

[2.6 patch] compile with -ffreestanding

Source: <http://linux.derkeiler.com/Mailing-Lists/Kernel/2004-12/0303.html>

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Date: 12/02/04

Date: Thu, 2 Dec 2004 00:38:53 +0100

To: Andrew Morton <akpm@osdl.org>

Hi Andrew,

for the kernel, it would be logical to use -ffreestanding. The kernel is not a hosted environment with a standard C library.

The gcc option -ffreestanding is supported by both gcc 2.95 and 3.4, which covers the whole range of currently supported compilers.

I'm currently running a 2.6.10-rc2-mm4 with this patch applied and compiled with gcc 2.95 and haven't yet observed any problems.

Regarding changes caused by this patch:

Andi Kleen reported:

Newer gcc rewrites `sprintf(buf,"%s",str)` to `strcpy(buf,str)` transparently.

This is only true with `unit-at-a-time` (disabled on i386 but enabled on x86_64). The Linux kernel doesn't offer a standard C library, and such transparent replacements of kernel functions with builtins are quite fragile.

Even with -ffreestanding, it's still possible to explicitly use a gcc builtin if desired.

Could you add the patch below to the next -mm to see whether there are any problems I didn't find?

TIA

Adrian

Signed-off-by: Adrian Bunk <bunk@stusta.de>

```
--- linux-2.6.10-rc1-mm4-full-freestanding/Makefile.old 2004-11-09 22:27:06.000000000 +0100
```

```
+++ linux-2.6.10-rc1-mm4-full-freestanding/Makefile 2004-11-09 22:27:47.000000000 +0100
```

```
@@ -349,7 +349,8 @@
```

```
CPPFLAGS := -D__KERNEL__ $(LINUXINCLUDE)
```

Linux-Kernel: [2.6 patch] compile with -ffreestanding

```
CFLAGS := -Wall -Wstrict-prototypes -Wno-trigraphs \  
- -fno-strict-aliasing -fno-common \  
+ -fno-strict-aliasing -fno-common \  
+ -ffreestanding \  
AFLAGS := -D__ASSEMBLY__
```

```
export VERSION PATCHLEVEL SUBLEVEL EXTRAVERSION LOCALVERSION KERNELRELEASE \  
\  
-
```

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