
Subject: Re: "better" version of Iscale functions
Posted by [mdelfede](#) on Sun, 06 Apr 2008 18:05:38 GMT
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Btw, I guess GCC does some better optimizations in this case :

```
int iscale(int x, int y, int z)
{
    int64_t res = x;
    res *= y;
    res /= z;
    return (int)res;
}
```

gets translated as :

```
.globl _ZN3Upp6iscaleEiii
.type _ZN3Upp6iscaleEiii, @function
_ZN3Upp6iscaleEiii:
.LFB4039:
.file 4 "/home/massimo/sources/upp-svn/uppsrc/Core/mathutil.cpp"
.loc 4 11 0
pushq %rbp
.LCFI15:
movq %rsp, %rbp
.LCFI16:
movl %edi, -20(%rbp)
movl %esi, -24(%rbp)
movl %edx, -28(%rbp)
.LBB2:
.loc 4 17 0
movl -20(%rbp), %eax
cltq
movq %rax, -8(%rbp)
.loc 4 18 0
movl -24(%rbp), %eax
movslq %eax, %rdx
movq -8(%rbp), %rax
imulq %rdx, %rax
movq %rax, -8(%rbp)
.loc 4 19 0
movl -28(%rbp), %eax
cltq
movq -8(%rbp), %rdx
movq %rax, %rcx
```

```
movq %rdx, %rax
sarq $63, %rdx
idivq %rcx
movq %rax, -8(%rbp)
.loc 4 20 0
movq -8(%rbp), %rax
.LBE2:
.loc 4 30 0
leave
ret
```

If you drop assembly directive and/or line references and other stuffs, you can see that work is done with just one imul and one idiv... like your assembly version. The rest is just registry moving stuffs. I don't know what happens if you compile it with full optimization, but I guess mostly of them just disappears.

And I think that's still much quicker than floating point version.

Max
