Subject: Re: OT: recommendations for high preformance workstations
Posted by Mirko on Fri, 11 May 2007 16:56:07 GMT
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On May 11, 10:04 am, Mirko <mvuko...@nycap.rr.com> wrote:
> 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

This article on wikipedia http://en.wikipedia.org/wiki/Intel_Core_microarchitecture

discusses the various intel architectures. Also, based on a reply
from asl (www.aslab.com) regarding the same question, the comparison I
was making was apples to oranges.

Mirko