Subject: Re: OT: recommendations for high preformance workstations
Posted by Mirko on Fri, 11 May 2007 14:04:53 GMT
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On May 9, 12:25 pm, Rick Towler <rick.tow...@nomail.noaa.gov> wrote:
>> I am buying my next linux workstation, and other than dollars, are
>> there other parameters that I should take into account? My main
>> unknown is vendor. Our company likes Dell very much, but I wonder
>> whether HP or IBM machines are better engineered or built for
>> scientific computations.
>
> Two important considerations are bus topology and bus speed. My
> experience with IDL is that it is fairly sensitive to memory bandwidth.
> So look for systems with a fast/wide bus.
>
> Intel is still using a shard bus architecture which limits the total
> bandwidth available to each processor socket. As socket/core numbers
> increase, there is a potential for greater bus contention. AMD is using
> a point-to-point protocol (Hyper-transport) that provides each socket
> with a dedicated connection to RAM. In theory this scales much better
> than Intel's bus architecture but it really depends on the application.
> If you are seriously thinking about quad procs or more, you should look
> at AMD's Opteron seriously.
>
> I haven't done any testing, but I would purchase an as fast as you can
> get dual core system. For Intel that would be a Xeon 3085 or Core2 Duo
> E6850. Both at 3Ghz with a 1333 MT/s bus (333 MHz quad rate). With all
> of the buzz around Intel's Core architecture I haven't been following
> AMD's releases but if I were buying AMD I would consider the fastest
> dual-core Opteron 12xx series available.
>
> Don't forget about a decent graphics card. I haven't been following
> linux 3d driver development but nVidia has historically had a better
> linux driver than ATI (now AMD). nVidia has two lines. The consumer
> "Geforce" line and the professional "Quadro". Dollar for dollar, you'll
> benefit much more from the higher clock rates and wider memory
> interfaces of the GeForce line than you will from the tweaks and driver
> optimizations that come with the Quadro line. (What you really pay for
> with the quadro line is a card that is certified with a number of
> professional modeling and design packages. IDL is not one of them.)
> Something like the nVidia 8600-GTS would be a good mid-high-end chip to
> go with. Even if you don't do object graphics you should consider a
> decent graphics card. There are some features in the upcoming 6.4 that
> will be able to take advantage of the hardware even if you aren't using
> object graphics.
>
>> I am looking for a 64-bit dual processor (dual or quad core) with
>> about 8GB. I will be running Fluent (and IDL) on it, and Fluent can

>> take advantage of parallelized architectures. So far I have never
>> looked into IDL's features for running on parallel machines.
>
> The above recommendations are based solely on my experience with IDL.
> Maybe Fluent thrives on a slightly starved quad core system. And you
> can certainly buy a quad or octa processor system, you'll just have a
> couple of extra cores for running open office and firefox while IDL is
> churning away in the background.
>
> As for Dell, HP, IBM... Everyone is going to have a story. Our shop is
> almost exclusively Dell and our hardware failure rate is probably right
> in line with the industry norm. In the few cases where hardware has
> failed prematurely a replacement was easily and quickly obtained. I'm
> talking *hardware* support though. As of today, Dell doesn't support
> a desktop linux distro, and I doubt HP does. I think IBM does... But
> as JD mentioned there are a number of vendors that specialize in Linux
> systems that you may want to look into.
>
> -Rick

Well, Rick, thanks for the really detailed response.

I've been going "backwards" in my thinking lately. For my particular application, I need two CPU's/cores with about 8-12GB of RAM.

What I find interesting is that my current desktop has two 3.6GHz single core Xeon processors. and 2GB or RAM. Intel's latest dual core offering is 3GHz.

So, my current workstation with two separate CPU's is faster than a dual core Xeon. (Unless the chip architecture is so radically different that the 3GHz dual core outperforms two 3.6GHz single cores. (I am neglecting bus speed and topology here).

What I find interesting is that among several vendors, I cannot find single core machines anymore (but I am a notoriously bad finder -- they could be there). What am I missing there?

As for the linux distro, I will go with the Red Hat Enterprise Linux (to be compatible with other linux installations within the group).

Mirko