
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:

: 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
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ks.com!news.duke.edu!convex!bcm!news.msfc.nasa.gov!sslmor.msfc.nasa
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: 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

: >Hi! IDL GURUS

: >Could some one give me an example for making sharable object for IDL
: >call_external with SOLARIS OS.

: >We have only gcc/g++ compiler. The IDL document does not mention
: >about gcc.

: 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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: =====

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*/
{
    open_lanfile_( (char *) argv[1],      /*S*/
                   (int32 *) argv[2],    /*S*/
                   (int32 *) argv[3],    /*S*/
                   (int32 *) argv[4],    /*S*/
                   (int)  argv[5]);      /*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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+-----+-----+-----+
```
