Subject: Re: Ug...Floating Illegal Operand...leave me alone!
Posted by Jeff Guerber on Wed, 18 Jul 2001 02:03:30 GMT
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Matt,

It sounds to me like some data in your 73rd dataset is likely producing a situation where both (b*c) and d are 0.0 (or rather, some elements of b*c and d, since you imply they're arrays). They would not necessarily be 0.0 in the input dataset -- if b, c, and d are themselves the result of calculations, you could get zeros due to eg. underflows, in which the result of a calculation is so small that the computer has to set it to zero (for example, 1.e-30 * 1.e-30).

Try printing out b*c and d before you do the division, and look for zeros. (I don't think there's a way to make IDL halt at the time the error occurs, as it does with other errors.) Also, try printing out a and looking for the value "NaN" (a floating-point "Not-a-Number", which is the result of 0./0.) Once variable (or array element) becomes a NaN, the NaN just propagates through any further calculations that the variable takes part in, eventually showing up on the output. (That's one of the really nice things about IEEE arithmetic -- you can tell which results are illegitimate.) Hope this helps,

Jeff Guerber
Raytheon ITSS / NASA GSFC code 971
(but I don't speak for either one)

On 17 Jul 2001, Matt wrote:

> Hey everyone,
>
> I'm rather new to the world of IDL...so bear with me. I've been
> attempting to debug a program all afternoon...but the damn "Program
> caused an arithmetic error: Floating illegal operand" message won't go
> away no matter what I do. I've narrowed the problem down to an
> expression in the following form:
> a=a+((b*c)/d) where all the variables are of DOUBLE precision. They
> were originally FLOAT but I changed them all and thought it may have
> been the problem, but apparently it wasn't.
>
> A little more detail on the program: I'm working through about 73
> datasets using a for loop. The expression above is embedded in an
> additional for loop so as to perform some manipulations ((b*c)/d) on
> arrays and sum all these manipulations into 'a.' The interesting
> thing is, I can run 1, 10, or even 72 datasets and not get the
> "floating illegal operand" error. Only when I run all 73 datasets at
> once do I recieve the message when the program is complete. I'm

> getting results as well...I just question whether or not they're right
> because of the arithmetic error.
>
> I'm not sure if the Check_math function would help out here or not. I
> tried using it earlier but I couldn't actually figure out how to use
> it properly. Can anyone help me out here at all? Either helping me
> diagnose this or helping me figure out how to use the check_math
> function? I'm really stumped and extremely frustrated. Thanks.
>
> Matt
> randomguy79@yahoo.com
