

## Re: [SLE] For or against ..Hyperthreading.

**Source:** <http://linux.derkeiler.com/Mailing-Lists/SuSE/2003-08/2683.html>

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**From:** Adalberto Castelo (*castelo\_at\_comcast.net*)

**Date:** 08/31/03

To: suse-linux-e@suse.com

Date: Sun, 31 Aug 2003 10:45:54 -0400

There are two contexts you want to analyze this in: scientific applications and non-scientific apps. SA are usually compute intensive algorithms that take a task and divide it in smaller parts --- the term SIMD, tho it usually refers to computer architectures, could also be used here (Single Instruction stream, Multiple Data streams). So, in a common parallel SA, all pieces are executing the same instructions over and over again, but over diff parts of the data. This is by far the most common kind of high demand sci app you'll see: weather models, finite element analysis, protein folding, pattern discovery, etc. There are other types of algorithms (I described the divide-and-conquer type), but they are far less common.

NonSA is a context where you have lots of different apps doing different things on different data (most common) or one app doing different things over the same data.

Now, to answer your question: if you'll run on a SA context, forget about HT and go get a real SMP machine. HT will slow you down. Reason: HT is just a mechanism that facilitates parallel access to the computing units inside the processor (integer units, floating point units, etc.). The clock speed is not affected (theoretically). So, if all your threads are trying to use THE SAME units, there'll be contention, and delay while a thread wants for a unit to clear. These delays involve overheads, that will make the app slower than in a single thread mode.

If you'll run on the NonSA context, then HT will perhaps help you (true SMP will always be better tho). Reason: mix of apps (integer based, floating point based, etc.) may be using different processor units, effectively allowing HT to seem like two different processors. It will of course depend on the mis of apps. My gut feeling is that it would help.

I hope that helps.

Adalberto

On Friday 29 August 2003 23:57, Ben Rosenberg wrote:

> *I have partly a question and partly a survey. I just got a P4 2.4ghz*

SuSE: Re: [SLE] For or against ..Hyperthreading.

> (c) proc, mb w/ 512M DDR400 dropped in my lap at work so I could  
> upgrade my workstation in the office. It does have hyperthreading. I've  
> never user HT hardware and I've heard conflicting reports about it. I  
> have it turned off right now and I haven't installed the SMP kernel  
> since I'm not sure I'm going to bother. I guess my question is...for a  
> workstation doing webbrowsing, documents in OO, Gaim, playing mp3's  
> and s\*\*tloads of xterms. Does HT give or take away from the enviroment  
> as far as speed and all that. All opinions are welcome. :)  
>  
> --  
> Ben Rosenberg ----- mailto:ben@whack.org  
> -----  
> If two men agree on everything, you can be sure that only  
> one of them is doing the thinking.

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