

Re: [RFC: -mm patch] kcalloc(): INT_MAX -> ULONG_MAX

Source: <http://linux.derkeiler.com/Mailing-Lists/Kernel/2005-08/6592.html>

From: Adrian Bunk (bunk_at_stusta.de)

Date: 08/25/05

Date: Thu, 25 Aug 2005 18:01:37 +0200

To: Pekka Enberg <penberg@gmail.com>

On Sun, Aug 21, 2005 at 11:12:06PM +0300, Pekka Enberg wrote:

> On Sun, Aug 21, 2005 at 10:47:13PM +0300, Pekka Enberg wrote:

> > > You'll probably get even better code if you change the above to:

> > >

> > > if (size != 0 && n > ULONG_MAX / size)

> > >

> > > Reason being that size is virtually always a constant so the compiler

> > > can evaluate the division at compile-time.

>

> On 8/21/05, Adrian Bunk <bunk@stusta.de> wrote:

> > I doubt this would make any difference.

> >

> > And besides, except in some rare cases, the second argument is a

> > sizeof(foo) whose size is already known at compile time.

>

> Yes, that's my point. The second argument (size) is virtually always

> sizeof() whereas the first one (n) is sometimes a variable. GCC

> currently does not optimize away the division when n is not a

> constant.

>

> Looking at 2.6.13-rc6-mm1, we have roughly 15 callers with the first

> parameter being a variable. The compiler would be able to get rid of

> one comparison and division instruction for each of these so looks

> like we could shave off some more bytes...

With gcc 4.0.1:

```
text data bss dec hex filename
25675334 5851630 1819976 33346940 1fcd57c vmlinux-my-patch
25675366 5851630 1819976 33346972 1fcd59c vmlinux-your-patch
```

INT_MAX -> ULONG_MAX is correct, even though it doesn't seem to make a difference with today's gcc.

Trying to change the code in a way that gcc will produce better code

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doesn't seem to be worth it (except in extreme hot paths).

> *Pekka*

cu

Adrian

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"Is there not promise of rain?" Ling Tan asked suddenly out
of the darkness. There had been need of rain for many days.
"Only a promise," Lao Er said.

Pearl S. Buck - Dragon Seed

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