What is your experience with Sun CoolThreads technology?

Asked 16 years, 3 months ago Modified 13 years ago Viewed 1k times

4

My project has some money to spend before the end of the fiscal year and we are considering replacing a Sun-Fire-V490 server we've had for a few years. One option we are looking at is the CoolThreads technology. All I know is the Sun marketing, which may not be 100% unbiased. Has anyone actually played with one of these?

I suspect it will be no value to us, since we don't use threads or virtual machines much and we can't spend a lot of time retrofitting code. We do spawn a ton of processes, but I doubt CoolThreads will be of help there.

(And yes, the money would be better spent on bonuses or something, but that's not going to happen.)

solaris

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edited Dec 7, 2011 at 15:43

Joel Coehoorn

415k ● 114 ● 577 ● 813

asked Sep 11, 2008 at 23:29

Jon Ericson

21.5k ● 12 ● 102 ● 151

7 Answers

Sorted by: Highest score (default)

5

IIRC The coolthreads technology is referring to the fact that rather than just ramping up the clock speed ever higher to improve performance they are now looking at multiple core processors with hyperthreading effectively giving you loads of processors on one chip. Overall the processing capacity available is higher but without the additional electrical power and aircon requirements you would expect (hence cool). Its usefulness definitely depends on what you are planning to run on it. If you are running Apache with the multiple threads core it will love it as it can run the individual response threads on the individual cpu cores. If you are simply running single thread processes you will get some performance increases over a single cpu box but not as great (any old fashioned non mod_perl/mod_python CGID processes would still be sharing the the cpu a bit). If your application consists of one single threaded process running maxed out on the box you will get very little improvement on a single core cpu running at the same speed.

Peter

Edit:

Oh and for a benchmark. We compared a T2000 in our server farm to our current V240s (May have been V480's I don't recall) The T2000 took the load of 12-13 of the

Older boxes in a live test without any OS tweeking for performance. As I said Apache loves it :-)

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edited Sep 12, 2008 at 0:08

answered Sep 11, 2008 at 23:57

Vagnerr
2,997 ● 4 ● 35 ● 46

3

Disclosure: I work for Sun (but as an engineer in client software).

You don't necesarily need multithreaded code to make use of these machines. Having multiple processes will make use of multiple hardware threads on multiple cores.

The old T1 processors (T1000 and T2000 boxes) did have only a single FPU, and weren't really suitable for tasks with much more than about 1% floating point. The newer T2 and T2+ processors have an FPU per core. That's probably still not great for massive floating point crunching, but is much more respectable.

(Note: Hyper-Threading Technology is a trademark of Intel. Sun uses the term Chip MultiThreading (CMT).)

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answered Sep 12, 2008 at 12:51

Tom Hawtin - tackline
147k ● 30 ● 221 ● 312

1

We used Sun Fire T2000s for my last system. The boxes themselves were far exceeded our capacity requirements in terms of processing power. For us the decision was based on the lower power consumption and space requirement. We successfully ran WebSphere 6, Oracle 10g and SunONE Directory server on the same box.

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answered Sep 12, 2008 at 0:02

Brian Matthews

8,596 ● 7 ● 47 ● 68

1

My info may be a bit out of date (last used these servers 2 years ago) but as I recall one big gotcha was that all the cores on a single CPU all shared the *same* FPU unit, so if your code did a lot of floating point (we were doing GIS) the FPU was a massive bottleneck and you didn't get much benefit from the large number of threads.

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answered Sep 12, 2008 at 6:12

AndrewR

10.9k ● 10 ● 47 ● 58

> The newer model chips have a FPU for each core.
> – Brian Knoblauch Dec 26, 2008 at 17:44

1

For any process with high parallelism these machines (eg, the t1000/t2000) are great for their cost. I've been running oracle on them for about 18 months now and it works great.

If you task is a single threaded/single process, then you'd be better off with a high speed dual/quad core intel machine.

If your application has lots of threads/lots of processes then these machines will likely be great for it.

Best of all, Sun will send you one for 60 days to evaluate, that is what we did before committing to it, ended up getting 2 t2000's and have recently purchased another 4 t1000's.

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answered Sep 12, 2008 at 6:38

Matthew Watson

14.2k ● 9 ● 63 ● 82

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It hit me last night that our core processes aren't multi-threaded, but the machine in question does have a bunch of system processes that are. In particular, it acts as an NFS server. It sounds like running hundreds of processes will benefit from all those cores, as well.

I'll see if we can get a demo unit to test on first.

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answered Sep 12, 2008 at 17:29

Jon Ericson

21.5k ● 12 ● 102 ● 151

Sun has been selling the Niagra machines to be all things to all comers. They do have their place: web services

0

being the best deployment. We have run Oracle on some T2000s and it worked well for highly parallelized operations. But the machines fall flat on single-treaded operations, the performance of which is rather bad. If you have floating point work to do, look elsewhere. Even the newer chips with A FPU per core is inadequate. Also, these machines cannot take a enterprise-class pounding for long and we've had reliability problems. Multi-core techology is more hype than substance. Sandia National Lab's research on it and found that four to eight cores is about the top-end of usefulnes and that a 16 core chip has the same throughput as a dual core chip. So a 16 core chip is a waste of a lot of money. Also, as the number of cores increase, the clock speed muust decrease, because of the thermal wall. Most manufacturers will probably settle on quad-core chips until memory technology improves (you can't keep 16 cores fed with memory and most of the cores are stalled). Finally, given the chaos at Sun, you'd do better to look elsewhere.

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answered Feb 9, 2009 at 15:47

Old Sun Guru