
Subject: Re: Runtime error woes

Posted by [Craig Markwardt](#) on Mon, 30 Jul 2007 08:06:48 GMT

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mort canty <m.canty@fz-juelich.de> writes:

> I mentioned this one before, but I'm really hung up on it, so I'll try
> again:
>
> Running a rather long program on my desktop PC under Windows XP, IDL
> 6.3 with !EXCEPT=2 I get the following messages:
>
> Program caused arithmetic error: Floating illegal operand
> Detected at FFN::COST 160 D:\ldl\projects\supervised\ffn__define.pro
> Program caused arithmetic error: Floating illegal operand
> Detected at FFN::COST 162 D:\ldl\projects\supervised\ffn__define.pro
> Program caused arithmetic error: Floating illegal operand
> Detected at FFN::COST 164 D:\ldl\projects\supervised\ffn__define.pro
> Program caused arithmetic error: Floating illegal operand
> Detected at FFNKAL::TRAIN 112
> D:\ldl\projects\supervised\ffnkal__define.pro
> Program caused arithmetic error: Floating illegal operand
> ...
> ...

It sounds like it's time to put some HELP debugging statements around
line 160 of ffn__define.pro

> This goes on for a while and then the program crashes. I cannot for
> the life of me find any errors in the code at the lines indicated
> that could cause this. In fact, I don't believe there are any, because
> what's driving me nuts is this: On my laptop, exact same program,
> exact same OS, exact same IDL, still with !EXCEPT=2, I get no runtime
> error messages whatsoever and the program completes successfully.

The obvious question, since you didn't mention it: is the data set
exactly the same?

Craig

Subject: Re: Runtime error woes

Posted by [Mort Canty](#) on Mon, 30 Jul 2007 08:44:00 GMT

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Craig Markwardt schrieb:

> mort canty <m.canty@fz-juelich.de> writes:
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>> exact same OS, exact same IDL, still with !EXCEPT=2, I get no runtime
>> error messages whatsoever and the program completes successfully.
>
> The obvious question, since you didn't mention it: is the data set
> exactly the same?
>
> Craig

Hi Craig. Quite right of you to ask, but yes, the data sets are identical on both systems. I've been setting breakpoints strategically in the code so that the program will interrupt when an array has a non-finite element, a la IF MIN(FINITE(VAR) EQ 0 ... I find that, on the desktop computer, NaNs are appearing which then propagate through the calculation and bring it to its knees. On the laptop the breakpoints are not triggered and everything is fine. Can this maybe be caused by an incorrect use of pointers, which happens to be innocuous in one memory configuration and disastrous in the other? Or does IDL's heap implementation exclude such things?

Mort

Subject: Re: Runtime error woes

Posted by [James Kuyper](#) on Mon, 30 Jul 2007 11:17:40 GMT

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mort canty wrote:

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- > life of me find any errors in the code at the lines indicated that
- > could cause this. In fact, I don't believe there are any, because what's

The key question is what precisely happens on the lines from which those messages are generated? I'd recommend inserting debugging print statements just before line 160, printing out the value of every variable whose value could affect the behaviour of that line of code. Depending upon the nature of your program, that might involve an awful lot of output, so you might need to dump it to a file. It's a brute force method, but I've found it useful when more efficient methods don't work.

- > driving me nuts is this: On my laptop, exact same program, exact same
- > OS, exact same IDL, still with !EXCEPT=2, I get no runtime error
- > messages whatsoever and the program completes successfully.

Is the underlying hardware the same? If a different kind of chip is handling the floating point math on your desktop than is handling it on your laptop, that could be the source of the differences. It could be as minor as a tiny difference in the accuracy with which certain operations are performed, with that tiny difference being magnified into an error condition by poorly written code - or it could be an outright error in the FP implementation on one of the chips.

It's much easier to diagnose such problems, when you know which particular values the variables have at the time the arithmetic error message is generated.

Subject: Re: Runtime error woes
Posted by [Mort Canty](#) on Mon, 30 Jul 2007 12:54:19 GMT
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kuyper schrieb:

>
> Is the underlying hardware the same? If a different kind of chip is
> handling the floating point math on your desktop than is handling it
> on your laptop, that could be the source of the differences. If could
> as minor as a tiny difference in the accuracy with which certain
> operations are performed, with that tiny difference being magnified
> into a error condition by poorly written code - or it could be an
> outright error in the FP implementation on one of the chips.
>

That sounds plausible. Desktop is an Acer model with Pentium 4, laptop is an Asus with Centrino Duo. No idea if they handle floating point math differently.

> It's much easier to diagnose such problems, when you know which
> particular values the variables have at the time the arithmetic error
> message is generated.
>

I'll try your suggestion to dump the variable values. Thanks for your help.

Mort

Subject: Re: Runtime error woes
Posted by [Jean H.](#) on Mon, 30 Jul 2007 16:29:14 GMT
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> I ran an intensive memory check on the desktop and got no errors. Can
> anyone tell me what might cause such behavior?
>
> Thanks
>
> Mort

Hi Mort,

Just in case....

I found that some memory testing programs does not work that well... some running under windows will find no error while memTest86, ran at the startup of the computer, would find millions of errors... so if you haven't used this (free) one, give it a try!

Jean

Subject: Re: Runtime error woes

Posted by [Mort Canty](#) on Mon, 30 Jul 2007 17:39:12 GMT

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Jean H. schrieb:

>> I ran an intensive memory check on the desktop and got no errors. Can

>> anyone tell me what might cause such behavior?

>>

>> Thanks

>>

>> Mort

>

> Hi Mort,

>

> Just in case....

> I found that some memory testing programs does not work that well...

> some running under windows will find no error while memTest86, ran at

> the startup of the computer, would find millions of errors... so if you

> haven't used this (free) one, give it a try!

>

> Jean

>

Thanks Jean. I just downloaded it and will try it out.

Mort
