Subject: Re: Memory Headache II
Posted by K. Bowman on Fri, 30 Jan 2004 22:00:06 GMT
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In article <300120041306434820%spam@me.and.die>,
David <spam@me.and.die> wrote:

> IDL's 32 bit implementation is supposed to be capable of 2 GB arrays.
> When I attempt to grab more than 2 GB using the new_ptr function I get
> the expected malloc errors. However, I find I get these errors even if
> I try to grab something like 1.6 or 1.7 GB; a value too far off to be
> attributable to whether a GB is 10^9 bytes or 2^30 bytes. Is there some
> unseen overhead at issue here? (I have experimented in detail to find
> out to the byte how far I can go, but do not have that info handy.)
>
> Another oddity occurs when I try to
>
> a=fltarr(1024,1024,1024,/noz)

Well, that is actually a 4 GB array. Who would have thought the error message might be misleading? (I'm starting to sound like David.)

> Instead of the stream of malloc errors, I get something to the effect
> of "this array has too many elements" . Is there an element limit
> too? When I try
>
> a=bytarr(1024,1024,1024,/noz) the memory is allocated w/o a hitch.

That would be only 1 GB.

> 3) Does anyone have a finger in the wind as to when a full 64-bit
> implementation of IDL might be available for *nix distributions?

As you have discovered, although G5's are 64-bit chips, OS X is not really a 64-bit OS yet. I would guess that will happen next Fall(?), when 10.4 will probably be released.

RSI has a surprisingly straightforward page about platform support that addresses 64-bitness on various platforms.

http://www.rsinc.com/services/techtip.asp?ttid=3635&wid= 4240&s=1497

At present, only 'real workstation' Unixes (HP, IBM, Sun, SGI, Dec/Compaq) have 64-bit versions of IDL.

I hope RSI doesn't mind the quote:

When Will RSI Support 64-Bit IDL and ENVI For The G5 Mac?

RSI expects to support 64-bit IDL and ENVI for the G5 in due time, but this will not happen immediately. In the meantime, we believe 32-bit IDL will run very well on the new G5 hardware.

Apple has released the G5 hardware, which has a 64-bit architecture, but several pieces still need to come together on the software side: the OS, compilers, system libraries, etc. While there is plenty of hype out there to confuse the issue, Mac OS X 10.3 (Panther) is still not a fully 64-bit operating system. Sources at Apple confirm that Panther does not allow for 64-bit pointers in applications. This means that it is not yet possible to compile IDL as a 64-bit application for the G5. This is entirely understandable so soon after the G5 release. Those of you familiar with other systems that made this transition (HP, SGI, Sun, IBM) will recall that those systems first released 64-bit hardware, followed by several releases of the OS before complete 64-bit support was achieved. We expect Apple to follow a similar course.

Certainly Panther offers a few of the advantages of a 64-bit system. For instance, each 32-bit application can separately use up to 2GB of memory, whereas on 32-bit hardware there is 2GB of memory available for all applications to share at any one time. This is a significant

RSI currently plans to support a 64-bit version of IDL and ENVI for the Mac when it makes sense to do so. For the IDL 6.1 release, RSI will test IDL on the G5 under Panther as a 32-bit application. ENVI 4.1, scheduled for release after IDL 6.1, will follow suit.
