)** on Saturday, December 30, 2000 - 10:15 pm: Edit

Reviewing some notes from PalmSource 2000, I see that one of the points made is that as devices emerge in various flavours, ASCII will not be the only symbolic representation, and that scanning a string for a zero byte will not succeed for many symbolic representations. Looks like the Forth practice of representing strings as an address and a length may well prove useful!

Neal

By **Dave Bennett (Dbennett)** on Sunday, December 31, 2000 - 10:56 am: Edit

I doubt that the entire unicode set will be installed in a single device. Mostly OS's to date have just installed a subset which more or less corresponds to the codepage they would have used anyways. Each character in unicode is defined as two bytes, but the unicode subsets most have implemented is mangled to work with existing string libraries. While java stores characters internally as unicode representations, the output is still dependent upon the underlying OS's character representation implementation. I don't think things will change for practical programming as we have (stop me if you've heard this one before) "too much legacy code to protect". ;)

By **Neal Bridges (Nbridges)** on Sunday, December 31, 2000 - 11:37 am: Edit

-- agreed, they'll try to protect the legacy code. Nonetheless, there are a number of exiting PalmOS ROM routines that take an address and a length, while others expect zero-delimited strings; I expect we'll slowly see them move entirely to the former method.

Neal

By **Doug Philips (Dgou)** on Sunday, December 31, 2000 - 02:48 pm: Edit

Not to trumpet the "null terminated" string thing too much, but wouldn't it be a matter of checking for a unicode null character, rather than a null byte? Of course existing code is broken, but the Forth "single byte length" counted string thing is just too bleepin' short!

-Doug
P.S. Happy New Year All!

Oh no -- not the outdated 'first byte holds the length thing' -- I'm talking about the practice of passing strings on the stack as two cells, an address and a length.

Neal

The biggest problem I see for palm-like devices is memory space and processing time. If each character takes up 2 bytes instead of one, we give up twice as much space as we do currently. And maintaining 2ce as much memory is more battery use…

Also, your example of how much slower it is manipulating double values vs. single values demonstrates the expected application overhead associated with 2 byte character representation.

With two strikes here, and the "legacy code" I think we're headed for a fast "out".

But I do like the idea of using the address and length much better than zero termination.

Dave

Dave,
There really is no choice. Single Byte Code strings just do not cut it for International applications. Whether Unicode or some Double Byte Code standard eventually wins, I can't predict. With some DBCs the "standard" ASCII characters are still only one byte long, with a few of the high-bit-on ASCII characters acting as escapes.

In fact, when you do a C@, you get a full cell's worth of data, and fetching a unicode value (U@ perhaps?) will still get you a full cell's worth of data, assuming at least a 16 bit Forth system. Just because the characters are 16 bit doesn't mean that on the stack they have to be 32 bit! J

-Doug

I agree about the i18n. I've wanted that for years myself. I've written multiuser, multi-lingual apps before that could be ran simultaneously in multiple languages while accessing shared data and have cursed the code-page setup on many occasions. I had hoped (in the early '90s) that unicode would be a solution so I could at least access a language's character set in one defined area so data sorting would be local (to that defined region of the unicode spec) instead of having to build foreign (to the local user's codepage) sort indices myself that data would be compared against.

As for the 2nd part, there is not history of intelligent implementation of these kinds of things under any OS. 😕 Even java restricts most things to the first 128 characters of the unicode set (which is the very basic ASCII chart). I doubt that we see anything very useful in this area over the next five years. At least, not in the US.

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New SEI Website

By **Jim Purdy** on Saturday, December 30, 2000 - 03:47 pm: Edit

http://members.home.net/seisupport/index.html

I will be adding links to Quartus Forth and my other development tools soon.

Again, thank you all for the help, and
Happy New Year.

Jim

By **James Steven Graham (Steve)** on Tuesday, January 2, 2001 - 08:54 am: Edit

Jim,

Impressive screenshots. I imagine this took a bit of time to conceive, much less to develop.

Steve Graham

By **Jim Purdy** on Tuesday, January 2, 2001 - 02:03 pm: Edit

Yes, it did take a little time.

Everyone here in the group was a great deal of help.

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This is a public posting area. If you do not have an account, enter your full name into the "Username" box and leave the "Password" box empty. Your e-mail address is optional.

Apps Updated

By **Dave Bennett (Dbennett)** on Saturday, December 30, 2000 - 09:41 am: Edit

Since palmgear is such a hit-or-miss adventure for many people these days, I've decided to keep an up-to-date zip file for each of my apps at my own "site". (www.micoks.net/~dbennett)

I've cleaned up the zip files for my 11 quartus forth based applications and uploaded fresh copies at my web site (www.micoks.net/~dbennett). Each zip file contains the executable as well as a src.zip (thanks for the advice on how to package 'em Neal) with full source and often rambling notes on the source.

There is also a file called ScreenShots.zip that contains screen shots of all of the apps.

Thanks to everyone here at the discussion forums for all the help in making these apps possible.

Dave

By **Wade Carlson** on Saturday, December 30, 2000 - 09:48 am: Edit

Yeah, what's up with PalmGear anyways? Are people giving up on them and switching to Handango? I had refused thus far to use Handango because in order to post your shareware there, they FORCE you to use them to handle your sales, and I didn't want to be getting sales from more than one place. But now, I'm beginning to reconsider......

By **Mark Beckman** on Saturday, December 30, 2000 - 12:34 pm: Edit

There is an ongoing discussion on Comp.Sys.Palmtops.Pilot on this topic. Kenny West has indicate that he had big problems with his previous Web design team (like never providing source) and endded up firing them and starting over. The new company is apparently working hard, but it may still be a while to get PalmGear the way we would all like it.

By **Neal Bridges (Nbridges)** on Saturday, December 30, 2000 - 12:54 pm: Edit

They're having other problems. Evidently some other similar web sites are trying to use PalmGear as a database to draw from, and they're hitting it

hard and constantly to get updated/new listings, and also directly using the screenshots and other files from the PalmGear site. This is putting a huge load on their servers; they're investigating.

Neal

Add a Message

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This is a public posting area. If you do not have an account, enter your full name into the "Username" box and leave the "Password" box empty. Your e-mail address is optional.

Updated "break" implementation

By **Geert Bosch (Bosch)** on Friday, December 29, 2000 - 07:41 pm: Edit

I updated the break words I previously posted with proper switching between debugger context and application context. This greatly symplifies debugging of graphical applications.

Just type "break xxx" to set a breakpoint at xxx, to drop into a debugging shell when xxx is hit. Any extra text on the "break" line will be evaluated each time the breakpoint is hit. You can exit the debugger shell by entering an empty line. This will continue the program starting with execution of xxx.

Use "nobreak" to disable breakpoints, and use "nnn ignore" to ignore the next nnn times the breakpoint is hit.

A new command is added. Now you can use "debug ccc" to evaluate "ccc" dropping to the debugger if there are any unhandled exceptions. Handy for running graphical programs where unhandled exceptions lead to "Object not in form" fatal errors.

The code follows below. Any comments are welcome as always.

-Geert

```
\ break 18-12-00 GB
needs core-ext
needs double
needs graphics
needs Forms
needs toolkit

: abs>xt ( a. --0 | xt flag)
  dup [ (hex) 290a cs, ] drop ( a. a2.)
  d-  over swap (hex) 0.8000 d+ nip
  0<> -9 and throw ;

: 2cs! ( d. xt--) swap over cs! cell+ cs! ;
: 2cs@ ( xt--d.)
  dup cell+ cs@ swap cs@ ;

: rp>call ( rp. -- a.) 2@a 2 cells s>d d- ;
```

```forth
0 value bp  \ xt of breakpoint
0 value bp-proc \ xt of handler
0 value bp-ignore
2variable bp-save \ insn to restore
2variable bp-cmd \ cmd to execute
here 80 allot 0 bp-cmd 2!
create bp-inp 80 allot

: nobreak ( --) bp \ delete existing bp
  if bp-save 2@ bp 2cs! 0 to bp then ;

: cstype ( cs-addr u -- )
  over + swap do  i csc@ emit  loop ;

: .loc ( xt--) dup ." at " u.
  xt>name if ." =" cstype space then ;

 : setbreak ( xt1 xt2--)
  \ Set a break to xt1 at location xt2
  dup >r 2cs@ bp-save 2!
  (hex) 4eaa ( JSR ) r@ 2cs! r> to bp ;

: bp-interact ( --)
  begin
    cr ." bp> " bp-inp 80 accept
    dup 0> while space bp-inp swap
    evaluate
  repeat drop ;

: bp-hit ( xt--)
  cr ." breakpoint hit " .loc cr
  bp-cmd 2@ evaluate bp-interact ;

: debug ( i*x xt--j*x)
  cursor-position 2>r
  FrmGetActiveFormID >r
  MainFormID PopupForm
  \ Execute debugging procedure in
  \ context of debugger
  begin
    catch
     dup -257 <> over 0<> and
    while cr ." exception " . ." caught " .s
   ['] bp-interact
  repeat throw
  r> FrmReturnToForm 2r> at ;
```

```
: break ( --) nobreak
  rp@ rp>call abs>xt  >r ( r:bp)
  bp-ignore ?dup if 1 - to bp-ignore
  else r@ ['] bp-hit debug
  then
  r@ catch bp-proc r> setbreak
  ['] throw xt>abs rp@ 2!a ;

' break to bp-proc

: break  ( "name" "comand"--)
  \ Prepend the following execution
  \ semantics to name. Switch to the
  \ debugger context and evaluate
  \ command and user interaction
  nobreak bp-proc ' setbreak
  cr ." break " bp .loc 0 to bp-ignore
  [char] \ parse ( a1 u) dup
  if bp-cmd 2@ drop swap ( a1 a2 u )
    2dup bp-cmd 2! move
    bp-cmd 2@  ." does> " type
  else 2drop s" .s" bp-cmd 2! then ;

: ignore ( u--)
  \ ignore breakpoint u times
  to bp-ignore ;

: debug ( i*x "ccc"--j*x)
  \ execute the name ccc, switching
  \ to debugger interaction if there
  \ are any unhandled exceptions
  ' catch
  ?dup if ['] throw debug then ;
```

Nice code, Geert. Thanks!

Neal

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Possible error in disasm v1.0

By **Serguei Voronov** on Friday, December 29, 2000 - 01:28 pm: Edit

Hello Neal,

In disasm v1.0 source there is a definition of **nib5**

```
: nib5 6&7?
  if op (binary) 111000 and (binary)
    1000 =
    if ." db" .cond .word op .dreg
      param dism-adr + cell+ dup
      cond-bra? ., .args-reladr
      a2+ 10 +cycles
    else  ." s" .cond >arg .source
      4 2 +if-long approximate
  then
  else 8? if ." subq"
    else ." addq"
    then
    .size 9 3 op-bits dup 0= if 8 +
    then  .# .num ,source
    4 +long 4 +mem approximate
  then ;
```

Second **(binary)** is followed by newline, which cause error in interpretation of the following binary value and error in decoding **DBcc** instructions.

By **Neal Bridges (Nbridges)** on Friday, December 29, 2000 - 03:06 pm: Edit

Good eyes! I'll make the fix. Thanks!

Neal

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This is a public posting area. If you do not have an account, enter your full name into the "Username" box and leave the "Password" box empty. Your e-mail address is optional.

Getting input from the standard input source

By **Geert Bosch (Bosch)** on Friday, December 29, 2000 - 12:44 pm: Edit

I'm a bit stuck on programming a QUIT-like loop that reads lines of input from a standard mainform and evaluates them.

Basically I need to be able to go to an interactive environment after hitting a breakpoint, so I do the following:

- save the current form
- popup a mainform
- interact with user
- restore previous form
- continue program

The popping up the mainform and everything works just fine (I thought that would be hard), but I can't figure out how to implement a Forth word that basically waits for a line of input and than evaluates it. It seems that I can't get the input buffer refilled. I tries doing a REFILL, but it always returns false.

Basically I reduced the problem to the following: how can I program a word that reads a line from standard input and then type it again?

I tried something like

```
: echoline
  refill 0= if ." not " then ." filled "
  [char] \ parse type
;
```

But invoking this word results in printing "not filled", and only any text after the word echoline is printed.

I also tried using accept, but did not get any further either. I hope somebody can help me as I'm so sure I'm doing something fundamentally wrong, but I can't figure out what. I also searched the archives but to no avail. Thanks in advance for any suggestions!

-Geert

By **Neal Bridges (Nbridges)** on Friday, December 29, 2000 - 12:49 pm:
Edit

How's this?

```
create inputbuffer 80 chars allot

: interact
  inputbuffer dup 80 accept cr evaluate ;
```

Neal

By **Geert Bosch (Bosch)** on Friday, December 29, 2000 - 12:58 pm: Edit

Grrrr…. that works ⌡ It's just an awful lot like what I tried initially, but I surely must have messed up then!

Thanks a lot for the incredibly fast response.

-Geert

By **Neal Bridges (Nbridges)** on Friday, December 29, 2000 - 01:00 pm:
Edit

Glad to help, Geert. Keep us posted!

Neal

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Password:

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E-mail:

E-mail:

What are you working on?

By **Neal Bridges (Nbridges)** on Friday, December 29, 2000 - 12:44 am:
Edit

Just came up out of the source code for air -- thought it'd be a good time to ask you all what you're working on. Here's a soap box; tell us all about it!

Neal

By **Ron Doerfler** on Friday, December 29, 2000 - 02:52 am: Edit

Hi Neal,

I'm modifying my existing TeamFile 1.1 app (a checklist organizer for managing groups of people) into a new app explicitly for teachers. It manages three types of student lists for each class: Attendance, Assignments, and General Status (i.e. TeamFile). The lists are dated and sorted. Each list of the first two types can be assigned to weighted categories for grade reports that are generated. Individual grades (absolute or percent) are entered in each Assignment list. Other features of TeamFile such as note attachments, counters, etc. are still there. There are a few other apps for teachers out there, but I'm hopeful that my approach will be an improvement.

All is done but modifying the reports. I'm creating a separate program to launch from within my app for these, so I'm reviewing Erwin's and Jim Purdy's helpful posts on this.

Cheers,

Ron

By **Geert Bosch (Bosch)** on Friday, December 29, 2000 - 11:09 am: Edit

I'm (still) working on my arbitrary precision scientific calculator. The required arbitrary precision floating point routines, user-interface and evaluation circuitry (supporting parens and regular infix prioritized operators) have been implemented as well as some trigoniometric functions and calculation of pi.

As I'm working on a bit of an overhaul in the way I store arbitrary precision floating point numbers, I find I'd really like some more debugger support to verify correct working of all code paths. So at the moment I'm side-tracked

in writing a simple but usable debugger.

Basically I want to be able to set a conditional breakpoint, drop into a regular forth dialog to interactively test out words and check data structures, and then resume the original application. Initial results look promising :-)

-Geert

By **Barak Shilo (Barak)** on Friday, December 29, 2000 - 12:20 pm: Edit

This week I've decided to give up trying to make my Visor print to an HP 82240. I've worked a lot on it the past few days (I stopped working on it before that for a few months) and I've concluded that if everything I've tried out hasn't worked, it must be essentially impossible. I can post a lot more details on why it's impossible if anyone's interested, but it basically comes down to that fact that the 82240 is more sensitive to signal discrepancies and weaker infrared pulses than TVs, VCRs, etc (devices that OmniRemote can control) are.

I have learned a lot about the 68EZ328 UART registers, and more importantly, I've taught myself a lot of Forth, so I don't regret attempting this. Also, there still may be hope for being able to print from a Visor to an 82240, just not from the built-in transmitter. I've emailed OmniRemote (though who knows if they'll answer me) asking about their Springboard Module, to see if I could possibly program that to work. Otherwise, I'm pretty sure I could build my own IR springboard that would be specialized to this task. However, I think it'll be a few months before I have the time to start this new project.

Finally, a while ago I suggested that someone hack AvantGo (so that you could save the text of articles into memos). I looked at AvGoDocsMQ under RsrcEdit, and it consists of a bunch of records that I assume are news articles. You can read the title of the articles, but other than that it seems that they are somehow encoded (compressed, encrypted...). Well, again, if anyone wants to try this, please do, I think a lot of people would appreciate it. And, unlike printing to an 82240, I'm sure this is possible (although it might be very hard).

-Barak

By **Chris Bucsko** on Friday, December 29, 2000 - 01:31 pm: Edit

I'm developing an exercise log for runners, etc. It's really a learning tool for me, but it will be simpler to use than some of the currently available apps. Besides, it'll be freeware when I'm done. I have only 4 categories; running,

swimming biking and walking. You enter distance, total time, and date in an activity entry form then the program computes pace (in min/mi or min/km), or speed. I'm going to add yds and meters for the swimming part before I finish. Right now, I'm working on the log display screen which shows each week's results, along with total distance and average pace/speed. I just got through working around the LstSelectEvent problem, thanks to the forum (I use penUpEvent and FrmGetActiveFormID, works great). My Forth thinking is the current bottleneck. Seems I have to unlearn VisualBasic. I've found that the simple Forth page found in the docs is a great reference (http://www.albany.net/%7Ehello/simple.htm). BTW, Ron's TeamFile is great! It's a great reference for source code, and I use the app at work all the time.

By **Trevor Steele** on Friday, December 29, 2000 - 01:31 pm: Edit

Hi Neal

I'm currently working on a simple ballistic calculator to estimate things like bullet drop, wind allowance, kinetic energy etc. It's been fun so far working with the floating point part of Quartus and I feel the accuracy will be fine for this project.

Best regards

Trevor

By **Nick Yates** on Friday, December 29, 2000 - 03:24 pm: Edit

I have been tinkering with a palm-controlled personal robot for a couple of years now and have decided to re-do the autonomy code in QF. I will have a web-site up shortly detailing the process. Hopefully I will be able to make this into an inexpensive prototype for others to copy.

Thanks for making palm programming affordable.

Nick

Now if I could just get my registration id ;-)

By **Mike Ressler** on Friday, December 29, 2000 - 03:43 pm: Edit

Hi,

I've been lurking here for a few weeks now. I decided to relearn Forth after a 16 year hiatus when I decided I really wanted to tinker around with things on my Palm IIIx. I'm working on an elevation/airmass plotter for determining when I can observe a given astronomical object. I use the

floatlib and mathlib routines quite a bit. I'm midway through: I can calculate the local sidereal time and the elevation at a given time. I'm working on the plotting stuff now - lots of lines - and later I'll add an input user interface that doesn't require 11 parameters :-)

Just tinkering with the unregistered version of Q4th - this is all for my own amusement at this point. But it is a _very_ impressive program.

Mike

By **Kris Johnson (Kdj)** on Friday, December 29, 2000 - 03:58 pm: Edit

I'm working on a set of cooperative multitasking words. It's frustratingly close to working, but right now it crashes after a few context switches, and it makes POSE crash so I can't debug it there.

I've let it lie dormant for a couple of weeks so that I can come at it again from a fresh perspective. I'll keep working on it for a few more days. If I still can't get it to work, maybe I'll just post the code and let the rest of you figure it out. :-)

-- Kris

By **Gary Wiese** on Friday, December 29, 2000 - 04:35 pm: Edit

I am still learning the language, but I am learning it. Slowly, but surly. I just got my copy of the Forth Programers hand book from Amazon.com, something I should have ordered a long time ago. Makes more sense when I know the meaning of a word and can practice with it.

Maybe next time Neal ask the question I will be hard at work with a real program☺

Gary

By **Barak Shilo (Barak)** on Friday, December 29, 2000 - 05:06 pm: Edit

Gary,
I recommend getting a copy of Forth Application Techniques too. And I'm not just saying that because they quoted me! Surely you won't be so surly after working through that ☺.

-Barak

By **Neal Bridges (Nbridges)** on Friday, December 29, 2000 - 05:08 pm: Edit

I have been told that Forth Application Techniques is not very accessible to beginners.

Neal

By **Dave Bennett (Dbennett)** on Friday, December 29, 2000 - 05:34 pm: Edit

I'm working on Circle 1.1, A Compound Mitre Setting program, and a drill size crossreference chart.

By **Gary Wiese** on Friday, December 29, 2000 - 05:54 pm: Edit

You got it Neal, thats the problem I am having. I see the code, but don't understand what its doing. Very discriptive documentation is what I need. For example, I am starting to slowly understand what goes in here **(--)** after the definition. I would like to see a lot more of these \ instead.

I realize someday all I will need is **( )**, but now try and load up on these \ it helps 🙂 🙂 🙂

Gary

By **Barak Shilo (Barak)** on Friday, December 29, 2000 - 10:19 pm: Edit

Neal, I'd disagree with anyone who says it's not accessible to people who are new to Forth. It definitely gives you a feel for the language, and it is simpler to learn some basics from Forth Application Techniques than reading through the Forth Programmer's Handbook (or reading through Quartus source code). That said, I don't think someone who's never programmed in any language should pick up Forth Application Techniques; it's an introduction to Forth, not computer programming.

Of course, reading through Quartus source code is very helpful once you have a feel for Forth, because then you can focus on picking up the Palm OS aspect of Quartus (unless, of course, you've already programmed for the Palm OS before).

By **Mark Beckman** on Saturday, December 30, 2000 - 12:51 pm: Edit

I've got an update of r_Mines (a mine sweeper game) comming out. I've added (actually just exposed) an X-ray mode.

I've also been writting a program to change the Palm Auto Off interval called r_AutoOff.

Both are complete and ready to release.

The programs and complete source to both can be found at:

http://www.jps.net/~mbeckman/palm/index.htm

By **Tel Monks (Tel)** on Monday, January 1, 2001 - 09:30 am: Edit

I am working on my first Palm effort and my first FORTH program in about 15 years. It came out of Minibridge - a good freeware attempt to play bridge but a lousy bidder. It also has a tendency to lead aces whenever it has them. The author of Minibridge sent me the source code but it required buying a C compiler and actually spending money, so I scrapped the idea of modifying that.

All I have done so far is shuffle, deal and make opening bids, but I have learned a lot.

By **Kris Johnson (Kdj)** on Friday, January 5, 2001 - 03:37 pm: Edit

I bought myself a Stowaway keyboard for Christmas, and have become frustrated at how hard it is to use pedit or Pop-Up Note (or Memo Pad) to do relatively simple editing tasks.

So I'm starting work on a keyboard-centric editor that will run inside the Quartus Forth environment--that is, you won't need to exit QF to use it. I'll concentrate on keeping its footprint small while still providing all the essential operations.

I'll probably base it on vi. That's certainly not my favorite editor, but I think it will work well as a keyboard-only bloat-free mini-app.

-- Kris

By **Doug Philips (Dgou)** on Saturday, January 6, 2001 - 06:55 pm: Edit

"Not your favorite?" Arg! vi is the Editor of Kings! J

-Doug

By **Kris Johnson (Kdj)** on Sunday, January 7, 2001 - 01:19 am: Edit

Ten years ago, I thought "elegant" languages such as ML, Prolog, Smalltalk, and Scheme were the only legitimate way to develop applications, and anyone using a lower-level language was a misguided old-fashioned crank.

I also thought that highly graphical UI's such as the Mac's were the One True Way to go, and that "text mode" applications were outmoded and useless.

Now, I'm using Forth to implement vi. I hope this represents progress!

-- Kris

By **Neal Bridges (Nbridges)** on Sunday, January 7, 2001 - 08:26 pm:
Edit

One thing is certain -- both Forth and vi are tools built by people who needed to get jobs done; both are honed by experience.

The programming languages you called "elegant" are well-founded in a mathematical sense, and are esthetically pleasing from that standpoint -- a bit like some of the artificial human language efforts (Lojban, for instance).

In contrast, Forth is a real, living language, far better for the poetry of programming.

Neal

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A minimal app (reposted from UseNet)

By **Neal Bridges (Nbridges)** on Thursday, December 28, 2000 - 02:36 pm: Edit

From comp.sys.palmtops.pilot:

In article <3A4B5011.F63461FB@blakespot.com>,
Blake Patterson <blake@blakespot.com> wrote:
>
> I recall that (when I was in the Palm scene) you could get free dev
> tools (gcc) that would compile code for the Palm units. Is this still
> the case? Are there enough free tools that I can draw, in color, a
> big red dot in the middle of a Visor Prism's screen?
>
> I have a Mac, by the way. Thanks.

For on-board Palm development, try Quartus Forth. $69.95 for the
registered version; the evaluation version is free (no time-outs or nags).
Here's the full source for your app:

```
\ brd (Big Red Dot!)

needs graphics
needs color
needs colornames

: go
  mainform
  red foreground
  160 160 0 0 80 rounded-rectangle
  key drop ;
```

One additional line turns this into a stand-alone PRC (3K).

Neal

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Update to Quartus App

By **Jim Purdy** on Wednesday, December 27, 2000 - 01:03 pm: Edit

I have updated PalmStats to Version 2.3
It now includes some floating point intensive routines.

The current version may be seen at:
http://www.palmgear.com/software/showsoftware.cfm?prodID=8568

By **Neal Bridges (Nbridges)** on Wednesday, December 27, 2000 - 10:20 pm: Edit

Congratulations, Jim!

Neal

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Pedit

By **Yaakov Shlafman (Jacob)** on Wednesday, December 27, 2000 - 11:29 am: Edit

I'd like to have Quartus to launch pedit in response to the "Last Error" command and not built-in memopad. Is that possible/feasible/doable? I find pedit to be quite handy for editing code in general and the Forth code in particular. So please if that's not too much work, could you do that, Neal? Please?

-- Yaakov.

By **Neal Bridges (Nbridges)** on Wednesday, December 27, 2000 - 12:05 pm: Edit

I'm building in such a mechanism, Yaakov, such that you can specify the creator ID pedit and have Quartus Forth use that instead of the MemoPad.

Neal

By **Yaakov Shlafman (Jacob)** on Wednesday, December 27, 2000 - 12:12 pm: Edit

Great, thanks!
I hope that pedit will understand the Quartus' request regarding which line of the memo to display…

-- Yaakov.

By **Neal Bridges (Nbridges)** on Wednesday, December 27, 2000 - 12:14 pm: Edit

It does so here in the lab.

Neal

By **Jimn Purdy** on Wednesday, December 27, 2000 - 01:05 pm: Edit

Sound like a great deal!

How is the next Version of Quartus coming?

By **Neal Bridges (Nbridges)** on Wednesday, December 27, 2000 - 02:05 pm: Edit

Coming along well! I'm working the last kinks out of the launchcode support.

Neal

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Structuring memos using 'needs'

By **Chris Bucsko** on Wednesday, December 27, 2000 - 11:28 am: <u>Edit</u>

As I progress in my QF application programming, I'm finding that I'm 'reorganizing' my memos more and more. Mostly, I attribute this to my own inexperience. But I also am a bit confused about how QF uses the 'needs' word. For instance, I've found the following construct works:

```
 \ memo1
needs strings
: word1
    .s" this is memo1" ;

\ memo2
needs memo1

\memo3
needs strings
needs memo2
: word3
    word1 .s" and this is memo3" ;
```

However, this doesn't work:

```
 \ memo1
needs strings
needs memo2
: word1
    .s" this is memo1" ;

: Newword1
    word2 .s" and this is new word 1" ;

\memo2
needs strings
needs memo1

:word2
    .s" this is memo2" ;

: Newword2
```

```
       word1 .s" and this is new word 2" ;
```

In other words, 'implicit needs' seem to work, but 'recursive needs' don't. Is there a way to resolve these these 'recursive' references without creating a new memo? I think I understand the Forth concept of dictionaries, but I always seem to find myself wanting to jump back and forth between different memos, and I can't. I usually just reorganize everything until the problem goes away (for a while, anyway). But this is inefficient. Anyone have any ideas?? Thanks, and I hope I made myself clear…

By **Neal Bridges (Nbridges)** on Wednesday, December 27, 2000 - 11:48 am: Edit

Once a file has been included using **needs**, successive **needs** will not re-include it, nested or otherwise. What problem are you experiencing?

Neal

By **Daryl Lee (Daryl)** on Wednesday, December 27, 2000 - 01:21 pm: Edit

I'm going to take a guess at what's happening. I'm guessing, because it **seems** that Forth's loading procedure doesn't mark a file (memo) as loaded until the load procedure is complete for that file. Neal can confirm or reject that guess. Assuming my guess is correct, here's what's happening. Take the case where you "include memo1" to get things rolling.

The desired load sequence is "memo1-part1", "strings", "memo2", "memo1-part2", where the two parts are separated by the "needs" lines. This case fails because when memo2 encounters the "needs memo1" line, memo1 hasn't been loaded yet, so Forth tries to load it. Again, it encounters the "needs memo2" line, and starts loading it. And so on and so on, until some kind of limit inside Forth's loading process is reached.

So, recursive "needs" don't look like such a good idea.

Daryl

By **Daryl Lee (Daryl)** on Wednesday, December 27, 2000 - 01:33 pm: Edit

Well, that's what I get for posting before running a few tests. First, I fixed the "needs strings" to "needs string", and the .s" to .", so the basic words wouldn't fail. I inserted a couple of .(…) comments to narrate what was going on. Now, I believe the memo is marked as loaded at the beginning of the load process, not at the end. Memo2 fails, because when it tries to find a definition for word1 while defining Newword2, it can't, since word1 hasn't compiled yet. If you started by including memo2, you'd get a similar error

trying to compile word2.

I guess I should apologize for the first post, but, hey, this is a learning forum, isn't it?

Daryl

By **Neal Bridges (Nbridges)** on Wednesday, December 27, 2000 - 02:24 pm: Edit

You're right the second time, Daryl -- **needs** marks a filename as "already included" before calling **include**.

Neal

By **Chris Bucsko** on Wednesday, December 27, 2000 - 02:56 pm: Edit

Yes, I also apologize for my typos. But you've found the point. You can't make memo1 find words in memo2 until memo2 has been compiled. And you can't make memo2 find words in memo1 until it's been compiled. So Forth makes you do things right by compiling sequentially. But my problem is that I can't SEE that far ahead. I group words in memos by function (dbrecords, event loops, categories, etc.), but I sometimes have to access a dbrecord word in category memo, AND a category word in a dbrecord memo. This means I usually try to do this recursive calling, and of course, it fails. So I was just wondering if there's some pre-emptive structuring that can be done to sort of keep this stuff to a minimum. I've learned an awful lot from the forum so far, but I've been concentrating on the details. Now I'm curious about the 'big picture'....

By **Neal Bridges (Nbridges)** on Wednesday, December 27, 2000 - 03:07 pm: Edit

I'm not sure if this applies exactly to your problem, but what I do is create a project-specific 'needs' file. Let's say the app is called FooBar. I set up:

\ foobar-needs

needs foobar-constants
needs foobar-resources
needs foobar-general
needs foobar-engine
needs foobar-interface
...

Then in the app itself:

\ foobar

needs foobar-needs

…

and of course,

\ foobar-make

needs foobar
' go [id] FooB MakePRC FooBar!

More specific to your situation: if I discovered that in file1, I need functions from file2, and in file2, I need functions from file1, I'd see a key opportunity to create another file containing the bits that both file1 and file2 require -- effectively factoring on a file level.

Neal

By **Chris Bucsko** on Thursday, December 28, 2000 - 10:03 am: Edit

Thanks for letting me think out loud. The second solution you proposed is kind of what I do now. When I run into this problem, I split up the memos, taking common elements and re-grouping. But I think your first solution is better in the long run. One large 'needs' file seems more managable, and it easily becomes a 'make' file. On my next project, I will go that route. Also, it occurs to me that for debugging purposes, you could also have several smaller 'needs' files which contain only the words you're interested in running. Right now, I usually only include the memos with code I'm working on at the moment when I debug in terminal mode, instead of loading the whole app. (SIGH) maybe it's time for SmartDoc…

By **Kris Johnson (Kdj)** on Friday, December 29, 2000 - 12:46 am: Edit

FWIW, I went the SmartDoc route with my app, and I've decided to stick with memos from now on. As Neal says, being forced to factor your "files" down to 4K chunks is probably a good thing in the long run.

Also, although you can use Doc file as source, they aren't perfect. [IF]…[THEN] doesn't work, for example.

Finally, if you haven't already, take a look at pedit. It's really nice for editing Forth code. (However, it suffers from featuritis and its user manual is the most annoying piece of writing I've ever forced myself to plow through.)

-- Kris

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BitDraw, anyone ?

By **Christian Althausen** on Wednesday, December 27, 2000 - 10:00 am:
Edit

Some time ago a developed a little program that was ised to create a forth bitmap (i.e. a memopad bitmap created at runtime) But since RsrcEdit a don't see a point on using it anymore. I'm thinking on making a new version of it but first I would like to know if thrre is any interest. If there I could share de code so we all can make changes and improve it.

Please send me any feedback

By **Neal Bridges (Nbridges)** on Wednesday, December 27, 2000 - 10:57 am: Edit

Hi Christian! Long time. I liked your icon editor; I'd welcome a new version.

Neal

Add a Message

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E-mail:

This is a public posting area. If you do not have an account, enter your full name into the "Username" box and leave the "Password" box empty. Your e-mail address is optional.

Problem using serRecvFlush

By **Leslie O. Snively (Lessnively)** on Sunday, December 24, 2000 - 10:01 am: Edit

I'm trying to develop an application that uses the serial port to communicate with an external radio module. Most of my experimenting has been successful, but I've run into a stumbling block trying to use "serRecvFlush". When I make that call, Quartus Forth seems to go away and never return, though it doesn't do an automatic reset. To recover, I have to reset the system. This has happened both on a Palm as well as POSE. I've set several different values for "timeout" to see if that has an effect, but it doesn't seem to. Any suggestions about what I'm doing wrong would be appreciated.

By **Neal Bridges (Nbridges)** on Sunday, December 24, 2000 - 10:11 am: Edit

Can you show the relevant section of code?

Neal

By **Leslie O. Snively (Lessnively)** on Sunday, December 24, 2000 - 10:14 am: Edit

A follow up: I just realized my earlier trials hadn't been so successful as I thought either. When I do a serRecvCheck, I'm getting back an error value of 774. Is there a way to decode that into something humanly useful? Does it reflects the values established in the "serErrorClass"? Or is it separate from that?

I don't get this error when I'm using the Palm with this code, only with POSE. Thanks, again, in advance.

By **Neal Bridges (Nbridges)** on Sunday, December 24, 2000 - 10:20 am: Edit

774 is (hex) 306, which is the serial error "serErrLineErr".

From O'Reilly's "Palm Programming":

Quote:

If SerReceive, SerReceiveWait, or SerReceiveCheck return

serErrLineErr, you need to clear the error using SerClearErr. Alternatively, you should use SerReceiveFlush if you also need to flush the buffer, since it will call SerClearErr.

Neal

By the way, all the error codes are listed in this document:

http://www.quartus.net/files/PalmOS/Forth/Docs/errlist.zip

"All Palm OS error codes, listed alphabetically with values in both decimal and hex, including any available description. In text and DOC formats."

Neal

Neal, I'm doing it interactively from the interpreter. After having set the value of timeout, I've tried values ranging from 0 to 100, I enter "serRecvFlush" and return. It's at that point that it goes away.

Prior to doing that I executed:

initSerLib
9600 serOpen

With regard to my second post, I have issue the "serRecvCheck" after having done the above two steps and get a return of:

0 0 774

This works here:

```
needs serial

InitSerLib
9600 SerOpen
SerRecvCheck .s
100. set-timeout
```

SerRecvFlush

Neal

Thanks, Neal. Dumb error on my part. When I set the value of timeout I forgot to make it a double, and so even though it would report the value I set, it wasn't the right type. Also, I downloaded the errorList.

Happy Holidays to you, and again, thanks of the help.

Les

Glad it's working! Happy holidays to you also. Let me know if you have any other difficulties!

Neal

Sorry to interupt again with another, probably trivial quesiton, but I haven't been able to find this in any of my limited FORTH resources. In several of the stack notations, for example, for serSend in the stack input side, there's the notation, "&addr". I can't find what the "&" is intended to mean, as opposed to just the "addr" for serRecv. I assume the later is a typo, and the "&" means an absolute address, since that's how it shows up in all of the other cases in the "\ serial" source. Is that meaning different than the "c-addr" notation used by Conklin in the Forth Programmer's Handbook? Thanks, again.

Les

Sorry to interupt again with another, probably trivial quesiton, but I haven't been able to find this in any of my limited FORTH resources. In several of the stack notations, for example, for serSend in the stack input side, there's the notation, "&addr". I can't find what the "&" is intended to mean, as opposed to just the "addr" for serRecv. I assume the later is a typo, and the "&" means an absolute address, since that's how it shows up in all of the other cases in the "\ serial" source. Is that meaning different than the

"c-addr" notation used by Conklin in the Forth Programmer's Handbook?
Thanks, again.

Les

The notation I use for Quartus Forth is documented here:
http://www.quartus.net/products/forth/manual/datatype.htm

Let me know if that answers your question.

Neal

Hi Neal

on 24dec2000 you wrote:

9600 SerOpen

baudrate must be a double, so 9.600 or 9600.

SerRecvFlush

With SerRecFlush I had the also a deep freeze in POSE. So I found at Wade
Johnson something, which I improved to:


```
decimal
9600. 2constant ##baud

: clrSIOrd  ( -- )
  begin    serClose serErrStillOpen <>
  until
  ##baud serOpen drop \ reopen
;

: clr-buf    ( -- )
\   serRecvFlush  \ hangs OS *#$%&
  clrSIOrd
 ;
```

This works for me, serRecvFlush hangs my POSE.
Because serClose is run in a loop until there is nothing to be closed, serial IO must be opened again.

Happy New Year

Wolfgang Allinger (Germany)

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Problem using rsrc edit

By **Gary Wiese** on Sunday, December 24, 2000 - 03:18 am: Edit

Hello,

I have been working on a program that uses forms, but I can't get Quartus to see the resource db.

I have the lines,

needs resources
(ID) GJWI (ID) workprograms use-resources

and there is a data base with that name in RsrcEdit.

When I run it in Quartus I get
Exception in file: workprograms
Resource db not found.

Where am I going wrong here?

Gary

By **Erwin Schomburg (Esc)** on Sunday, December 24, 2000 - 05:52 am: Edit

You don't use the actual database name in the call to use-resources, but the creatorID and type of said file.

/Erwin

By **Gary Wiese** on Sunday, December 24, 2000 - 02:36 pm: Edit

Thanks Erwin,

Its working. Maybe someone could help me get the floating point stuff worked out. This is the first program I wrote in forth and I don't know how the floating point math works yet.

What I have now is something that adds two numbers.
Its more or less copied from another program I got from the file area. I understand a lot of it, but there is some things that don't. I would like it to take a fraction and turn it into decimal form.

\ Here are the variables, which I understand

fvariable numF \ variable to hold the numerator
fvariable denF \ variable to hole the denominator

\ I think this formats the output, but I am unclear how it does this. I think d>string takes a decimal number and turns it into string. But I don't understand **<# #s rot sign #>**.

: d>string (d. -- c-addr u) \how does this work
**   tuck dabs <# #s rot sign #>;**

\ calculates a fraction into a decimal number
: do-calc (--)
        \get numerator into a float variable
        numBuf dup
        numInputID field>string
        string>float
        numF f!
        \ get denominator into a float variable
        denBuf dup
        denInputID field>string
        string>float
        denF f!

\ perform calculations

        numF f@ denF f@ f/;

\ I realize that it will only display the quotient. How do I display it using 4 or 5 digits to the right of the decimal place.

Thats were I am now.
Gary

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Disabling hard keys and onoff

By **Jim Meadows** on Sunday, December 24, 2000 - 01:40 am: Edit

I have an application that needs to disable the hard keys and keep the application from automatically turning off. I can ingore all hard keys in my event loop and include EvtResetAutoOffTimer. This keeps the application on all the time and exits the application only under program controlled conditions….except when a tips screen or alert is used! Tips screens and alerts have their own internal event handling which it appears I have no control over. Is there any way to mask off the hard keys and silk keys so that even Tips and Alerts don't respond to them? What about the auto timeout function?

- Jim

By **Neal Bridges (Nbridges)** on Sunday, December 24, 2000 - 09:58 am: Edit

KeySetMask will disable the hard keys:

```
0. KeySetMask ( oldkeymask. )
```

To block the silkscreen buttons in all forms, system and otherwise, you'd need to hook into the **SysHandleEvent** and patch in your own assembler module to ignore the keyDown events that you don't want -- sort of like a little HackMaster routine, but within your app. Upon exit you'd need to deinstall this routine.

The patch could also ignore the auto-off character.

Neal

By **Neal Bridges (Nbridges)** on Sunday, December 24, 2000 - 09:59 am: Edit

Another option -- don't call the system for alerts and tips forms, but rather draw and manage your own.

Neal

By **Dave Bennett (Dbennett)** on Monday, December 25, 2000 - 09:49 am: Edit

This is kind of interesting. Would this also preclude scheduled events like appointment reminders in the calendar app to be ignored?

By **Neal Bridges (Nbridges)** on Monday, December 25, 2000 - 10:32 am: Edit

Off the top of my head, to suppress appointments, I'd patch the trap that sends launch codes to apps, and not launch for alarms.

Neal

By **Jim Meadows** on Monday, December 25, 2000 - 10:24 pm: Edit

Thanks for info - it helps to know the options available. I'll insert KeySetMask, but was hoping for a simple fix for silk keys too. I already use a couple of special cases for simulated alerts and help in critical points, but have to build the form a line at a time with Rsrcedit instead of using a string. I may look into patching the syshandleevent routine, or maybe my own alert/help routines that use strings for the message.

Jim

Thanks,
Jim

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Getting Started

By **Steve Graham** on Friday, December 22, 2000 - 11:11 am: Edit

Folks:

I'd like to get started in programming on the Palm OS platform. I can get around in Forth, and will hopefully improve as I go along. I mostly have experience with Forth-83 versions, such as F-PC and LMI's PC-Forth. I've read and enjoyed Starting Forth and Thinking Forth. What else would you recommend that I do/purchase/read to better prepare myself to develop on this platform? I do not have much/any experience in programming in forms. I have heard about a product called Rsrcedit (sp?), which I presume allows one to build forms. Where do I obtain this? Are any books essential to this endeavor? Is there a large difference between ANSI Forth and Forth-83?

Thanks.

Steve Graham

By **Neal Bridges (Nbridges)** on Friday, December 22, 2000 - 11:26 am: Edit

RsrcEdit is available from the "Online Resources" section of the Quartus Forth manual.

From the same section, you'll also want to download the Palm SDK documentation (free, in PDF format), and a copy of the ANS Standard in one format or another (free, also; it ships in ASCII and DOC format with Quartus Forth).

There's also links there to other instructional material on Forth.

The example apps that come with Quartus Forth, as well as the excellent material contributed by developers available in the File Area, make excellent study materials. Also, of course, this forum is at your disposal should any questions arise as you go. That's the reason this forum exists. The Usenet group comp.lang.forth is another good resource.

ANS Standard Forth and Forth-83 are not amazingly different. I've ported old Forth-83 code without difficulty. Have a look; I think you'll find it quite familiar.

Neal

I'm going through the same process as you, Steve. What I can recommend is Starting Forth (which you say you've read, and I happened to have from my college microprocessor course) and then start going through the sample code included with Quartus. I found picking through Year to be pretty instructive as there are many basic and advanced methods of doing things, and I'm going to start picking through Duco because it's more forms based.

I can recommend getting iSilo and getting the following documents on your Palm for easy lookup: The 1994 ISO/ANS Forth Standard, Quartus Forth manual, and the Palm SDK reference, and the Quartus Systrap List. That will really give you all the reference material you might need in the learning process.

Hope this helps.

Regards,
Mark Norton

The other thing you should add to your Palm is the Quartus manual. It lists the Quartus-specific words that are not Systraps. (I wish it were formatted for iSilo, but alas...) See http://www.quartus.net/files/PalmOS/Forth/Docs/qdocs.zip.

Daryl,

I have the quartus manual in iSilo format if you want a copy. Let me know.

Neal, this has come up a few times do you want to add it to the files area?

And I'll take this opportunity to wish everyone a happy christmas,

Richard

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Trying to understand] and [

By **Jeff Massung** on Thursday, December 21, 2000 - 12:05 pm: Edit

Neal (and everyone), perhaps this is a very simple matter, but coming from the background of learning RPN on an HP calculator, I'm finding it very difficult to understand why, when and how to use compile/interpretation mode with [and]?

If this is too much to ask here, perhaps a web resource would be a good pointer? It seems impossible to find the book Learning Forth 😊.

But if an example could be given and explained, that'd be great. Thanks!

Jeff

By **Neal Bridges (Nbridges)** on Thursday, December 21, 2000 - 12:14 pm: Edit

The most common use of **[** and **]** is to perform a compile-time calculation, and to then compile the result. **[** steps temporarily out of compilation mode and into interpretation mode, and **]** steps back in. Here's a simple example:

```
: foo
  ." The result is "
  [ 3 5 7 * + ] literal . cr ;
```

Neal

By **Jeff Massung** on Thursday, December 21, 2000 - 12:53 pm: Edit

Okay, let me try to understand the example:

```
: foo
   ." The result is "
   [ 3 5 7 * + ] literal . cr ;
```

When you execute "[", 3, 5, 7, * and + are all then interpreted right then and the result (38) put where they are so the compiler sees:

```
: foo
    ." The result is "
    38 literal . cr ;
```

Is this correct? Basically making a macro of sorts? The advantage I see is that every time the program runs, it automatically gets the result and doesn't have to perform the operations, speeding up the program. Is this is main/only use for this? or are there more uses?

Thanks, Neal.

Jeff

By **Neal Bridges (Nbridges)** on Thursday, December 21, 2000 - 03:45 pm: Edit

Yes, the calculation is done once, at compile-time, and the result compiled into the code. Mine was a trivial example, but you can see the technique from it.

There aren't too many occasions to use this technique; the one I showed is the most common use.

Neal

By **Daryl Lee (Daryl)** on Saturday, December 23, 2000 - 11:38 am: Edit

There are some usages of [and] that don't work in QF as they do in other implementations. The example I raised recently, for example, works fine in Win32For, but fails in QF. Fortunately, my particular problem was solved via some QF-specific words.

By **Neal Bridges (Nbridges)** on Saturday, December 23, 2000 - 04:43 pm: Edit

Correct. Quartus Forth does comply with the Standard, as does Win32Forth, but different implementations do not allow the same esoteric techniques. This is due to differences in the underlying implementation. Win32Forth uses an indirect-threaded model, while Quartus Forth directly generates native-code, for speed and compactness.

Neal

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Quartus or IEEE float?

By **Daryl Lee (Daryl)** on Wednesday, December 20, 2000 - 02:16 pm:
Edit

I feel like a man with two watches. A man with one watch always knows what time it is, but a man with two is never sure.

I am playing around with "Scientific Forth," which involves, among other things, both single and double length floating point numbers. I have the IEEE routines for accessing MathLib, and I have no option but to use Quartus-native format for input and output (along with judicious application of f>sf, sf>f, etc.) What other issues should I be thinking about as I do this?

By **Neal Bridges (Nbridges)** on Wednesday, December 20, 2000 - 11:13 pm: Edit

FlpFToA and FlpAToF are both provided in NewFloatMgr. These will translate double floats directly to and from ASCII, subject to the limitations specified in the documentation.

Neal

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A few questions...

By **Mark Norton** on Wednesday, December 20, 2000 - 12:07 pm: Edit

As I mentioned before I'm retraining myself Forth and extending a bit as well. I have come up with a couple of questions that I hope an expert can answer.

1) CATCH/THROW -- After much puzzling I think I figured out the process by which these words are used, but I thought I'd put it into my own words (rather than the ISO/ANSI spec) and see if it was accurate.

If you have a word you know can throw an exception and you wish to try to catch it and perform error handling, rather than a vectored execution with EXECUTE, use CATCH. CATCH takes an execution token (xt) and then saves the state of the stack on the return stack with a frame sync signal (exception frame) and puts the frame sync signal on the exception stack. If during the course of that word that is executed a THROW is called, execution returns to the point in the definition after CATCH and the entire previous contents are restored to the regular stack from the return stack and the exception stack and the THROW code is put on top. If the word is completed without a THROW being generated, the word returns a 0 on the top of the new stack, the exception frame and old stack are discarded and execution continues at the point after the CATCH word.

Is that about right?

2) I was studying the YEAR sample code and am a little confused about the :NONAME word. It seems to me after looking at it and reading the ISO/ANSI material that it seems to be a way of reserving codespace without giving it a dictionary word to reference it (hence the name NONAME). In YEAR it is used to store a string of characters corresponding to the initial of the 12 months. My question is, why would you do it this way rather than reserving an array for a variable and put the month names into that array? It seems a little counter intuitive but that may just be because I don't understand some underlying truth.

3) Memory allocation -- I've mostly coded C so am familiar with malloc() and free(). Do I need to worry about freeing allocated memory in Forth? I can reserve space with ALLOT for a variable, and apparantly I can snag some codespace using :NONAME, and elsewhere in YEAR there's a quick trick for using the codespace to grab the user's preferences for week start. Is all this memory handled properly when the application exits, or is there

something I need to do as the programmer to clean up after myself?

I know it was a long post but I appreciate any answers greatly.

By **Neal Bridges (Nbridges)** on Wednesday, December 20, 2000 - 02:05 pm: Edit

1) You are correct about CATCH/THROW.

2) Using :NONAME like that is a quick way to make a constant pointing to the start of a literal string. Another way would be:

: monthnames s" JFMAMJJASOND" drop ;

The advantage to the :NONAME method is that the drop is done once during compilation, as opposed to each time the string is accessed -- a very minor speedup.

Another good way, but quite a bit more verbose:

create monthnames char J c, char F c, …

3) ALLOCATE, FREE, (ALLOCATE), and (FREE) are provided for managing memory in Quartus Forth. ALLOT also works fine for grabbing data space during compilation. Allocated memory is freed by the OS when your app exits.

Let us know if you have any other questions!

Neal

By **Mark Norton (Nortonmd)** on Wednesday, December 20, 2000 - 03:17 pm: Edit

Thanks, that's precisely what I needed. It's nice to know there are various ways to go about things (with varying degrees of effect as well). Well I think after that, and enjoying puzzling out why the "0 1+ DUP . DUP 10 = …. etc" line actually works (very clever) it's about time to register and get on with real business 🙂.

Regards,
Mark Norton

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Corrupt Quartus Compiler

By **Mark Norton** on Tuesday, December 19, 2000 - 10:50 am: Edit

Hello,

I'm still in the process of evaluating Quartus Forth and I've run into a strange behavior. At the interpreter line… (the (cr) is where I executed a pen stroke)

variable date (cr) ok
date 12 ! (cr) ok
date @ . (cr) nn ok

The 'nn' in that last line is completely unpredictable. I tried it 3 times and got 2, 0, and 12423. After this error, if I leave Quartus and return to the Menu, I get a fatal exception and the dialog button for a Hard Reset.

At this point I thought that obviously something was messing with the compiler. I made sure I wasn't running anything strange (I have Hackmaster MiddleCaps and CharHack running usually, and sometimes SilverScreen). I went back into Quartus and tried it again and BOOM, same result (with the resultant effect).

Here's the last bit of evidence that might help. I recently dropped my Visor and the screen shattered (a lovely feeling, let me tell you). Yesterday I received the replacement and I reinstalled all my applications. Several applications I noticed did not reinstall during the HotSync Backup, however their DATA did. As soon as I installed the application I found that all my preferences and whatnot were where they were before the shattering event. Quartus doesn't appear to have preferences per se, however I wonder if the HotSync installed something Quartus needed, but my reinstallation of Quartus doesn't jive with the old data.

Is this possible, or is there some other possibility? I did install Quartus from the zip file, so it should be a known good copy, and I've never had a bit hit on a HotSync.

Thanks.

By **Mark Beckman** on Tuesday, December 19, 2000 - 12:00 pm: Edit

Mark,

Nothing wrong with the compiler.
Your arguments on the stack are reversed.
Try:
variable date 12 date ! data @ .

! (x a-addr --)(pronounced store)

Have fun!

Doh! You're right. I'm in the process of retraining myself with Forth (obviously). Years ago wrote all sorts of things for an HP28S and then actually used Forth in a microprocessor system design class (which due to the relatively recent HP28S programming was a breeze).

10 Years Pass...

I'm almost back to where I was *starting* the HP programming ;).

Thanks for the Nerf(tm) brick upside the head!

Correct. What you were doing initially was storing the address value of 'date' at a random spot in dynamic memory.

Neal

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not have an account, enter your full name into the "Username" box and leave the "Password" box empty. Your e-mail address is optional.

"]" Usage

By **Daryl Lee (Daryl)** on Tuesday, December 19, 2000 - 10:22 am: Edit

I was trying to follow an example in "Scientific Forth" last night when I ran into a problem using]. In the following complete example, the commented CREATE line fails with an error to the effect that] is a "compile-only word", but the one below it works just fine. I can't decipher from the Standard why I get the error. Is it a Quartus thing, or a Daryl thing?

```
: .x ." X" cr ;

\ create xx ] .x [
 create xx ' .x ,

: x xx @ execute ;
```

By **Neal Bridges (Nbridges)** on Tuesday, December 19, 2000 - 10:36 am: Edit

The first technique is non-Standard, and will only work with certain Forths that use a certain memory model. The second, while it will work from within Quartus Forth, will fail in a stand-alone app.

A simple fix:

```
variable xx

: go
  ['] .x xx ! ;
```
Neal

By **Daryl Lee (Daryl)** on Wednesday, December 20, 2000 - 10:02 am: Edit

This issue arose in constructing an execution vector. The intent is to create a vector that will take an index and execute one of several words depending on the index. The implementation given in the text is (simplified) assuming w1, x1, etc. are already defined:

```
: v:
```

```
   create ]
   does> swap cells + @ execute ;
v: vec1 w1 x1 y1 z1 ;
v: vec2 w2 x2 y2 z2 ;
```

Thus, "1 vec1" will cause "x1" to be executed.
I haven't figured out how to craft a defining word corresponding to v: that
will have the desired behavior.

By **Neal Bridges (Nbridges)** on Wednesday, December 20, 2000 -
10:05 am: Edit

Quartus Forth provides **select/end-select** for just this purpose. Have a
look in the manual:

http://www.quartus.net/products/forth/manual/specific.htm

Let me know if you have any questions!

Neal

By **Tel Monks (Tel)** on Wednesday, December 20, 2000 - 10:05 am: Edit

Not to be dim, but why not use CASE? Or is there a downside to this useful
construct?

By **Neal Bridges (Nbridges)** on Wednesday, December 20, 2000 -
10:09 am: Edit

A CASE construct would certainly work, but SELECT/END-SELECT is
somewhat faster and more concise.

Neal

By **Daryl Lee (Daryl)** on Wednesday, December 20, 2000 - 10:23 am:
Edit

Yet another reason to browse the documentation periodically! Thanks for
the pointer.

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Breakpoint implementation for Quartus Forth

By **Geert Bosch (Bosch)** on Monday, December 18, 2000 - 03:44 pm:
Edit

The following words implement a simple breakpoint facility. Currently only one breakpoint can be set at any time, but a future version should improve on that.

Usage is quite simple. To set a breakpoint at a word called "test", type "break test". Any text following the name argument will be parsed and evaluated when the breakpoint is hit. The default breakpoint expression is "s.". For example the expression "break / dup over . ." will show the two operands of each divide, giving you the chance to stop before dividing by zero. Be careful with changing the stack in breakpoint expressions! Compile-time words like "if" are not allowed.

To delete the breakpoint call "nobreak" and to ignore the breakpoint the next 5 hits, type "5 ignore".

When the breakpoint is hit, a message will be displayed and any breakpoint expressions will be evaluated. Then the program will pause waiting for a key. Pressing the up button of the Palm deletes the breakpoint and aborts the program. The down button will let the program continue until the breakpoint is hit again. Recursive calls will not cause hits.

Example:
```
break / dup over . .
break at 54822 =/ does> 2dup . . ok
12 3 / .
breakpoint hit at 54822 =/
12 3 <press down> 4 ok
```

Have fun!

-Geert
```
\ break 18-12-00 GB
needs core-ext
needs double

: abs>xt ( a. --0 | xt flag)
  dup [ (hex) 290a cs, ] drop ( a. a2.)
```

```
      d-   over swap (hex) 0.8000 d+ nip
      0<> -9 and throw ;

: 2cs! ( d. xt--) swap over cs! cell+ cs! ;
: 2cs@ ( xt--d.)
  dup cell+ cs@ swap cs@ ;

: rp>call ( rp. -- a.) 2@a 2 cells s>d d- ;

0 value bp  \ xt of breakpoint
0 value bp-proc \ xt of handler
0 value bp-ignore
2variable bp-save \ insn to restore
2variable bp-cmd \ cmd to execute
here 80 allot 0 bp-cmd 2!

: nobreak ( --) bp \ delete existing bp
  if bp-save 2@ bp 2cs! 0 to bp then ;

: cstype ( cs-addr u -- )
  over + swap do  i csc@ emit  loop ;

: .loc ( xt--) dup ." at " u.
  xt>name if ." =" cstype space then ;

 : _setbreak ( xt1 xt2--)
   \ Set a break to xt1 at location xt2
   dup >r 2cs@ bp-save 2!
   (hex) 4eaa ( JSR ) r@ 2cs! r> to bp ;

: break ( --) nobreak
  rp@ rp>call abs>xt  >r ( r:bp)
  bp-ignore ?dup if 1 - to bp-ignore
  else cr ." breakpoint hit "  r@ .loc cr
    bp-cmd 2@ evaluate
    key 11 = -1 and throw
  then
  r@ execute bp-proc r>
  ['] _setbreak xt>abs rp@ 2!a ;

' break to bp-proc

: break   ( "name" "comand"--)
  nobreak bp-proc ' _setbreak
  cr ." break " bp .loc 0 to bp-ignore
  [char] \ parse ( a1 u) dup
  if bp-cmd 2@ drop swap ( a1 a2 u )
```

```
   2dup bp-cmd 2! move
   bp-cmd 2@  ." does> " type
 else 2drop ." .s" bp-cmd 2! then ;

: ignore ( u--) bp if to bp-ignore
  else drop ." no breakpoint" then ;
```

Thanks, Geert!

Neal

When aborting the program on the up-button, I get "object not in form" fatal error. I assume that's because the active form should be reset to that of Quartus's default. How I can do that? (Kind of "on abort" action?)

By the way, this "break" word is COOL!

"Object not in form" is caused when the console tries to draw the input field, but doesn't find it in your custom form. You either need to have a copy of the console field in your form, or you need to switch back to MainForm before dropping back to the console. This works:

```
: go ... ;

: debug
  ['] go catch MainForm throw ;
```

Neal

I intend to enhance the current breakpoint words to allow the following commands:

- single-step into
- single-step over
- return immediately

- finish current word
- break on exception

Currently interacting with GUI applications is not really a priority, as I don't want to get into interface issues until the basic functionality is there.

-Geert

By **Kris Johnson (Kdj)** on Wednesday, December 20, 2000 - 06:29 pm:
Edit

I've been thinking a lot about doing my own debugger, but I'm glad you started first. :-)

Ideally, I'd like something like MacsBug on the Macintosh, where you can switch back and forth between the debugger screen and the application screen.

-- Kris

By **Geert Bosch (Bosch)** on Wednesday, December 20, 2000 - 07:21 pm: Edit

This is exactly what I'm working on now. I think I'll switch to the MainForm before user-interaction and switch back to the previously active form before returning control to the user's application. In case of exceptions during user-interaction, I should probably restore the datastack to its state before user-interaction, print a note about the exception and restart user-interaction.

At the same time I want to switch wordlists too, as debugger words should only be visible during debugger interaction.

The final issue is that during single-stepping I should prevent switching back to the user-form all the time, if I know that the debugger will get back control before any I/O takes place.

Anyway, there is enough to keep me occupied during the Xmas break J

-Geert

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How to get return address?

By **Geert Bosch (Bosch)** on Monday, December 18, 2000 - 02:44 pm:
Edit

I solved my problems using rp-at (if I would write this using the at-sign it gets translated to an email address). See my next posting for a breakpoint implementation for Quartus Forth.

The reason I want to do all debugging from within forth itself is that I'm usually programming in the subway so I only have access to the real hardware and not to an emulator.

-Geert

By **Neal Bridges (Nbridges)** on Monday, December 18, 2000 - 09:01 pm: Edit

Glad you found a solution! **RP@** returns the 32-bit address of the top of the return stack, and you can retrieve a return address from that with **2@A**. **R> R> SWAP** should have done what you require, though; I'm curious to know what differences you found.

Neal

By **Kris Johnson (Kdj)** on Tuesday, December 19, 2000 - 10:17 pm: Edit

In Debuffer, neither bt nor dis show me any names. If I dump the memory, I can see that the symbols are there in the code, but Debuffer isn't displaying them.

I'm using the newest version of Debuffer and and 3.0a7 of POSE (on Windows). I'll give it a try with 3.0a8 some time.

BTW, I'm working on a cooperative multitasking implementation. Right now, it almost works, but I get a Fatal Exception after a few context switches. Some of the information in this thread and in Geert's breakpoint thread may help. Unfortunately, POSE crashes when I'm running my stuff, so I can't debug it there. Like Geert, I have to do all my work on the device itself.

-- Kris

I'm using Debuffer 1.1 and 3.0a7 of POSE. I'd be curious to see your generated PRC, to see if the symbols are invisible here too. It's working here.

I'd like to see your multitasker, too!

Neal

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Gremlin Crashes

By **Steve Bohrer (Skb)** on Thursday, December 21, 2000 - 03:20 am:
Edit

This really sounds like there is a memory problem lurking below the surface:

> **Quote:**
>
> It seems that SysFormPointerArrayToStrings is somehow limited in the number of times it can be called. After a large number of calls, it eventually starts returning Null Handles.

Seems like each call to **SysFormPointerArrayToStrings** alocates a chunk of memory to hold an array of pointers, and then you drop these, and have it try to allocate more.

Have you done the tests mentioned earlier to track available memory throughout your loop?

(Of course, I may be way off base. I don't know anything about this specific call, nor have I experimented with your code.)

By **Neal Bridges (Nbridges)** on Thursday, December 21, 2000 - 11:33 am: Edit

I agree, Steve. SysFormPointerArrayToStrings definitely allocates a chunk of memory each time it runs; it returns a memHandle. Once you're done with this handle, it needs to be unlocked and freed (unlocking is not enough), or eventually you'll run out of memory -- possibly after 400 iterations or so.

Neal

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Implementation of "recurse" keyword

By **Kennis Koldewyn** on Wednesday, January 17, 2001 - 03:22 pm: Edit

Neal, you might want to remove "Tail-call elimination" from the list of optimizations on the main Quartus Forth page until it's actually implemented (hopefully soon!). It would have saved me some time a while back trying to figure out why some of my recursive code was crashing. I didn't know enough at the time to check the code that Quartus was generating, but I eventually guessed that tail-call elimination was not being done.

- Kennis

By **Neal Bridges (Nbridges)** on Wednesday, January 17, 2001 - 03:27 pm: Edit

Hi Kennis. It still is implemented, but RECURSE doesn't cause it to happen as the result of a change some time back. It's on my list; thanks for bringing it to the foreground.

Neal

By **Kris Johnson (Kdj)** on Monday, May 28, 2001 - 01:37 am: Edit

I didn't notice this thread before. I wrote my own TAIL-RECURSE word, described in the wiki:
http://sleepless-night.com/cgi-bin/twiki/view/Main/TailRecurse

-- Kris

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New Quartus App

By **Geo. Figole** on Monday, June 18, 2001 - 06:35 pm: Edit

Hmm, this source code is not yet included in the source downloads.

By **Richard Chamberlain (Rac)** on Tuesday, June 19, 2001 - 03:14 am: Edit

errrmmm. Nobody ask for it :-(

I'm just about (in the next few weeks probably) to release a newer version of Static. If I ever manage to get on the wiki it would seem a good place to post the source.

Richard

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Rand use

By **BobRyan** on Monday, July 16, 2001 - 02:36 am: Edit

Can anyone tell me the formula used by the SysRandom function? I've searched the web and found nothing.

TIA
Bob

By **Bob Ryan** on Monday, July 16, 2001 - 02:42 am: Edit

BTW Kris you might want to check out this article:

http://www.paradisepoker.com/rng.html

It's a very well done discussion of both random numbers and shuffling.

Cheers
Bob

By **Kris Johnson (Kdj)** on Monday, July 16, 2001 - 09:29 am: Edit

Thanks for the link, Bob.

BTW, anyone reading this thread should probably take a look at
http://sleepless-night.com/cgi-bin/twiki/view/Main/RandomNumber
for additional information.

-- Kris

By **Neal Bridges (Nbridges)** on Monday, July 16, 2001 - 03:34 pm: Edit

Bob, hopefully the links above are helpful to you. If you need to know exactly what the Palm is using, let me know -- I can dig it up. Their implementation isn't very robust.

Neal

By **Bob Ryan** on Monday, July 16, 2001 - 05:28 pm: Edit

Just curious 🙂 If you happen run across it I'd be interested, but it's not that important.

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New in Forth

By **Neal Bridges (Nbridges)** on Friday, December 22, 2000 - 03:18 pm:
Edit

Did the egroups group disappear? It gives an error message now saying there is no such group as "sw_palm". I know it worked at one point.

Neal

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M68K-specific Words

By **Kris Johnson (Kdj)** on Thursday, January 18, 2001 - 11:22 am: Edit

I found myself writing a lot of code of this form:

```
: test? ( n -- f )
  dup subtest1? if drop true exit then
  dup subtest2? if drop true exit then
  subtest? ;
```

In other words, the word returns true if the given value passes one of the subtests.

The "DROP TRUE" phrase seemed unnecessarily inefficient to me, in that it takes three CPU instructions to basically just replace the contents of the D7 register (where the top of stack is kept). So I've defined two words, CHANGE-TRUE and CHANGE-FALSE that replace the top-of-stack with the given value, using a single CPU instruction.

The LITERAL-CHANGE word can be used to replace the top-of-stack with other values as well. However, the value can only be an eight-bit value, and it will be sign-extended to fill the D7 register. (That's how the M68K MOVEQ instruction works.)

```
\ m68k-moveq 01/1/18 KDJ

\ M68K opcodes
(hex) 7e00 constant moveq.#.d7

: literal-change
\ Compilation: ( n -- )
\ Run-time: ( x -- n )
  (hex) 00FF and
  moveq.#.d7 or
  cs,
; immediate

\ Equivalent to "DROP TRUE"
: change-true ( x -- true )
  [ true ] literal-change ; inline
```

```
\ Equivalent to "DROP FALSE"
: change-false ( x -- false )
  [ false ] literal-change ; inline
```

-- Kris

By **Neal Bridges (Nbridges)** on Thursday, January 18, 2001 - 02:03 pm: Edit

Interesting, Kris! Thanks.

Neal

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Shareware applications

By **Kris Johnson (Kdj)** on Monday, May 28, 2001 - 01:27 am: Edit

For those of you that use registration codes: what algorithms do you use to generate the codes? Do you use standard algorithms (hash functions, public-key crypto, etc.), or do you just roll your own and hope that no one cracks it?

-- Kris

By **Neal Bridges (Nbridges)** on Monday, May 28, 2001 - 02:11 pm: Edit

Registration codes and other protection mechanisms are an art unto themselves; to discuss them openly is to assist the crackers, so you won't find too much in the way of documented methods.

The trouble with using somebody else's method is that once that method is cracked, all apps that use the same method are also automatically cracked.

Neal

By **Kris Johnson (Kdj)** on Monday, May 28, 2001 - 02:30 pm: Edit

There are cryptographic algorithms that are believed to be completely secure, even if the details of the implementation are public (PGP, RSA, ElGamal, etc.) Cryptographic experts say that if an algorithm is not open, and not reviewed thoroughly by experts in the field, it should not be trusted.

However, those algorithms tend to be somewhat expensive in terms of CPU usage, and also require considerable expertise to implement properly. So I can understand why people would go with the "security through obscurity" approach.

-- Kris

By **Neal Bridges (Nbridges)** on Monday, May 28, 2001 - 03:06 pm: Edit

True, there are secure algorithms, but that's only a first step. How those algorithms are linked into your code, and where, and what dependencies pertain, are all key factors (no pun intended).

Neal

If you have separate evaluation and registered versions on PalmGear, how are updates handled? Does PalmGear automatically send notifications to registered users when a new version comes out, or is that up to the author?

-- Kris

Not to speak for them, but in my experience PalmGear will do that for you if you request it.

Neal

Kris,

I use separate evaluation and registered versions. When I update a program, I compile the new evaluation and registered versions, post the evaluation version on PalmGear for public downloading, and send the new registered version to them for the "Real Time Fulfillment" distribution to those who purchase it. I choose to go ahead and distribute the updated registered version to past registrants myself, but PalmGear will do that for you if you want. In that case, I believe they prefer the author to send an updated distribution list as they assume the author is getting notes from registered users when their e-mail address changes. Otherwise they can go with the list of e-mail addresses from the original registrations.

By the way, I find something close to 5% of the e-mail addresses are no longer good when I send an update out, and that takes into account those users who have updated me on new e-mail addresses.

Barry Ekstrand

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Beaming: Now Working! *J*

By **Kris Johnson (Kdj)** on Monday, June 4, 2001 - 10:24 pm: Edit

This is a little off-topic, but can someone give me some tips for getting beaming to work?

I've got a Visor Deluxe and a Visor Platinum, and I'm trying to beam applications and databases from the Deluxe to the Platinum. I've tried using Launcher III's and Z'Catalog's Beam command, as well as some other applications' beam commands, but I can't get a successful beam.

The sender says "Searching" and then "Sending" and the receiver says "Receiving". But within a few seconds after it starts the sender displays a "Beam interrupted" message, followed a while later by a "Beam disconnected" message.

I've tried this with several applications and several databases, and they all fail.

Batteries in both units are fresh, and Beam Receive is turned on in both units. I've tried various distances from about three inches to about twelve inches, and I've tried different rooms with different lighting conditions.

Any tips?

-- Kris

By **Neal Bridges (Nbridges)** on Monday, June 4, 2001 - 10:31 pm: Edit

I've never had trouble establishing a beam, except once with a Visor with a faulty IR port. Do you have any other devices to test against -- perhaps a demo unit in a shop, or even a laptop with IR, for an IR HotSync?

Neal

By **Kris Johnson (Kdj)** on Tuesday, June 5, 2001 - 01:04 am: Edit

I've added a third Visor to the mix. Now I can beam from A to B, and from B to C. But I can't beam from A to C.

When you say you've never had trouble establishing a beam, do you really mean no trouble at all? Every beam attempt I've ever done has taken a few tries at various angles and distances.

-- Kris

I beam between four different Palms regularly and have never had any issue either. I also use all four to beam to a canon printer and it has always worked as well.

I've only had two issues with beaming and both were application specific and caused application, not beaming, errors.

FWIW, my "A" PDA seems to be the problem. A and B can communicate, but I get a lot of errors and I have to hold A at a weird angle to get it to work. B and C beam to one another pretty reliably. A and C have never completed a beam. I've also used A with other people's PDAs, without much success.

Maybe I've just always had a bad IR port. I've always assumed that unreliability is just an unavoidable feature of PDA communications.

Can someone point me to some documentation about how beaming works? What gets me is that A and C seem to have no problem at all establishing a "connection", but it always gets broken within a few seconds. It might just be flaky hardware, but I'd like to know a little bit about the protocol.

-- Kris

OK, I think I've found the cause of the problem.

I removed the batteries from my "A" PDA, let it sit for an hour, and then reinstalled the batteries and got a fresh start. After this, A could beam to and from the other PDAs without any problems.

Then I restored A's original data from the Handspring Backup Module. At this point, the flaky behavior of A returned.

So, it is my learned, professional opinion that "something weird" has happened which has corrupted the state of A, interfering with the IR driver.

"A" has been my PDA for a year and a half. I've installed and uninstalled a lot of stuff on it, so I really have no idea where the problem may have crept in. Also, I use a Stowaway keyboard, so maybe its low-memory overwriting

is messing things up.

Thanks for the input. If no one had told me that IR should work most of the time, I never would have spent any time figuring this out.

-- Kris

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Ms bug?

By **Kris Johnson (Kdj)** on Friday, May 18, 2001 - 12:18 pm: <u>Edit</u>

Can someone verify whether this is fixed in 1.2.7?

-- Kris

By **Neal Bridges (Nbridges)** on Friday, May 18, 2001 - 06:53 pm: <u>Edit</u>

It's fixed in 1.2.7 -- but here's a universal fix anyway:

```
: MS
  10 / ?dup if  0 systaskdelay drop  then ;
```

Neal

By **Kris Johnson (Kdj)** on Friday, May 18, 2001 - 10:31 pm: <u>Edit</u>

Thanks. I've added this information to the wiki page.

-- Kris

By **Wolfgang Allinger (Wall)** on Saturday, May 19, 2001 - 05:41 pm: <u>Edit</u>

I think

```
: MS 9 + 10 / ?dup if 0 systaskdelay drop then ;
```

would be better

bye from germany
Wolfgang

By **Neal Bridges (Nbridges)** on Saturday, May 19, 2001 - 05:44 pm: <u>Edit</u>

That will round up to the next highest 100th of a second, if that's the behaviour you prefer.

Neal

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Data Base Files?

By **eli** on Monday, March 26, 2001 - 04:05 pm: Edit

Wade!
I have download the PalmDB automation server, but when I try to compile, I have an error "User-defined type not defined", I think it's because that I didn't put a reference to the Palmdb automation server. can you tell me please how to put the reference in Visual basic, so that it will run.

Thank you
Eli

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DmWrite Errors

By **Andrew Glassby (Andrewg)** on Thursday, February 1, 2001 - 09:16 am: Edit

Neal,

I thought this was probably the right place to jump in and go off at a tangent. Many apologies for doing this :-(

I just successfully figured out how to create a structure :-) My next step is to write the data contained in this structure to a database, ie dump the lot into a record in one go!

My structure looks something like this:

```
struct
1 floats field a
1 floats field b
-
-
-
-
(32 of these :-0)
end-struct mystruct
```

After I populate all 32 fields in this structure I want to open a specific DATA repository and dump the whole structure into a new record. Where do I go from here?…. I have searched on "dm" but haven't found anything that would help me transfer this data. I don't particularly want to convert everything to s" just to plop it into the record!!

Just as a slight aside; While I was looking at structures I noticed in one thread that you supplied 3 values to a structure in one go (using n! I think) is there an equivalent for floats?

Hope you can help me out here (or perhaps in another thread ;-))

Thanks in advance

Andrew

Hi, Andrew. You don't need to convert your data to write it to a database; you can write the entire struct out directly. Create a new record, and use DmWrite.

I don't recall a **n!** word, certainly not written by me, but something like this would do it (untested):

```
: fn! ( F: rn ... r1 ) ( addr n -- )
  0 do  dup f!  1 floats +  loop
  drop ;
```

Neal

Neal,
Thanks for that speedy response!

I have tried to modify the db-example in the file area to store a struct to the database rather than a s" but I am running into problems, most likely my limited understanding of the principles being explained.

I drew out a stack diagram for the "string>newhandle" function and used the assumption that I had put a struct in "inputdata".
My stack fell down at the preparation to write to RAM (DmWrite). I ran out of things on the stack. Trying to run this caused a crash as predicted in the DmWrite call.

I looked more closely at the initial stack movements and tracked the problem down to this:

when inputdata is a s", calling this by name puts a "double" on the stack.
when inputdata is a struct, calling this by name puts a "single" on the stack.

"What's the difference in the results??" and how do I get around it?

I looked at the DmWrite stack diagram and it is looking for a bytes. (I presume that this is the size of data being written by DmWrite). When I call s" by name, is one part of the double the size of the string?

Assuming this I looked at how to get the structure size I was giving to DmWrite (using sizeof). Just interactively I played with this and found the

following:

struct 1 floats field a end-struct mystruct
sizeof mystruct

This gave 4 on the stack (I presume this is 4 bytes?)

If I went further and used the structure thus:

mystruct x
1e-14 x a f!
sizeof x

I got a number like -19874 (not 4)

What have I done wrong here? Do I need to assign more floats in the structure? If so how do I calculate the amount, bearing in mind that the end use is likely to have a varied manual input of 1e-10 or .00334576 etc.....

Rather than supply the whole code here (which would burn out my smouldering fingertips right now) The code is exactly the same as that in db-example but with the :inputdata replaced by:

struct 1 floats field a end-struct mystruct
mystruct inputdata
1e-14 inputdata a f!

I hope you can understand my train of thought here, or more to the point the crazed rambling of a deluded idiot 8-)

Hope you can help & thanks in advance.

Andrew

sizeof x will give you some random result. **sizeof** must be used on the defining word -- in your case, **sizeof mystruct** is what you need.

Neal

Neal,
Thanks for that pointer, it has moved me on a good few steps :-) Now I have gone and hit another wall!

I have defined a structure with a string and a few floats in it:
: dbname z" mydb" ;

struct
2 cells field comp / for the string
1 floats field a
..
..
end-struct mystruct
sizeof mystruct strcsize !
mystruct somedata
mystruct readdata

I successfully created the database and populated the database with the
structure above. All is well as far as pulling the floats out of the database
(via another structure "readdata")

I populated the structure like this:

: indat s" CH4" ;
indat drop >abs somedata comp 2!
0.2345e somedata a f!
etc....

Then I plonked this structure into the database doing this:

: struct>newhandle
(&structptr bytes dbPtr. -- handle.)
2>r dup s>d 2r> DmNewHandle
2dup 2>r MemHandleLock 2>r
swap >abs rot s>d 2swap 0. 2r> DmWrite throw
2r> 2dup MemHandleUnlock drop;

: savedb (--)
DmModeReadWrite dbname
OpenDb dbr 2!
somedata strcsize 2@ dbr 2@ struct>newhandle
0. 2swap index >bs dbr 2@
DmAttachRecord throw
dbr 2@ CloseDB ;

When I go to read a record (struct) from the database I do this:

0 readdb

: readdb (recptr --)

```
DmModeReadOnly dbname OpenDB 2dup 2>r
DmQueryRecord 2dup 2>r
MemHandleLock 2>r
strcsize @ s>d 2r> readdata >abs MemMove throw
2r> memHandleUnlock drop
2r> CloseDB
readdata comp 2@ type
readdata a fs.
;
```

the result of this command is
0 readdb 0.2345E00

Nothing from the type command!

What am I doing wrong here? Is it the way I am putting the string into the structure (or the structure itself) or is it the way I am retrieving the field from the structure once pulled from the Database?

I am completely at a loss on this one and have been going round in circles for a few days now following threads in the discussion forum :-(

Please help me :-0

Thanks in advance

Andrew

By **Neal Bridges (Nbridges)** on Wednesday, February 14, 2001 - 01:27 pm: Edit

Two things:

1. It looks like you're storing the absolute 32-bit address of the string in your record, and then later retrieving that and trying to display it directly using TYPE. TYPE requires an address (16-bit) and a length to display anything.

2. Much more importantly, you're never storing your actual string in your database. You're only storing the address of your string. You'll need to actually store the string in your database, instead.

Neal

By **Andrew Glassby (Andrewg)** on Wednesday, February 14, 2001 - 01:45 pm: Edit

Neal,

Thanks for that.

Sorry to be so dense, I think my brain has started to coast in neutral, but how to I store the actual string into the structure? (then onto the database). Is there an easy way to do it or do I have to break the string down into characters (somehow) and feed them into the field one at a time?

This is probably a real easy one! Sorry for not being able to see the light!

Thanks in advance

Andrew

By **Neal Bridges (Nbridges)** on Wednesday, February 14, 2001 - 02:28 pm: Edit

If your strings will be bounded by a maximum length, you can store a fixed-width field:

struct
…
40 chars field MyString
…

You would use MOVE to copy your strings into the field.

Dynamic length strings are a bit trickier.

Neal

By **Andrew Glassby (Andrewg)** on Monday, February 19, 2001 - 11:01 am: Edit

Neal,

Thanks for that lead! I am now the proud owner of a self created database, using structures method, that I can re-read!!

Next thing is to get cracking with the Tables tutorial from the files area, then I will be set for a "BIG" project. Undoubtedly you will be getting queried now and then while I learn the tabling techniques.

By the way, I am using QF 1.2.6R is there a more up to date version? If so I would very much appreciate an update :-)

Cheers for now

Andrew

Andrew, there is a more recent beta out that handles launch codes; if you don't need launch code support, keep going forward with 1.2.6r for now.

Neal

By the way, congratulations on getting the database bits worked out!

Neal

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Ubiquitous Development...

By **Harry W. Lewis** on Wednesday, January 3, 2001 - 08:13 pm: Edit

I tried MARKER and it doesn't seem to work correctly (or else I'm using it wrong 🙂)

Here is what I tried

```
: hi 5 . ; \ prints ok
hi \ prints 5
marker hi \ prints ok
hi \ prints only ok!
hi \ prints 5 ok - why not gone
\ from dictionary?
hi \ prints 5 ok

: hi2 6 . ; \ prints ok
: foo 7 . ; \ prints ok
hi2 foo \ prints 6 7 ok
marker hi2 \ prints ok
hi \ prints 5 ok
foo \ prints 7 ok
hi2 \ prints ok
foo \ prints 7 ok
```

It seems like that isn't correct. Shouldn't MARKER do the same as the old forget and kill hi and then hi2 as well as everything after it?

By **Neal Bridges (Nbridges)** on Wednesday, January 3, 2001 - 08:28 pm: Edit

MARKER is not FORGET. MARKER defines a new word, which, when run, restores the state to just before MARKER. This might make it clearer:

```
: hi 5 . ;

marker **placeholder**

hi -> 5

: hi 42 . ;
```

```
hi -> 42
```

placeholder

```
hi -> 5
```

Neal

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Copy Protect & Sleep Mode

By **Jim Meadows** on Friday, December 29, 2000 - 05:01 pm: Edit

Copy protect bit …. revisited.

I have never been able to obtain a version of rsrcedit that will set the copy protect bit. Are there any examples of how to write some code to do this? Can the copy protect bit also be set for databases in addition to applications?

- Jim

By **Mark Beckman** on Friday, December 29, 2000 - 05:15 pm: Edit

Jim,

Z'Catalog AKA Zarf's Catalog appears to be able to set/unset this bit.

By **Jim Meadows** on Saturday, December 30, 2000 - 05:09 pm: Edit

Thanks! I'll check it out.

Jim

Add a Message

Username:

This is a public posting area. If you do not have an account, enter your full name into the "Username" box and leave

Password:

E-mail:

the "Password" box empty. Your e-mail
address is optional.

Problem sending registration code to Pan Yen Yen

Add a Message

Username:

Password:

E-mail:

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Strange behaviour of bitmap

By **Kris Johnson (Kdj)** on Thursday, July 19, 2001 - 09:44 am: <u>Edit</u>

I'm trying to use .", CR, and other standard Forth output words in an offscreen buffer. Basically, I'm switching to an offscreen buffer, drawing some graphics and outputting text, and then blit the result to the screen.

When I do the blit, the graphics show up on the screen, but the text does not. I think this means that the text output routines don't use the current draw window. Is this true, and is there any way to "fix" that?

-- Kris

By **Neal Bridges (Nbridges)** on Thursday, July 19, 2001 - 11:16 am: <u>Edit</u>

They do indeed use the current draw window. Is it possible that the current text position is not within the window you're drawing to?

Neal

By **Kris Johnson (Kdj)** on Thursday, July 19, 2001 - 01:28 pm: <u>Edit</u>

My program basically does a WinSetDrawWindow on the offscreen window, draws, then WinCopyRectangle to blit to the main screen followed by a WinSetDrawWindow back to the main screen.

If I remove the WinSetDrawWindow and WinCopyRectangle calls, and just call my draw routine, then the text appears where I expect. I do a "5 5 at-xy" just before writing the text.

I'll do some more investigating. I'll post my code if I can't figure it out.

-- Kris

By **Kris Johnson (Kdj)** on Thursday, July 19, 2001 - 10:10 pm: <u>Edit</u>

OK, here's an example of the problem I'm seeing:

```
\ blittest

needs core-ext
```

```
needs facility

0 constant scrCopy
0 constant screenFormat

2variable ofs
variable winerr

create bounds
  0 , 0 , 160 , 160 ,

create drawrect
  20 , 18 , 120 , 120 ,

: ud>string ( u. -- cadr u )
  <# #s #> ;

: ud. ( u. -- ) ud>string type ;

: (ud.) ( u. -- )
  2>r currenty @ currentx @
  2r> ud>string swap >abs
  WinDrawChars ;

: .ticks  TimGetTicks ud. ;

: (.ticks)  TimGetTicks (ud.) ;

: draw ( -- )
  page
  0 drawrect >abs WinDrawRectangle
  6 1 at-xy .ticks
  6 7 at-xy .ticks
  6 12 at-xy (.ticks)
  82 140 82 20 WinEraseLine ;

: create-offscreen ( -- ofs. )
  winerr >abs  screenFormat >byte
  160 160  WinCreateOffscreenWindow
  winerr @ throw ;

: begin-offscreen ( -- ofs. win. )
  ofs 2@ 2dup WinSetDrawWindow ;

: end-offscreen ( ofs. win. -- )
  2>r 2>r
  scrCopy >byte  0 0  bounds >abs
```

```
  2r> 2r>
  2dup WinSetDrawWindow 2drop
  2swap WinCopyRectangle ;

: blittest ( -- )
  begin-offscreen
  draw
  end-offscreen ;

: handle-event ( -- )
  ekey drop ;

: go' ( -- )
  begin
     draw handle-event
  again ;

: go ( -- )
  create-offscreen ofs 2!
  begin
     blittest handle-event
  again ;
```

The DRAW routine draws a black rectangle, writes two lines of text using TYPE, draws a third line of text using WinDrawChars, and then erases a line through one of the lines of text.

The GO' word just repeated draws everything directly to the screen. It works, but it flickers.

The GO word, which uses an offscreen bitmap, does not have the lines that are generated using TYPE. The other graphics, including the WinDrawChars drawing, show up.

Any ideas why GO isn't showing the TYPEd text?

-- Kris

By **Neal Bridges (Nbridges)** on Thursday, July 19, 2001 - 10:12 pm:
Edit

I haven't tried your code yet, but try making it the active window, with WinSetActiveWindow.

Neal

By **Kris Johnson (Kdj)** on Thursday, July 19, 2001 - 10:50 pm:

I've tried calling WinSetActiveWindow on both the offscreen window and on the screen window, and it doesn't help. And WinSetActiveWindow seems a little scary anyway, since it generates events and switches the input focus.

Do you suggest this because the text words use WinGetActiveWindow?

-- Kris

By **Neal Bridges (Nbridges)** on Thursday, July 19, 2001 - 10:53 pm:

That's not why I suggested it; I just wondered what effect it might have. The text output words don't call anything other than font width systraps, and WinDrawChars. Have you tried calling WinDrawChars yourself, directly, to confirm that it causes the same problem?

Neal

By **Kris Johnson (Kdj)** on Friday, July 20, 2001 - 12:20 am:

My example does draw one line using WinDrawChars, (the (.ud) and (.ticks) words), and that one line does show up in double-buffered mode.

I'm in the process of writing equivalents to TYPE, EMIT, CR, and so on using WinDrawChars. I'll let you know how that goes.

-- Kris

By **Neal Bridges (Nbridges)** on Friday, July 20, 2001 - 10:42 pm:

That might do it. I suspect it's the EMIT? checking embedded in TYPE that's refusing to output on the non-active form; I'm looking into it.

Neal

By **Kris Johnson (Kdj)** on Saturday, July 21, 2001 - 01:57 am:

OK, that makes sense. But I've managed to put together replacements for the built-in words that do work in an offscreen bitmap:
http://sleepless-night.com/cgi-bin/twiki/view/Main/TextModule

-- Kris

By **Matthew Burke (Mmb)** on Saturday, July 21, 2001 - 09:40 am:

It's always good when people smarter than I am stumble across the same problems <g>. I've been struggling with . TYPE etc. not working on an offscreen window for a few days now.

In fact I've been struggling with a host of problems related to double-buffering and other items but haven't had a chance to post yet as mostly I've only had a few minutes here and there to work on this stuff. Hopefully tonight I'll have a big block of time…

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How to include resources from another DB?

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TCPIP Communications

By **Philip Robinson** on Wednesday, January 3, 2001 - 05:21 am: Edit

I am evaluating Quartus Forth as an alternative to
CASL as it has the advantages of on-board development, no runtime
libraries and excellent interfaces to many Palm OS system calls. I also use
PalmPrint which I have now successfully used with Quartus Forth (Neal B.
Thanks for the code snippet - although you say its not tested it works
fine!!!). This leaves me with only one major facility I still need in Quartus
Forth which I have in CASL - the ability to access simple TCP/IP Sockets.
Anyone tried this yet????? or know how to go about doing it????? The
functions appear to be in the Palm Net Library.

By **Neal Bridges (Nbridges)** on Wednesday, January 3, 2001 - 12:54
pm: Edit

Thanks for the feedback on the PalmPrint snippet! Glad it works.

I have not done anything worth mentioning with the TCP/IP library.
Accessing Palm libraries is not too difficult (see serial.txt and MathLib.txt for
examples); glad to help if I can. Let me know!

Neal

By **Geert Bosch (Bosch)** on Wednesday, January 3, 2001 - 01:30 pm:
Edit

What would be a really great application of this, is to use TCP for reading
include files from URL's ⌐ You just edit on your laptop or desktop and
compile/test on the real hardware, or with POSE without having to
HotSynch all the time!

-Geert

By **Neal Bridges (Nbridges)** on Wednesday, January 3, 2001 - 01:49
pm: Edit

Interesting thought 🙂 POSE can hotsync quite readily -- have you tried
that?

Neal

By **Philip Robinson** on Thursday, January 4, 2001 - 05:01 am: Edit

Neal, Thanks for the very quick response. Great idea - I'll certainly look at Serial.txt and MathLib.txt. Why didn't I think of that!!! Thanks Again.

By **Geert Bosch (Bosch)** on Thursday, January 4, 2001 - 11:52 am: Edit

Hi Neal, although I can hotsync fine with the palm, I use a different hotsync id as I'm afraid I'll toast my real-life calender, addresses etc.

How do you synchronize files between your POSE and your real Palm?

-Geert

By **Philip Robinson** on Thursday, January 4, 2001 - 12:46 pm: Edit

Neal,

Well looking at Serial.txt was fun!!!!
Couldn't find MathLib.txt?

If I've followed it correctly I've worked out how you get to an ID of 43009 for a serial open (I downloaded the Palm SDK and followed SysTraps.h and SerialMgr.h). So by my reckoning (following Systraps.h and NetMgr.h)a NetLibTrapSocketOpen is an ID of 43015 for that specific library.

How am I doing (before I dive into coding!!)?

By **Neal Bridges (Nbridges)** on Thursday, January 4, 2001 - 12:53 pm:
Edit

Sounds good! MathLib.txt is in the MathLib.zip, in the Contrib area.

Neal

By **Philip Robinson** on Friday, January 5, 2001 - 10:49 am: Edit

Neal,

I know this is silly but I cannot find the name (ie like the z" Serial Library" for serial) to use to get the Net Library as defined in NetMgr.h

I'll keep looking but if you know it!!!!!

Thanks

By **Neal Bridges (Nbridges)** on Friday, January 5, 2001 - 10:57 am: Edit

It's "Net.lib".

Neal

Neal,

Just found it!!!!! - forget last message

Its z" Net.lib"

Geert, I do most of my development directly on a real Palm device, so I don't often have to synchronize source. If I did, I suppose I'd work with Doc files; they can be exported from POSE and HotSync'd to a Palm.

Neal

Doc files are good. Another method I've used is to extract the MemoDB from my PDA (using pilot-xfer) and install that on POSE. If you make any changes in POSE, then remember to install that back onto the PDA.

But using POSE for Quartus Forth development is cheating, in my opinion. :-)

-- Kris

That works; I've done that myself on occasion. I don't think of it as cheating, mind you 🙂

Neal

Neal,

See code for tcp/ip sockets below:-

All of initNetLib, openNetLib and closeNetLib seem to work OK. When I try openSocket (following initNetLib and openNetlib) it displays an error 4612 (netErrParamErr). I've tried various changes to the parameters with same result. I cannot see what is wrong - can you????

```
\ sockets

needs zstrings

variable netLibRef#
variable netLibErr#
variable netSocketRef

\ Init NetLib
: initNetLib ( --- )
  netLibRef# >abs
  z" Net.lib" drop >abs
  sysLibFind dup if
    ." NetLib not found: Error " .
  else
    drop
  then
;

\ Open NetLib
: openNetLib ( --- )
  netLibErr# >abs
  netLibRef# @
  (hex) A801
  sysTrap
  drop 2drop d0 drop dup if
    ." NetLib failed to open: Error " .
  else
    drop
  then
;

\ Close NetLib
: closeNetLib ( --- )
  -1
  netLibRef# @
  (hex) A802
  sysTrap
  2drop d0 drop dup if
    ." NetLib failed to close: Error " .
  else
    drop
  then
;

\ Open Socket
: openSocket ( --- )
```

```
 netLibErr# >abs
 1000.
 0
 1
 2
 netLibRef# @
 (hex) A807
 sysTrap
 2drop 2drop 2drop 2drop d0 drop if
   ." Socket failed to open: Error " netLibErr# @ .
 else
   drop
 then
;
```

By **Philip Robinson** on Wednesday, January 10, 2001 - 08:05 am: Edit

Neal,

Hold one that last one - just done compile with Palm SDK which shows two parameters (values 1 and 2) in my code should be 8BIT not 16BIT

By **Philip Robinson** on Wednesday, January 10, 2001 - 08:33 am: Edit

Neal,

Nope - now getting Fatal Exception - would appreciate your help!!!! How would you code it?

By **Neal Bridges (Nbridges)** on Wednesday, January 10, 2001 - 10:34 am: Edit

I won't be able to work on it until later today, Philip.

Neal

By **Neal Bridges (Nbridges)** on Wednesday, January 10, 2001 - 03:53 pm: Edit

Is that NetLibSocketOpen you're calling?

Here's the C prototype:

NetSocketRef NetLibSocketOpen(UInt16 libRefnum, NetSocketAddrEnum domain, NetSocketTypeEnum type, Err *errP);

This translates to

(&errP. type[>byte] domain[>byte] libRefnum -- NetSocketRef)

Does that help?

Neal

By **Philip Robinson** on Thursday, January 11, 2001 - 12:42 pm: Edit

Neal,

Great the netLibSocketOpen sysTrap now works fine! So you pass 8bit parameters as a 16bit Quartus cell but left shifted within the cell. Guess this is because the Palm CPU addresses its stack in 16bit chunks.

Thank again - very much appreciated!!!!!!

By **Neal Bridges (Nbridges)** on Thursday, January 11, 2001 - 02:23 pm: Edit

Great! Glad it's working. Yes -- the bit-shifting for byte parameters is a quirk of the DragonBall (and actually all 68K) processors.

Neal

By **Philip Robinson** on Monday, January 15, 2001 - 10:17 am: Edit

Neal,

TCP/IP progressing, however.......

General question about passing parameters etc between Quantus Forth and the Palm OS (Systraps).
If I get a 32bit returned from a Systrap you have a "rule of thumb" that says A0 contains addresses and D0 contains values. Well I'm getting a 32bit value back (from netLibAddrAToIN) so I use D0 to put it on the stack. I then have to pass this value back to another Systrap (netLibSocketConnect) as part of a data structure which is created in the forth data space (not stack). In other words I pass back the address of this data structure which contains it. The logical way to take the original (D0) 32bit value off the stack into the data space is with a 2! but I notice this reverses the order of the 16bit cells. This might be alright for then using a 2@ which also does a reverse of the 16bit cells if going back to the stack - but I'm passing it in a data structure - so I don't think they should be reversed but kept in the same order as on the stack.

Am I right?????????

Some general words of wisdom about what happens in passing parameters

to and fro might be helpful!!!!

Philip,

2! doesn't reverse the order of the cells in memory:

```
2variable x

1 2 x 2!

x @ . -> 2
x cell+ @ . -> 1
```

As you can see, the high-cell on the stack becomes the high-cell of the target variable.

The DragonBall CPU is 'big endian' -- the high-cell is at the lower address in memory, as opposed to the way the 80x86 series does it.

Neal

Neal,

Guess I was thinking of the stack in the wrong order (seen too many stack diagrams which have TOS on the right!!).

ANYWAY IT IS NOW WORKING!!!

I have established a TCP/IP Socket connection from the Palm (emulator actually) to a desktop PC program (Java program of mine which accepts sockets).

So its onwards to creating the Quantus Forth words for send/receive of socket data - should be all downhill from here (famous last words!!).

Thanks for all the help - very impressive product support.

That's great, Philip! Keep us posted. If you have any code to post in the Contrib area, let me know.

Neal

By **Philip Robinson** on Tuesday, January 23, 2001 - 08:11 am: Edit

Neal,

Guess its time I registered Quartus Forth to see if my tcp/ip stuff works OK
with a standalone prc.
What's your policy re new releases - do I get a free (low cost) upgrade? Is
there a new version likely to be released shortly that I should wait for??

Thanks.

By **Neal Bridges (Nbridges)** on Tuesday, January 23, 2001 - 04:43 pm:
Edit

You'll always win to register -- the interim upgrades are free, and version 2
will be a low-cost upgrade, but you'll come out ahead to register now; the
registered upgrade cost + the current version's price will always be lower
than the list price for the next version.

Neal

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Compiling at Run Time?

By **Kris Johnson (Kdj)** on Saturday, June 2, 2001 - 03:08 pm: Edit

I have a couple of blue-sky-dream projects where it would be useful to have a "scripting language" available at run-time. For macros, for user programming, etc. While I could create my own application-specific language parser, I'd like to just implement my own Forth interpreter.

How hard would it be to write a Forth interpreter in Quartus Forth that would be available at run-time? It wouldn't need to do native compiling or anything like that; it would just have execute word definitions and allow the user to define new words. It wouldn't have to be ANS compliant; I think a subset of the core wordset would be sufficient.

I've looked at a couple of "How to Implement Your Own Forth" articles, and I think I understand the basics of how a Forth engine works. But I don't have a good grasp on exactly how long it would take to do it, or the best approach to take.

Any comments or suggestions?

-- Kris

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E-mail:

Skeleton wanted, please!

By **Michael Park** on Monday, April 2, 2001 - 03:28 am: Edit

Sorry to resurrect an apparently dead thread, but what happened here? All sorts of very interesting questions were raised but left unanswered--very frustrating. Well, to try to get the ball re-rolling, I would like to second Doug's suggestion:

> **Quote:**
>
> As a pedagogical device, it would be interesting to have a working, high-level/Forth definition of EKEY esp. for us poor sops trying to translate from programming books based on C.

How about it, Neal? Anyone?

By **Michael Park** on Monday, April 2, 2001 - 04:02 am: Edit

(Following-up on myself)
Let me just describe my current source of confusion in case a more specific question has a better chance of getting a response than the rather large request above.
I have a little app with an event handler (simple-handler, trivially modified) watching for menuEvents, and an ekey loop taking care of everything else. Since simple-handler sets handled true, I expected that ekey would never see a menuEvent -- but no, both simple-handler and ekey see menuEvents. Why is that?
Okay, I just modified simple-handler to set handled false -- no difference that I could see. So what is the purpose of handled?
More generally, what is the difference, effectively, between eventhandler and ekey?

By **Steve Bohrer (Skb)** on Monday, April 2, 2001 - 02:38 pm: Edit

Simple-handler is obsolete. It is Neal's first cut at how to deal with menu events. Ekey replaces it. The current on-line manual page about event handling describes Ekey but makes no mention of simple-handler.

In the manual library files page there is the following description of simple-handler:

> **Quote:**

> A menu handler used in the sample sources. No longer necessary, as menu events are now passed directly to the application via EKEY. The sample sources will soon be updated.

Thus, there is no guarantee that they work well together.

By **Michael Park** on Monday, April 2, 2001 - 04:24 pm: Edit

Thanks, Steve, that answers one question (or two, or three). But what about eventhandler and callbacks in general? Is that technique still used, and if so, why and how? Or is ekey all one needs?

By **Neal Bridges (Nbridges)** on Tuesday, April 3, 2001 - 12:29 am: Edit

EKEY is all you need. EKEY passes each event through all the various and sundry Palm OS routines, and then leaves the event type -- and the event in a buffer in memory -- for you to examine.

Under certain circumstances, you may need to enhance EKEY and intercept events before the Palm OS ever sees them; there's an active thread on that right now (discussing hard keys). But in the vast majority of cases, EKEY is all that's required.

simple-handler is in fact completely obsolete; it still works, but it was only early enabling code that is no longer necessary.

Neal

By **Steve Bohrer (Skb)** on Tuesday, April 3, 2001 - 12:32 am: Edit

Ekey is all you need unless you don't want all the default handling. (Here I agree with your earlier request for a high-level "outline" of what Ekey actually does in what order, so it is easier to know what all the default handling is.)

If you need more control than ekey allows, the next level is to call **EvtGetEvent** yourself, deal with some raw events, and then call **handleEvent**, which is the Quartus word that dispatches events, in the case when you do not handle the event yourself. (Again, it would be informative to have an outline of what handleEvent actually does).

As far as I know, Quartus does not make use of the event-handling-callback, as it appears that **showForm** does not install one. From this I infer that Neal does not ever call the OS trap **FrmDispatchEvent**, but instead calls **FrmHandleEvent** directly.

In any case, Neal's event code (and yours too, if you wish) tends to use a global Forth variable called **Event**, which is a pointer to an event structure.

Thus, after calling Ekey, you can access any of the relevant event data by looking at the proper offset past Event.

By **Steve Bohrer (Skb)** on Tuesday, April 3, 2001 - 02:09 am: Edit

showForm does install an event callback, but it is a different one than mainForm uses. Not that this really matters to any regular code, but I was incorrect above.

By **Ron Doerfler** on Tuesday, April 3, 2001 - 02:12 am: Edit

Hi Neal,

>simple-handler is in fact completely obsolete; it still works...

Can you let me know if it ever stops working? I still use it in my code for nostalgic reasons 8^).

Thanks,

Ron

By **Neal Bridges (Nbridges)** on Tuesday, April 3, 2001 - 10:39 am: Edit

Ron -- I'll keep it there just for you 🙂

Neal

By **Michael Park** on Tuesday, April 3, 2001 - 11:39 am: Edit

Steve wrote

> **Quote:**
>
> Here I agree with your earlier request for a high-level "outline" of what Ekey actually does in what order, so it is easier to know what all the default handling is.

I bet a lot of people would be interested. Neal, hows about it?

By **Neal Bridges (Nbridges)** on Tuesday, April 3, 2001 - 11:53 am: Edit

I can do this; I've added it to the queue. However, I don't know that it's going to be all that useful -- the circumstances in which you need to enhance EKEY involve doing something before EKEY processes the events; EKEY's job is just to pass the events through all the required Palm OS handlers.

Neal

Steve -- yes, from a within-the-kernel perspective, ShowForm installs a null form handler for each form; this is different from the handler MainForm installs, as that one handles the console menu functions as well.

Neal

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Handspring Visor, anyone?

By **Kit Latham** on Thursday, January 4, 2001 - 11:31 am: Edit

I just wondered if anyone had used the Springboard IRQ line in Q4th since I last asked. I am still interested in this and although we have a system working now using the dreaded CW I would still like a 4th version.

Cheers

Kit

By **Neal Bridges (Nbridges)** on Thursday, January 4, 2001 - 11:38 am: Edit

I don't know that anyone has, but there's no reason you can't.

Neal

By **Kit Latham** on Friday, January 5, 2001 - 02:55 am: Edit

The problem is that Handspring have provided a routine for installing an interrupt handler that assumes a C environment, if I could find out how to intercept the interrupt line in 4th then I would be happy to have a go. As far as I know the vectors are not published.

Any ideas?

Thanks

Kit

By **Kit Latham** on Friday, January 5, 2001 - 02:56 am: Edit

The problem is that Handspring have provided a routine for installing an interrupt handler that assumes a C environmnet, if I could find out how to intercept the interrupt line in 4th then I would be happy to have a go. As far as I know the vectors are not published.

Any ideas?

Thanks

Kit

By **Ki t Latham** on Friday, January 5, 2001 - 06:29 am: Edit

Sorry for the duplication, I ws probably still half asleep!!

Kit

By **Neal Bridges (Nbridges)** on Friday, January 5, 2001 - 12:06 pm: Edit

Use the same routine. To get the 32-bit address of a Forth function, use **xt>abs**.

Neal

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Has anyone used EncDigestMD5 and friends?

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Quartus Forth (Royal daVinci version)

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Welcome to Quartus Forth (Royal daVinci version), for questions, comments and discussion of the Royal daVinci version of the Quartus Forth on-board compiler.

You may enter any of the discussions below by clicking on the appropriate link. Or, to start a new discussion of your own, click on the "Create New Conversation" button.

Making a program which tirns the backlight on

By **Nicholas Penree (Penree)** on Saturday, April 21, 2001 - 05:49 pm:
Edit

Is there a way to make a program that turns the backlight on? If so what would it look like?
By the way, in my post "Keyboard" you said do this:

```
: L INCLUDE ;     (I did : x include ; for eXecute)
```

Can you have two for the same one like:

```
: x include ;
AND
: exe include ;
```

?

By **John Newell** on Wednesday, April 25, 2001 - 07:47 am: Edit

I use a Palm V so this may not work.

There is a library file as follows:

```
\ backlight 97.8.14 8:06 pm NAB

: backlight ( bool --)
  >byte  true  HwrBacklight drop ;

: backlight? ( -- bool)
  0 dup HwrBacklight ;
```

Two (or more) for the same call is no problem.

You can even:
```
: x include ;
: exe x ;
: execute exe ;
```

and execute, exe, x, and include all do the same thing.

John

Hi John -- that backlight code is Palm-specific, so on the daVinci it won't work -- there's no HwrBacklight call there. If you were hell-bent on controlling the daVinci backlight, you'd have to write directly to the LCD registers. My daVinci is in the Quartus Museum now, so I'm not in a good position to provide additional details.

Neal

Sorry I chipped in when I didn't know what I was talking about.

Oh not at all John -- your code is right on the money as regards the Palm.

Neal

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Keyboard

By **Nicholas Penree (Penree)** on Saturday, April 21, 2001 - 10:42 am:
Edit

I know you sais that you weren't going to develop dvForth anymore, bu I have 1 suggestion that if doen would be rally useful:
On the pop up keyboard when you hit the "ints" key you could put in words like "include" so you didnt have to type them in. Would this be hard?

By **Neal Bridges (Nbridges)** on Saturday, April 21, 2001 - 01:14 pm:
Edit

Here's a quick solution:

: L INCLUDE ;

Now you can use L instead of INCLUDE. Put this code in your startup memo, and you've got a one-key shortcut for the command.

Neal

Add a Message

Username:

Password:

E-mail:

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Full Version

By **Penree** on Monday, April 16, 2001 - 09:53 pm: Edit

I WAS WONDERING IF YOU EVEN HAD A FULL VERSION OF DVFORTH YET? IF YOU DO COULD YOU PLEASE RELEASE IT???

By **Penree** on Monday, April 16, 2001 - 09:54 pm: Edit

Also, how did you make the .app file without the sdk?

By **Neal Bridges (Nbridges)** on Monday, April 16, 2001 - 09:57 pm: Edit

Hi, Penree. I think we may have conversed in the past.

The 'full version' increases the amount of available codespace, but that's it. The Royal daVinci product was killed, and is dead as doorknobs, and I won't be developing the daVinci version of the product further.

Are you actively using Quartus daVinci Forth?

Your second question -- how did I make the .app without the SDK -- the answer: with great difficulty and a good deal of investigation.

Neal

By **Penree** on Tuesday, April 17, 2001 - 02:38 pm: Edit

Yes, I am still using dvForth, and I am trying to become a very diverse programmer. I am taking Java, C++, Perl, and I know BASIC, and I am trying to learn Fortran as of now. We have talked before when you first released dvForth. I posted here beacase, I was hoping you would just release the full version to the public. I know you wouldn't be making any money off of it, but I see it as a way to give developers hope to keep developing for the daVinci. Please send me the full verison if it is not too much trouble.

Also, making the .app was hard the first time, or will it be hard to make other programs the same way?

By **Neal Bridges (Nbridges)** on Tuesday, April 17, 2001 - 02:54 pm: Edit

Again, the only thing the full version offers is an expanded codespace; it doesn't let you create stand-alone .APPs. It never will. The sorry state of

the daVinci ROM routines made that virtually impossible, and even if I managed to force it to happen, the resulting .APP files wouldn't have been exported back to desktop by the pathetic excuse for a desktop manager.

So unless you've developed a large daVinci app and need more codespace, there's nothing of interest to you in the full version. I do not plan to release it, even informally; the daVinci offering attracted little interest even while the device was in production, and since that time you're one of perhaps three people who have made any sort of inquiry. To release the full version would imply some sort of continued support on my part, and that horse is extremely dead.

I have no interest in bringing new developers to the Royal daVinci handheld -- it's gone. Kaput. They aren't making them anymore, at least not the version that you could develop for. The new (post-lawsuit) device is a different processor, closed, undocumented, and there's no SDK. You can't even get your existing daVinci serviced or replaced when it dies, and they're poorly built and have a life expectancy measured in months.

Your desire to learn Forth is laudable; if you cannot get a Palm in order to use Quartus Forth, you might look into something like Win32Forth, or gForth, or SwiftForth on the desktop side.

Neal

By **Penree** on Wednesday, April 18, 2001 - 05:50 pm: Edit

I just wanted to get rid of the nag that pops up when you start dvForth!!!

By **Neal Bridges (Nbridges)** on Thursday, April 19, 2001 - 03:35 pm: Edit

That I can probably do, Penree. I'll add it to my list and get that out to you as soon as I can.

Neal

By **Penree** on Thursday, April 19, 2001 - 04:18 pm: Edit

Wow, thanks! That was really anoying!!!!

By **Nicholas Penree (Penree)** on Friday, April 20, 2001 - 03:39 pm: Edit

By the way, I don't know if I ever told you this but thank you very,very much for making dvForth. It has really sparked an interest in Forth and Proggramming. Also, thank you for helpong me out with my questions on dvForth even though the daVinci is as you put it "dead" (I know it is but I am in denial. Besides it works good for me.).

By **Neal Bridges (Nbridges)** on Saturday, April 21, 2001 - 01:16 pm:

Edit

Glad it's of use to you, Nicholas. I do recommend that you think about acquiring a Palm; it's a much more pleasant experience writing software for it.

Neal

By **Nicholas Penree (Penree)** on Saturday, April 21, 2001 - 01:46 pm:

Edit

I would buy a Palm, but they cost to much for me (I am only 15). I just bought a new computer so I am kinda broke. Do you really think a PDA would be a good next purchase? If so, what doo you recommend?

By **Neal Bridges (Nbridges)** on Saturday, April 21, 2001 - 02:06 pm:

Edit

The low-end Palm models are not terribly expensive. Throw a few bucks in a jar every week, and before you know it you'll have enough.

Neal

By **Kris Johnson (Kdj)** on Saturday, April 21, 2001 - 07:08 pm: Edit

Check out E-bay as well. Lots of people unload their older PDAs there.

-- Kris

By **Nicholas Penree (Penree)** on Saturday, April 21, 2001 - 07:14 pm:

Edit

Kris--
I really wouldn't fell comfortale buying a used PDA, its like buying used underwear!

By **Kris Johnson (Kdj)** on Sunday, April 22, 2001 - 01:17 pm: Edit

That makes me wonder what you're doing with your PDA. 🙂

-- Kris

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Help with dvforth

By **Traber** on Sunday, February 18, 2001 - 06:56 pm: Edit

I am just starting in the forth enviroment is there any good sample programs that would help me learn the basic commands. Thanks.

By **Neal Bridges (Nbridges)** on Sunday, February 18, 2001 - 06:58 pm: Edit

Is it the daVinci version that you're using? (I know you've posted in that section, but it gets so little traffic I thought I'd confirm.)

There is some sample code that ships with Quartus daVinci Forth; that's a starting-point. You'll also want to have the ANSI/ISO Forth Standard on hand as reference.

Neal

By **Traber** on Sunday, February 18, 2001 - 08:00 pm: Edit

Yes, it is the Davinci version. I downloaded the trial version from this site. Where would I find the ANSI/ISO forth standard. Also is it possible to save changes to the forth dictionary with the trial version.
Thanks again.

By **Neal Bridges (Nbridges)** on Sunday, February 18, 2001 - 08:06 pm: Edit

Grab the Standard from the link on this page:

http://www.quartus.net/products/forth/manual/online.htm

No version allows saving of the dictionary. Instead, a 'startup' memo is provided that allows you to add in whatever you need at startup.

However, there is only the trial version for the daVinci -- I never released the full version. The device it runs on (the first generation Royal daVinci) is off the market, and the new devices run a completely different and incompatible processor and ROM for which no SDK was (nor ever will be) released.

Neal

By **Traber** on Sunday, February 18, 2001 - 08:40 pm: Edit

Ok, I got the standard but I cant find the startup memo do I have to create it. I have the old 2mb davinci.

By **Neal Bridges (Nbridges)** on Sunday, February 18, 2001 - 08:49 pm: Edit

You will have to create it, yes. Have a look at the manual that comes with Quartus daVinci Forth.

Neal

By **Traber** on Monday, February 19, 2001 - 08:42 am: Edit

Ok, the startup file is created. Is there any way to make an APP with forth. Or do you have to get the SDK. Also, do you know the definition for COPY. Thanks for your help

Traber

By **Neal Bridges (Nbridges)** on Monday, February 19, 2001 - 10:36 am: Edit

Quartus daVinci Forth doesn't provide any facility for creating a stand-alone app. Royal lost a lawsuit and cancelled the daVinci product before I reached that stage.

COPY isn't a Standard word -- can you elaborate?

Neal

By **Traber** on Monday, February 19, 2001 - 11:42 am: Edit

I really dont know anything about it. It is in the definition for Pick. : pick (xu ... x0 u -- xu ... x0 xu) Copy xu to TOS ; When I try to run a program with pick in it it says "undefined word" it does the same with RND.

Traber

By **Neal Bridges (Nbridges)** on Monday, February 19, 2001 - 11:47 am: Edit

There's a random-number implementation in the ran4 library.

As per the manual, PICK and ROLL are not implemented in Quartus daVinci Forth. As I say, Royal pulled out the rug from under us, so I halted development with what was already in-kernel.

If you're desperate for them, they can be cobbled together using the assembler, but in truth you should avoid using them. They are the opposite of good Forth.

Neal

Ok, the reason I need RND is to define RANDOM so I can define CHOOSE. This is the Code, It probably doesnt work because I cant test it without the definition for RND. I cut it from the game sticks.

```
\ coin toss
: coin ( 23 -- n )
2 choose
CR ." A coin has been flipped: "
IF ." Heads."
ELSE ." Tails."
Then ;
```

Ok, the reason I need the definition for RND is so I can define RANDOM, so I can define CHOOSE.
Here is the code it is cut from the game sticks. If there is no way to create a .APP is it possible to create a .PRC and port it. If so how would I do it.
Thanks allot for your help I am completly clueless in the programing world.

```
\ coin toss
: coin ( 23 -- n )
2 choose
CR ." A coin has been flipped: "
IF ." Heads."
ELSE ." Tails."
Then ;
```

Sorry I posted 2 messages. The other one did not seem to come through.

Traber

As I mentioned, ran4.txt has a random-number generator in it.

```
needs ran4

ran4 . .
```

Each call to **ran4** returns two 32-bit random numbers.

Neal

Will ran4 return text data. such as heads, tails.
Would I replace RND with RAN4.

Traber

ran4 returns two 32-bit binary pseudo-random numbers on the stack.
That's it. You'd need to process it to make a coin flip. Here's one way:

```
needs ran4

: coin ( -- )
  ran4 drop 1 and
  CR ." A coin has been flipped: "
  IF ." Heads."
  ELSE ." Tails."
  THEN ;
```

Neal

Alright I think I got it one more thing when I go to forth and put in include
coin it just says "include coin ok"

Traber

Right. You've successfully compiled the code.

Now type

coin <enter>

Neal

It works! Thanks for helping me through this. But I still have one more question. That is if you don't mind. Is there any way simple or complicated to create an .APP inside or outside of forth.

Traber

No problem, Traber. Glad it's working.

If you want to create an .APP -- that is, a binary executable you can distribute to the other 8 people on the planet who still have a working first-model daVinci -- you'll need to use the C-based SDK that's still available here and there on the web. It's a clumsy port of GCC that is barely adequate to the task of creating daVinci apps.

If you dig, you'll find sample source here and there which might also help. Good luck!

Neal

I think theres only about 5 people who havent destroyed there davinci. Would I have to reprogram it in C? And do you know of any sites that have the SDK for download?

Thanks again

Traber

Let me add -- I didn't use that GCC-based SDK to make Quartus daVinci Forth; it didn't exist yet at the time. Instead, I created my own private toolchain around an existing assembler. There's always more than one way to get there.

Neal

By **Neal Bridges (Nbridges)** on Monday, February 19, 2001 - 02:17 pm: Edit

I'm not sure what you mean by "reprogram". If you want to create stand-alone binaries, you'd need to write your app in C at this point, yes.

I just did a quick search for the GCC-based SDK. It isn't visible anywhere right off the bat; this doesn't surprise me. http://www.davinciworld.com is still there, though, so you might ask in the discussion forum there.

The daVinci is fraught with difficulties. The ROM is full of bugs, the hardware is unreliable, it's completely unsupported, and it's gonna break on you in the next couple of months with no hope of warranty repair or replacement.

If you really want to create handheld apps, do yourself a favour -- give the daVinci to a young child to play with, and buy a Palm. You'll never look back.

Neal

By **Traber** on Monday, February 19, 2001 - 02:31 pm: Edit

I downloaded the SDK and there is no .exe Is it the SDK or the GCC that I need.

By **Neal Bridges (Nbridges)** on Monday, February 19, 2001 - 02:35 pm: Edit

I don't know what you've got your hands on there, Traber, but the SDK I'm referring to was a port of GCC, executables and all.

You can't just grab any old copy of GCC. You need one that has been specifically created to compile code for the daVinci.

Neal

By **Traber** on Monday, February 19, 2001 - 04:45 pm: Edit

I got the dvgcc from home.wanadoo.nl/~jsinnema/davinci.htm
But I cant get it to make an .APP with my code it says "*** No rule to make target 'makefile'. stop"
Do you know what the problem is? Does the source have to be in any certain format?

Traber

By **Neal Bridges (Nbridges)** on Monday, February 19, 2001 - 04:51 pm: Edit

C is a whole different ballgame; makefiles, header files, dependencies, libraries, separate compile and link steps, compiler directives, etc.

I'm not in a good position to provide support for C here. If the developer's discussion forum at www.davinciworld.com is still active, that'd be your best bet.

Neal

By **Traber** on Monday, February 19, 2001 - 04:56 pm: Edit

is there any way, other than creating an .APP, to start the program, only on the davinci, without having to type in all the stuff at the forth program?

Traber

By **Neal Bridges (Nbridges)** on Monday, February 19, 2001 - 04:58 pm: Edit

Yes, there is. You can put

include coin
coin

into your 'startup' memo. Then, when you start Quartus Forth, your code will run.

Neal

By **Traber** on Monday, February 19, 2001 - 07:12 pm: Edit

Is there a way to allow user input? how would this be done?

Traber

By **Neal Bridges (Nbridges)** on Monday, February 19, 2001 - 07:17 pm: Edit

Depends on the type of input. You can detect taps on the screen, or accept strings of text using the Standard word **ACCEPT**.

Neal

By **Traber** on Monday, February 19, 2001 - 07:21 pm: Edit

Where can I find more info about accept and input strings?

ACCEPT is defined in the Standard. Here's a quick example:

```
create mybuffer 20 allot

: demo
  mybuffer dup 20 accept
  cr
  ." You entered: "
  type ;
```

Neal

What if, when a certain input is recieved I want it to do on thing. And if any other input to do another thing.

Traber

Then, as with all programming, you need to compare the input to various possibilities, and take action depending on which one you receive.

Have you done any programming in the past in any other language?

Neal

A very small amount in BASIC. I never really wanted to program before.

Traber

Well, starting from zero, you can learn to program by starting only with a discontinued second-rate PDA, but you might find it a bit more difficult that way.

Neal

By **Traber** on Monday, February 19, 2001 - 09:33 pm: Edit

I can see why. I havnt had any problems with the davinci except the lack of software, and since its all I can aford, it gets the job done (most of the time). I have a freind who can program C and will probably give the forth source to him so he can convert it to make the .APP . The main problem that I have run into with forth is all the tutorials are for palm, and the full version of forth, which I dont have since its not available.

Traber

By **Neal Bridges (Nbridges)** on Monday, February 19, 2001 - 09:40 pm: Edit

Porting Palm apps to the daVinci is an ambitious goal, but in my opinion, a waste of time.

The first-model daVinci has absolutely no future; it has been discontinued and won't come back to life. Beyond that, the daVinci GUI interface ROM routines are buggy, poorly documented, and don't match one-to-one with the ones on the Palm; porting software will not be a simple or fun task.

For all that, the Quartus daVinci Forth is not at all bad as Forths go; I'm quite pleased with it, really. It was a real accomplishment, given the shabby state of the daVinci ROM and the amazingly poor documentation available.

Neal

By **Neal Bridges (Nbridges)** on Monday, February 19, 2001 - 09:43 pm: Edit

By the by, in terms of cost, Palms can be quite cheap. Check out this page -- Palm III, $99 US for a better machine in every way than the daVinci.

Neal

By **Traber** on Monday, February 19, 2001 - 09:45 pm: Edit

I don't know much about the enternals of the davinci but I do agree that forth for the dv is very nice. I just have to figure it out. I would get a palm but the only one in my price range is the mp100 and I havnt heard much about it.

Traber

By **Neal Bridges (Nbridges)** on Monday, February 19, 2001 - 09:49 pm: Edit

The m100, you mean? The specs are [here](). It's a nice little unit for the price. I recommend it. It has 2MB of RAM, and runs Palm OS 3.5, so it'll run Quartus Forth (and other Palm software) without any trouble.

Neal

Hi Neal,

I notice above that you suggest using the ran4 library - I cannot find it in the files area, so would you please point me in the right direction.

Mark

ran4.txt is a random number module that ships with daVinci Forth. That version is 32-bit; I'll have to make a 16-bit version available for Quartus Forth for the Palm.

Neal

I found a program that lets you use certain BASIC commands. you load into the memo of your palm or davinci but its to big for the memo section. is there any way to make it fit

Traber

Are you referring to the one in the File Area here at quartus.net? It provides LET, INPUT, and PRINT (and also REM and CLS). I've never tried it on the daVinci, but it will likely work.

To make it fit, because of the 1K-per-memo limit in the daVinci's slim excuse for a MemoPad app, you'd have to carefully subdivide it into chunks of < 1K each, making sure that each file ends *between* definitions, and not in the middle of a definition.

I had to do this with the asm68k assembler; have a look at that to see how it's done.

Neal

By **Traber** on Tuesday, February 20, 2001 - 05:46 pm:

I made a C source file and I cant get it to make the .APP . I have the makefile document whatever that does and the source in the same directory. When I tell it "dvmake" it says "*** No rule to make target 'makefile'. Stop. "
Do you know what the problem is.

Traber

By **Neal Bridges (Nbridges)** on Tuesday, February 20, 2001 - 06:23 pm:

I don't support C here, Traber. Try the developers' discussion forum at http://www.davinciworld.com.

Neal

By **Gus Calabrese** on Monday, February 26, 2001 - 06:55 pm:

Hi Neal

I have been away for a while. Is it true that the DaVinci is no longer a product ? I had heard rumors that DaVinci would be coming out as a Linux based product. Have you heard anything ?

Gus S Calabrese

By **Neal Bridges (Nbridges)** on Monday, February 26, 2001 - 06:57 pm:

The original daVinci with the DragonBall processor is certainly no longer available. Its successor, with a Sharp processor, may still be around.

I heard something about their plans for a Linux-based device, but I'll be frankly astonished if they ever manage to produce a viable product.

Neal

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Downloading applications onto a davinci

By **phantom** on Monday, January 15, 2001 - 08:47 pm: Edit

how do I download an application onto my Davinci?

By **Neal Bridges (Nbridges)** on Monday, January 15, 2001 - 08:56 pm: Edit

That depends entirely upon what kind of daVinci you have. If it's an old, original issue one, or the next 2MB model, you're in luck -- it's got a DragonBall processor, and some software was written for it (including Quartus daVinci Forth). The desktop software has an Install option on the menu.

If it's one of the newer models, after they lost the lawsuit Palm brought against Royal and switched to some random Sharp processor, you're out of luck -- there's no software for it, no software development kit, and no install option anywhere.

Neal

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- [EBookMan Quartus Forth](#) 3/6 10:08am [5]
- [Benchmark 2.0 now available!](#) 5/10 07:24pm [11]
- [Testers needed for new Benchmark app](#) 6/26 10:53pm [4]
- [LeftHack and ClearHack](#) 6/27 05:05pm [7]

Welcome to Other Quartus Products, for questions, comments and discussion of all non-Forth [Quartus](#) software products.

You may enter any of the discussions below by clicking on the appropriate link. Or, to start a new discussion of your own, click on the "Create New Conversation" button.

Benchmark 2.0 and the m500/m505

By **Neal Bridges (Nbridges)** on Tuesday, May 8, 2001 - 11:53 am: Edit

I've had a number of questions come in re Benchmark 2.0 and the new m500/m505. It seems these devices are slower than users expect, so they question Benchmark's function.

I don't have an m505 yet -- coming soon -- but unless Palm has done something seriously strange, Benchmark should be working fine.

Benchmark gauges the bus bandwidth capacity of the device, by stressing the RAM and CPU. Factors affecting that measurement are the CPU speed, the RAM speed, and other loads on the bus such as the LCD panel.

Neal

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EBookMan Quartus Forth

By **Daniel Albert** on Monday, January 29, 2001 - 02:47 pm: Edit

My last Forth port was from an 8088 to an LSI-11.
It's been a while but I feel like supporting the Franklin EBookMan.
Anybody else doing the same? dan@alberts-equation.net

By **Neal Bridges (Nbridges)** on Monday, January 29, 2001 - 02:50 pm:
Edit

What processor does that device use?

Neal

By **Mike Will** on Monday, March 5, 2001 - 04:21 pm: Edit

I had a look at:
www.franklin.com/devzone

It's an interesting device, but you have to dig for hardware/programming info. Although, I must say, from the developer forum discussions, it does seem that Franklin is open to the idea of 3rd-party development

A cursory description of the processor:

24-MHz 32-bit RISC CPU (Franklin proprietary ASIC) - significantly faster than comparable handhelds. The documentation contains a hardware section, which details the SNK32 processor.

Now, if I was designing a processor, I wouldn't call it "SNK", but that's just me…

Mike

By **Neal Bridges (Nbridges)** on Monday, March 5, 2001 - 04:27 pm: Edit

An ASIC? Odd. I wonder how fast it actually performs, and what they optimized for.

Neal

By **Mike Will** on Tuesday, March 6, 2001 - 10:08 am: Edit

Yeah, I found that kinda weird too. That whole ASIC market is really hot right now. Two of the main camps are Canada (XENTEC Mississauga, GOAL Montréal) and the boys in Oak Ridge TN. I wonder where Franklin had the chip made? Also, some people consider a 6805 that has two timers instead of one to be an ASIC, so it's hard to know. I do think I'll pick up an eBook, though, it looks pretty usable.

Mike

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Benchmark 2.0 now available!

By **Walter F. Rodriguez** on Thursday, March 15, 2001 - 09:53 pm: Edit

My new Visor Edge is Benching 244% right out of the box. I don't understand why since it has the same processor as the Platinum that Benches 204%

By **Neal Bridges (Nbridges)** on Thursday, March 15, 2001 - 09:55 pm: Edit

The processor speed is not the only deciding factor -- the speed of the memory and of the LCD panel play a role.

Neal

By **Vaughn Wine (Vwine)** on Friday, March 16, 2001 - 12:58 am: Edit

Walter. Can you give us your initial impressions of the Edge? Do you like it? Better than what you had before? Any immediately obvious drawbacks?

Vaughn

By **Ian** on Thursday, May 3, 2001 - 07:52 am: Edit

I just got an m505 and it is only benchmarking 138%. this increases to 215%with afterburner hack overclocking to 45Mhz. Anyone else have the same experience? I guess the screen really slows down the processing speed? My prism runs at 206%.

By **Neal Bridges (Nbridges)** on Thursday, May 3, 2001 - 10:41 am: Edit

The colour screen will certainly eat more bandwidth.

Neal

By **Neal Bridges (Nbridges)** on Thursday, May 10, 2001 - 02:45 pm: Edit

FYI, the m505 that's now in the Quartus Lab benches consistently and without fail at 155% (the Palm IIIxe is 100%). Benchmark is working fine. My best guess as to the lower performance of this device relative to others is that the LCD screen takes a bigger hit; at some juncture I'll experiment with switching it off and re-benching.

Neal

By **Mike Will** on Thursday, May 10, 2001 - 03:29 pm: Edit

Might it be possible to programmatically switch off the screen, compile/interpret a long Quartus app, then switch back it on? (thus allowing us to have our proverbial cake and ingest it too?)

I'm sitting squarely on the 500/505 fence and need a nudge.

Mike

By **Neal Bridges (Nbridges)** on Thursday, May 10, 2001 - 03:32 pm: Edit

Same thought occurred to me -- a FAST/SLOW mode a la the old ZX81.

Does anyone know what hardware register controls the panel on/off on the m505?

Neal

By **Mike Will** on Thursday, May 10, 2001 - 05:43 pm: Edit

Can't find anything so far. I do know that the controller is the EPSON S1D13706, developed in Vancouver.

By the way, speaking of brilliant Canadian technology, did you guys know this? The simulator for NASA's robot arm was written in -- wait for it -- Forth! I wonder how much Forth the Alpha station is carrying.

Mike

By **Neal Bridges (Nbridges)** on Thursday, May 10, 2001 - 05:45 pm: Edit

http://forth.gsfc.nasa.gov/

Neal

By **Mike Will** on Thursday, May 10, 2001 - 07:24 pm: Edit

Wow.

Now we know what happens when engineers need a language for *really* mission-critical stuff. Nobody wants their spacecraft to depend on the Microsoft Foundation Classes (or the horror that lies even deeper) 🙂

Mike

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Testers needed for new Benchmark app

By **John Hale** on Friday, June 15, 2001 - 11:02 am: Edit

Benchmark 2.0 Results for Handera 330:

Stock unit = 244%

By **Neal Bridges (Nbridges)** on Friday, June 15, 2001 - 01:32 pm: Edit

A respectable score!

Neal

By **Richard Allen** on Wednesday, June 20, 2001 - 03:24 pm: Edit

Benchmark 2.0
Here are some more results:

Palm IIIe - Stock unit = 100%
TRG Pro - Stock unit = 148%
Handera 330 - Stock unit = 244%

By **Larry Miller** on Tuesday, June 26, 2001 - 10:53 pm: Edit

IIIex Benchmark Tests

Hacks Disabled
Cruise Control – Slow
FastCPU - Disabled 99%

Hacks Disabled
Cruise Control – FastFast
CPU - Disabled 148%

Hacks Disabled
Cruise Control – SlowFast
CPU – 20MHz 183%

Hacks Disabled
Cruise Control – Slow
FastCPU – 32MHz 261%

Hacks Disabled

Cruise Control – Fast
FastCPU – 20MHz 185%

Hacks Disabled
Cruise Control – Fast
FastCPU – 32MHz 261%

Hacks Enabled
Cruise Control Fast
FastCPU – 20MHz 185%

Hacks Enabled
Cruise Control Fast
FastCPU – 26MHz 241%

Hacks Enabled
Cruise Control Fast
FastCPU – 32MHz 261%

For what it is worth.

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LeftHack and ClearHack

By **Robert Priest** on Monday, February 26, 2001 - 03:44 pm: Edit

I'm trying LeftHack 3.0 on my Visor Platinum (Palm OS 3.5.2H1). When I run LeftHack and use DateBook+ I see strange behavior. If I have an event or to-do on the top line and at least one other item somewhere on the same page, the top half of the top item does not display (it clips the text from top to bottom). If I have no events other than the top line, it is fine. I originally thought this to be a Handspring problem, but when I disabled LeftHack, it no longer did this. Help!

Bob

By **Neal Bridges (Nbridges)** on Monday, February 26, 2001 - 03:47 pm: Edit

I've seen that, Bob. I'm not entirely certain of the cause, but it's something I'd like to fix.

Neal

By **David Weger** on Thursday, March 22, 2001 - 12:44 pm: Edit

I can't get LeftHack to function on my PalmIIIxe. I downloaded the demo but nothing changes. I can only find LeftHack on my delete menue, is it suppose to appear on any screens.

By **JOhn Newell** on Thursday, March 22, 2001 - 12:51 pm: Edit

You do have HackMaster and have installed the two hacks. Yes?

John

By **D Payan** on Thursday, May 24, 2001 - 01:47 pm: Edit

Hi

Is ClearHack compatible with the new Palm OS 4 which comes with the Palm 505m?

Daniel

It is indeed. I'm running it on an m505 as we speak.

Neal

Neal,

I have found LeftHack to be very useful since I registered it last fall. However, I have recently discovered that it does not function properly with the Eudora mail and web programs. I suspect that you are already aware of this and am curious to know if anything can be done about the problem.

Clint Pulley

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