Subject: Re: gcc and call_external on solaris ?
Posted by roughan on Fri, 24 Feb 1995 00:06:04 GMT
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In article <3id6r7$8gr@hammer.msfc.nasa.gov>, chaganti@ssl.msfc.nasa.gov writes:
Path: vail.levels.unisa.edu.au!fang.dsto.gov.au!yoyo.aarnet.edu.au
!harbinger.cc.monash.edu.au!msunews!agate!howland.reston.ans
.net!news.moneng.mei.com!uwm.edu!news.alpha.net!news.mathwor
ks.com!news.duke.edu!convex!bcm!news.msfc.nasa.gov!sslmor.ms fc.nasa.gov!not-for-mail
From: chaganti@ssl.msfc.nasa.gov
Newsgroups: comp.lang.idl-pvwave
Subject: gcc and call_external on solaris ?
Date: Wed, 22 Feb 95 03:41:03 GMT-9:30
Organization: Space Science Lab, Marshall Space Flight Center, Huntsville, Al
Lines: 6
Message-ID: <3id6r7$8gr@hammer.msfc.nasa.gov>
Reply-To: chaganti@ssl.msfc.nasa.gov
NNTP-Posting-Host: sslmor.msfc.nasa.gov

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I'd like to know how to do the same thing on a DEC ALPHA AXP, running
OSF/1.

Thanks,
Matt

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==========

Subject: Re: gcc and call_external on solaris ?
Posted by rivers on Fri, 24 Feb 1995 23:04:55 GMT
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In article <3ij7tc$20n@vail.levels.unisa.edu.au>, roughan@vail.cssip.edu.au (Matt Roughan)

writes:
>
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Look at your IDL distribution! There are example makefiles for BOTH Solaris and OSF/1 provided with the IDL distribution in the $IDL_DIR/misc/dynamic_link directory.

_____

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5640 S. Ellis Ave.	(708) 922-0499 (home)
Chicago, IL 60637	rivers@cars3.uchicago.edu (Internet)

Subject: Re: gcc and call_external on solaris ?
Posted by sjt on Tue, 28 Feb 1995 10:22:29 GMT

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Matt Roughan (roughan@vail.cssip.edu.au) wrote:

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ks.com!news.duke.edu!convex!bcm!news.msfc.nasa.gov!sslmor.ms fc.nasa
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: Matthew Roughan
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: SPRI Building,Technology Park Adelaide,The Levels,South Australia, 5095
: PH: (+61 8) 302 3587 FAX: (+61 8) 302 3124
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: ========== ==========

The following are extracts from the Solaris/gcc and OSF1 Makefiles for an
I/O system accessed via call_external:

Solaris/gcc:
hsioshr.so: ${HSIO}/hs.c ${HSIO}/hs.h ${HSIO}/hsi.h SUN_5_SET
 gcc -fPIC -G -DSOLARIS -o hsioshr.so -I$(HSIO) $(HSIO)/hs.c

OSF1/cc:
hsioshr.so: ${HSIO}/hs.c ${HSIO}/hs.h ${HSIO}/hsi.h OSF_1_SET

```
 cc  -DALPHA -c -I$(HSIO) $(HSIO)/hs.c
 ld -o example.so -shared example.o
```

I don't have gcc on an Alpha available.

For various practical reasons (namely that the package must also be
usable from Fortran and C) the C code makes call through stub routines
(e.g.:

```
#if defined(SUN) || defined(ALPHA)
 /*------------------------------------------------------- ----+
|  iu_open_lanfile is a stub routine for calling open_lanfile_  |
|  from IDL on a SUN workstation.                               |
 +------------------------------------------------------- ---*/

void iu_open_lanfile (argc, argv)                              /*S*/
       int     argc;                                         /*S*/
       void    *argv[];                                       /*S*/
{                                                           /*S*/
       open_lanfile_(  (char *)   argv[1],                          /*S*/
                    (int32  *) argv[2],                      /*S*/
                    (int32  *) argv[3],                      /*S*/
                    (int32  *) argv[4],                      /*S*/
                    (int)      argv[5]);                    /*S*/
}                                                           /*S*/
#endif  /* SUN */
)
```

SUN is defined in an include file if SOLARIS is defined

The IDL code is then:

```
a = call_external (shlib, entry(icode), icode, filesp, long(mode), $
                findex, lrecl, l_file, value = pass)
```

Where shlib and entry are defined as (from a "case (!Version.os) of"):

```
   'sunos': begin
      shlib = lib_dir + '/hsioshr.so'
      entry = 'iu_' + ['open', 'close', 'read', 'write', 'map', $
                   'seek', 'err', 'rename', 'vers'] + '_lanfile'

; VN is 4 or 5 according to whether running Sunos 4 or Solaris (defined
; in the driver script for the package).

      if (getenv('VN') eq '4') then entry = '_'+entry
   end
   'OSF': begin
```

```
    shlib = lib_dir + '/hsioshr.so'
    entry = 'iu_' + ['open', 'close', 'read', 'write', 'map', $
                'seek', 'err', 'rename', 'vers'] + '_lanfile'
end
```

The other arguments to the call_external are the arguments passed to the routine as argv[0..argc] (The non-use of argv[0] in the stub is a red-herring, it's used in the IBM RS6000 call where there can only be one entry point per module it, is not a special value like in a C main program).

I hope some of this makes sense (I'm not sure if it agrees with what the manuals say about the use of underscores, I just know that it works => if it doesn't match up then the manuals must be in error).

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--


```
 +----------------------+-------------------------------- --+---------+
| James Tappin,          | School of Physics & Space Research |  O__    |
| sjt@star.sr.bham.ac.uk | University of Birmingham       | --  \/` |
| Ph: 021-414-6462. Fax: 021-414-3722         |  |
 +-------------------------------------------------------- --+---------+
```