Re: Why is SUN falling so far behind IBM?

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"Arthur Corliss" <acorliss@bifrost.nevaeh−linux.org> wrote:

> To compound these potential shortfalls, you have to rely specifically on
> the compiler to group instructions correctly to get maximum simultaeous
> execution. The processor has no support for internal optimisations of
> those groups.

Right. But the current compilers from intel are quite good at optimization...

> I'm sorry, but that's a pretty convoluted setup with too much potential for
> wasted bandwidth.

Maybe. But at least our software angineers have no problem with wasted bandwith on Itanium. And from what I know most other ISV don't have that problem, too.

> So, now reality sets in: comparing SPEC CPU 2000 for a 1.7GHz Power4 and
> a 600MHz R14k I see that the Power4 scores a little more than twice the R14k
> for almost three times the clock rate on CINT2000.

Right. So what? Of course when comparing performance/clock cycle MIPS still is good. But MHz as a performance criteria is more something for the PC Kiddies. The CPU clock is quite irrelevant. Who cares when MIPS does more instructions per clock cycle when the architecture limits the achievable max performance way below what other modern processors do. Of course the performance/clock ratio is better than on the R14k−600 than on the POWER4 1.7, but in the end the POWER4 offers much more overall performance than the R14k...

> So, based on that I doubt the R16k would look worse against these processors.
> Futhermore, I could compare the Power4's 680 million transistors and 50+ watts
> of power consumption to the R14k's 7 million transistors and 17+ watts

draw.
> *Taken holistically, I'd say MIPS has one of the most efficient*
architectures
> *out there.*

Yes, historically. For sure it's efficient (that's btw the reason why MIPS is so widespread in the embedded market), but it's not fast. The architecture simply can't keep up with other CPUs when it comes to absolute performance. And we don't buy a platform because it is so good at doing lots of instructions per clock cycle (that's more interesting for discussions in comp.sys.arch), we buy it because of its absolute application performance. And that's where MIPS simply is behind all competition...

> *That's a whole other ball of wax, then. There's a damned good reason why*
> *SGI is still in business, just like Cray and their vector processors.*

Yes, because SGI sold most of it's assets like Cray, Softimage, and also including parts of their round hq building in San Jose), and their increasing success with their Linux−based ALTIX systems. MIPS/IRIX is something that costs SGI more than what it brings as renevue. The few MIPS/IRIX sales are almost all just upgrade sales to the remaining existing MIPS/IRIX customers. During the last years SGI wasn't able to aquire new customers with MIPS/IRIX, instead of this they lost a big bunch of traditional customers to other system vendors which offered a better performance...

MIPS/IRIX is certainly not the _reason_ they are still in business. It's more a fact that _despite_ MIPS/IRIX SGI is still in business...

> *In the*
> *real world clock rate isn't as important as memory and disk I/O, and*
NUMAflex
> *is a damned good architecture when you need to scale to the thousands of*
> *processors. And they still support twice the number of processors per SSI*
> *nodes than they can on Altix/Linux.*

Yes, but on the other side the Itanium CPUs are much faster than the fastest MIPS offerings, so for having the same performance You need less CPUs than on MIPS...

> *SGI hasn't abandoned MIPS yet,*

Internal is definite that IRIX/MIPS is going to die. And You see SGI putting most of their ressources in Linux/ALTIX, while the MIPS series is somewhat stagnating for some years now. IRIX of course gets its maintenance and improvements, but it's very unlikely that we'll ever see a new IRIX version...

> *though they may have to. As good as the tech*
> *is, they're a lot like DEC. Bad marketing can kill the best tecnology.*

Well, at least DEC had technology that was performing very good. That's not the case for SGI MIPS...

Benjamin