Subject: Troubles compiling code with -fPIC
Posted by dolik.rce on Sun, 30 Jun 2013 19:38:38 GMT
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Hi everyone,

I've hit a problem when trying to compile a shared library using U++ with -fPIC
switch:/home/h/upp-production/uppsrc/Core/Cpu.cpp: In function 'void Upp::sCheckCPU()':
/home/h/upp-production/uppsrc/Core/Cpu.cpp:40:84: error: PIC register clobbered by '%ebx' in 'asm'
  __asm__("movl $1, %%eax\n\tcpuid" : "=d" (info1), "=c" (info2) : : "%eax", "%ebx");
As the error message says, the problem is caused by changing a value of ebx register. After a little googling, I found that the widely used fix in this situation is to store the value of ebx before calling cpuid instruction and restore it afterwards. When I looked into the code of SCheckCpu() to do that, to my great surprise I found the code was already there, just commented out

So my question is, does anyone remember if there was some valid reason to comment this line out? If not, I propose to start using it:Index: /home/h/upp-production/uppsrc/Core/Cpu.cpp
===
--- /home/h/upp-production/uppsrc/Core/Cpu.cpp (revision 6151)
+++ /home/h/upp-production/uppsrc/Core/Cpu.cpp (working copy)
@@ -15,7 +15,6 @@
 	if(done) return;
 	done = true;
 #ifdef PLATFORM_OSX11
-//	__asm__("pushl %%ebx\n\tmovl $1, %%eax\n\tcpuid\n\tpopl %%ebx" : "=d" (info1), "=c" (info2) : : "%eax");
 	sHasMMX = true;
 	sHasSSE = true;
 	sHasSSE2 = true;
@@ -37,7 +36,7 @@
 #else
 	dword info1;
 	dword info2;
-	__asm__("movl $1, %%eax\n\tcpuid" : "=d" (info1), "=c" (info2) : : "%eax", "%ebx");
+	__asm__("pushl %%ebx\n\tmovl $1, %%eax\n\tcpuid\n\tpopl %%ebx" : "=d" (info1), "=c" (info2) : : "%eax");
 #endif
 	sHasMMX = ((info1 >> 23) & 0x1);
 	sHasSSE = ((info1 >> 25) & 0x1);

With this patch my code compiles and I noticed no difference for other programs.

Best regards,
Honza

Subject: Re: Troubles compiling code with -fPIC
Posted by mirek on Mon, 01 Jul 2013 06:46:33 GMT
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This really weird. Not when it was commented out, but my guess is it is commented out since the beginning:

The part of code is for MacOS X, X11 subsystem. Macs always have CPUs that support MMX/SSE/SSE2, so there is no point to call assembler to find out... so all assembly code is #ifdefed out... I doubt that adding some back is the cause of -fPIC problems...

Mirek

Subject: Re: Troubles compiling code with -fPIC
Posted by mirek on Mon, 01 Jul 2013 06:49:11 GMT
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Ah, now I see - patch moves that line too. Applied.

Subject: Re: Troubles compiling code with -fPIC
Posted by dolik.rce on Mon, 01 Jul 2013 10:15:56 GMT
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mirek wrote on Mon, 01 July 2013 08:49Ah, now I see - patch moves that line too. Applied.
Yes, I deleted it from Mac and used it for i386... Sorry for confusion and thanks for applying the patch.

Honza