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Subject: Re: Xeon's, Opteron's, 32 vs 64 bit -- Next steps for the GSI batch farm  
Posted by [Anar Manafov](#) on Fri, 25 Mar 2005 21:41:01 GMT

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Walter F.J. Müller wrote on Fri, 25 March 2005 20:21Anar Manafov wrote on Fri, 25 March 2005 02:21...

I only cannot reach Walter's report.

The 'DV Ausschuss' material is 'considered GSI internal' and only accessible from within GSI.

Thx! I got it now.

Walter F.J. Müller wrote on Fri, 25 March 2005 20:21Anar Manafov wrote on Fri, 25 March 2005 02:21...

Concerning, GSI batch farm, IMHO, it is too early to switch it to 64b.

Could you be more specific ? Isn't computational price/performance an essential argument ?

Walter, It is just my IMHO.

The 64b instructions are good and much better than 32b and you are 100% RIGTH when saying that "computational price/performance" is essential argument! Here nobody, I think, can argue. It is obvious and even obvious that at this moment AMD is the best with Opteron. But this works only when you are using it, using advantages of 64b! Get it to use as a 32b CPU, I think is not a very good idea. I would better get new Intel Pentiom4 (by the way also with 64b instructions; unfortunately with less performance)

As I mentioned in my previous post, the DB servers, WEB servers, Application-ser (for instance, J2EE app-server). this is where we can use 64b with guaranty of saving money and gaining valuable performance. Concerning desktops and GSI batch farm I would wait a lit bit. Wait until more 64b application and Development toolkits are out and tested. Wait until developers and users can learn to use the advantages of 64b processing in their software. Wait until it became cheaper and with higher performance. I think GSI using the same environment on all of the machines, this is like GSI policy. So it will be not an advantage to use Opteron 64b on the same environment as other 32b have. I think, it would be like using rocket machine in zone 30!

Again, it is just my IMHO

I think the environment is not ready for such a change, yet.

Anyway, as I mentioned in my previous post, I still think that we need small amount of 64b machines (MP, I would suggest) for testing and for moving development to it, for adaptation, but only very few machines with dedicated queue.

About putting 64b on the desk I wouldn't even think, IMHO. At least now.

BTW, in the parallel computing Xeon vs Opteron; the advantages are not so much visible: [The test where made in Lomonosov Moscow State University, laboratory of parallel computing]

AMD on Linux SuSE SLES-8 (AMD64) VERSION 8.1, kernel-2.4.19-SMP x86\_64

Intel on Linux RedHat 7.3, kernel-2.4.25

AMD Opteron:

With 1CPU, 2G of memory (partial use of memory. matrix 15000x15000) = 3.38 Gflop/s (of 84.5% pick efficiency)

With 4CPU, 2G of memory (use of full available matrix 29000x29000) = 12.6 Gflop/s (of 79% pick efficiency)

Intel Xeon

With 1CPU, 2G of memory (partial use of memory. matrix 15000x15000) = 3.73 Gflop/s (of 72% pick efficiency)

With 4CPU, 2G of memory (use of full available matrix 21000x21000) = 12.55 Gflop/s (of 60.3% pick efficiency)

Even concerning this „Im Vergleich zu den schnellsten Xeon Rechnern gewinnen die Opteron je nach Anwendung zwischen einem Faktor 3 und 5 in der Rechenleistung.“ (from Walter's report)

Is it REALLY that much???

Surely I believe to Walter and even if it is that much differ!

It is only because of 64b integer arithmetic and nothing to do with ONLY Opteron! New Intel 64 also has 64b integer arithmetic!!!

Concerning servers I have no doubt, the OPTERON is only choice now.