

What Comes After the Multicores?

Written by Tim Wray
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I remember the clock speed wars. (Flashback time!)

It was 1996. I had just gotten my first computer, a blazing fast IBM Aptiva desktop with an Intel Pentium 133, with 8MB of RAM and a 1.2GB Quantum Prodrive hard drive. It was crazy fast. No lag on Windows 95, and with an upgrade to 32MB in 1998, it slung Windows 98 pretty darn well too.

This was the era of the bigger the number, the faster the computer. We didn't care too much about bus speed or memory speed. At least I didn't. I remember a friend of mine getting a Cyrix processor that was 266MHz in speed. It booted Windows 95 so fast the first time we watched it that it caused us to exclaim it aloud in astonishment.

Those were the days.

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It seemed those days weren't soon going to end, even into the new millenium. In 2003, I bought a Dell Dimension with a 400MHz bus and a Pentium 4 2.4 GHZ processor. I remember

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reflecting on that as I used it for the first time, how in those seemingly long years I had went from 133MHz to 2400MHz. The speed was certainly measureable.

So, somewhere in there, They decided to go multicore, as it became apparant that they couldn't run the 10GHz clock speeds they thought they could push single core processors all the way to, according to Donald Newell, former Intel executive, who noted in [this article at computerworld](#) that they had envisioned such a processor from the start.

It turns out that once you crossed somewhere around 4 GHz, which Intel achieved using a very deep instruction pipeline, the processor's temprature would assume something along the lines of a nuclear meltdown due to excessive transistor power leakage as the Pentium 4 cores reached 90 nm lithography and smaller sizes.

So, from then on, Intel, as well as AMD, began to turn to Multicore processors, and you end up where we are today.

According to the [same article mentioned above](#) , the near future of these processors will involve things like giving some GPU capability to the multicore processors, somewhat of a system on a chip. This is exciting, imagining that some of the bottlenecks on current motherboards will someday be eliminated, giving us even faster processing power, hopefully at today's market standard prices.

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I certainly look forward to the day.