

Re: a dozen cpu's on a chip

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- *From:* John Larkin <[jjlarkin@xx](mailto:jjlarkin@xx)>
  - *Date:* Fri, 09 May 2008 19:38:11 -0700
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On Fri, 9 May 2008 22:27:56 -0400, krw <[krw@xxxxxxxxxxxxxxxxxxxx](mailto:krw@xxxxxxxxxxxxxxxxxxxx)> wrote:

In article <[3n6624pu6762nup9apu3crj5vh1uu6fqbn@xxxxxxxx](mailto:3n6624pu6762nup9apu3crj5vh1uu6fqbn@xxxxxxxx)>, [jjlarkin@xx](mailto:jjlarkin@xx) says...

On Thu, 8 May 2008 07:42:04 -0700 (PDT), MooseFET <[kensmith@xxxxxxxx](mailto:kensmith@xxxxxxxx)> wrote:

On May 7, 7:48 pm, John Larkin <[jjlar...@xx](mailto:jjlar...@xx)> wrote:

<http://www.eetimes.com/news/latest/showArticle.jhtml;jsessionid=CESEX...>

I bet we'll see 256 one of these days.

When you get to large numbers of CPUs it seems to make sense to stop making them identical. For servers this would be doubly so. Many of the CPUs won't need to do floating point operations.

Right. Amybe a few cpu's would have serious floating point power, or a few separate fp engines could be assigned to cpu's as needed. Lots of cpu's, doing stuff like file i/o or serial stuff, could be less powerful. I suppose we'll always need special graphics hardware, but just a few of those per chip.

Asymmetric multiprocessing makes the scheduler's life more complicated. Since the scheduler is part of the OS, and the OS is most often M\$, this isn't a good idea, IMO. ;-) Hardware is cheap (so cheap PowerPC is including decimal FPUs). Throw the FPU on every node, whether its needed or not.

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It also would make sense to do things like memory moves in the "Memory Mismanagement Unit" since the values don't need to be modified on the way through.

This will make it a lot harder to say how many CPUs are in a chip. If there is only as much hardware as 200 full CPUs but 500 threads can be running at the same time, do you call it 200 or 500 CPUs.