Subject: Re: CALL_EXTERNAL under OpenVMS Alpha (IDL 4.0.1)
Posted by Georg Kettmann on Thu, 26 Oct 1995 07:00:00 GMT
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"Thomas W. Fredian" <twf@pfc.mit.edu> wrote:
> Georg Kettmann wrote:
>>
>> Hello,
>>
>> after migrating to IDL 4.0.1 I've encountered a problem I haven't had with IDL
>> 3.6.1. Apparently it is no longer possible to CALL_EXTERNAL routines that
>> return float or double values. IDL complains about the /D_VAL keyword
>> (although I couldn't find it in the help text):
>>
>> IDL> print, call_external ('dfloat_shr', 'msf_time', hdr, /d_val)
>> % CALL_EXTERNAL: Float or double result not possible under ALPHA/VMS
>>
>> Is there anyout out there who knows a solution without adding a new module
>> to my FORTRAN library?
>>
>> Georg.
>
> This is the result of the procedure calling standard used on the Alpha architecture.
> Floating point values (both single and double precision) are passed in floating
> point registers (Fn) and the type of the arguments and return value must be known at
> compile time. Using generic call procedures like lib$callg cannot work with
> floating point arguments and return values passed by value. This is why RSI disabled
> this option in call_external. I believe RSI is investigating some mechanisms for
> relaxing this restriction somewhat.
>
> By the way, you mention that you didn't have this problem with IDL 3.6.1. The only
> way I know that this would have worked is if you were calling an image that was
> created by translating a VAX/VMS image using VEST. Vested images still return
> floating point values in register R0. If you called a native Alpha image with IDL
> 3.6.1 you probably would have got back a random floating point number constructed
> out of whatever happened to be left over in R0.
>
> -tom fredian
> MIT Plasma Fusion Center
> twf@pfc.mit.edu

It definitely worked with IDL 3.6.1, it did return proper results, not random
numbers, and it is a native OpenVMS image, not a VESTed one.

It is not a big deal to add a new module to my own library. But what if this
was an unsupported image from a foreign source?

BTW, I didn't find a hint on this behavior in the documentation but I believe

it should be there. Or did I simply overlook it?

Georg.

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