

Re: [PATCH] Use -fno-unit-at-a-time if gcc supports it

Source: <http://linux.derkeiler.com/Mailing-Lists/Kernel/2003-09/1886.html>

From: David Mosberger-Tang (David.Mosberger_at_acm.org)

Date: 09/06/03

To: Jan Hubicka <jh@suse.cz>

Date: 06 Sep 2003 01:10:57 -0700

For what it's worth, it was straight-forward to get the ia64 linux kernel to compile & boot with the latest gcc snapshot. I could make a patch, if anyone cares, but it was mostly trivial stuff: a small cleanup in `init_task.c` and a few changes in `init.h/compiler.h` to use "attribute ((used))".

Even the wait-channels seem to come out right, though I'm not sure what's being done there is guaranteed to continue to work as the compiler gets more aggressive...

--david

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Interested in learning more about IA-64 Linux? Try <http://www.lia64.org/book/>

>>>> On Sat, 06 Sep 2003 09:10:10 +0200, Jan Hubicka <jh@suse.cz> said:

>> On Fri, 2003-09-05 at 11:17, Andreas Jaeger wrote:

>>

>>

>> > Since unit-at-a-time has better inlining heuristics the better

>> way is > to add the used attribute - but that takes some time.

>> The short-term > solution would be to add the compiler flag,

>>

>> Won't we get a linker error if a static symbol is used but

>> optimized-away? It shouldn't be hard to fix the n linker errors

>> that crop up.

Jan> Yes, you get linker error. You may also run into

Jan> misscompilation assuming that function is static and it is

Jan> both called by hand in asm and by function call and there is

Jan> missing attribute used and asmlinkage definition. In that case

Jan> GCC would conclude to change into register calling convention

Jan> on i386 breaking asm code.

Jan> I would expect this to be rare as functions tends to be used

Jan> either by assembly or by normal code but not by both.

>> And why are we using static symbols in inline assembly outside

>> of the compilation scope?

Jan> The toplevel asm statements are common source of this at least

Jan> in glibc. I didn't look much into the kernel sources.

Jan> I would be very happy if someone did look on that. It may be

Jan> well possible that implementing tricks you do currently with

Jan> toplevel asm statements would need further extensions in GCC now

Jan> and it would be nice to know about that.

Linux-Kernel: Re: [PATCH] Use -fno-unit-at-a-time if gcc supports it

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Jan> For instance it used to be possible to force function to go
Jan> into given section by changing the section by hand, but now you
Jan> have to use section attribute (that is cleaner anyway)
>> Anyhow, if it generates an error, this isn't hard to fix.
>>
>> Here is the start...
>>
>> Robert Love
>>
>>
>> --- linux-rml/include/linux/compiler.h Fri Sep 5 11:57:56 2003
>> +++ linux/include/linux/compiler.h Fri Sep 5 12:02:02 2003 @@
>> -74,6 +74,19 @@ #define __attribute_pure__ /* unimplemented */
>> #endif
>>
>> /* + * As of gcc 3.2, we can mark a function as 'used' and gcc
>> will assume that, + * even if it does not find a reference to it
>> in any compilation unit. We + * need this for gcc 3.4 and
>> beyond, which can optimize on a program-wide + * scope, and not
>> just one file at a time, to avoid static symbols being + *
>> discarded. + */ #if (__GNUC__ == 3 && __GNUC_MINOR__ > 1) ||
>> __GNUC__ > 3 #define __attribute_used__ __attribute__((used))
>> #else #define __attribute_used__ /* unimplemented */ #endif +
Jan> I believe there is little trick - attribute used works either
Jan> for variables or functions. Functions can be marked as used
Jan> only for GCC 3.4+ if I am right, so you may need
Jan> __attribute_used_function__ and __attribute_used_variable__
Jan> macros for that.
Jan> Honza
>> /* This macro obfuscates arithmetic on a variable address so that
>> gcc shouldn't recognize the original var, and make assumptions
>> about it */ #define RELOC_HIDE(ptr, off) \
>>
>>
Jan> - To unsubscribe from this list: send the line "unsubscribe
Jan> linux-kernel" in the body of a message to
Jan> majordomo@vger.kernel.org More majordomo info at
Jan> http://vger.kernel.org/majordomo-info.html Please read the FAQ
Jan> at http://www.tux.org/lkml/
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