

## Re: Pentium vs Celeron

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On Thu, 25 Mar 2004 14:42:18 -0800, "Michael Solomon \ (MS-MVP Windows

>can purchase a Pentium 4 system for between \$100 and \$200 more than a  
>comparably equipped Celeron based system. At such a low differential, it  
>simply doesn't make sense to get Celeron based system:

Nah, I'd rather exercise more control over the whole spec. If \$100-\$200 is worth spending on "Pentium Tax", then how much more worthwhile is a third of that to treble the HD capacity?

Celeron and Pentium 4 are based on the same core, and in fact there's often more difference between one pentium X sub-generation than the next than there is between Celeron and Pentium X. In fact, in some cases, the newer Celeron outperform older Pentium X within the same broad category. Here's what I mean...

Pentium II/III generation:

- 512k half-speed Level 2 cache, 66MHz base
- Zero Level 2 cache, 66MHz base
- 128k Level 2 cache, 66MHz base
- 256k Level 2 cache, 66MHz base
- 256k Level 2 cache, 100MHz base
- 512k Level 2 cache, 100MHz base
- 512k Level 2 cache, 133MHz base

The first, fourth and last two of the above were branded "Pentium"; the rest, "Celeron". In fact, both Pentium and Celeron names were attached to the 256k L2, 100MHz cores.

P4 generation

- 256k L2, 400MHz base
- 128k L2, 400MHz base
- 512k L2, 400MHz base
- 512k L2, 533MHz base
- 512k L2, 800MHz base, HT

Much beating of the drum between Celeron (the second in the above list) and the original P4 (first in the list). Muted murmers when P4 went 512k, 533MHz etc. while the "old" P4 were still for sale, enjoying the marketability of the "Pentium" name (and costing extra for "Pentium tax"). Same in the PIII era; beating of the drum when Celeron lacked SIMD and PIII had; not a murmer when SIMD was added to Celeron later. Ppl still think Celeron suck from "zero L2 cache" days

So steering posters to www.intel.com for straight answers is like lambs to the slaughter! They cost about the same to make, so the "Pentium tax" is windfall for Intel. What do you expect them to say?

My policy; consider Pentium 4 only after you've maxed out everywhere else on the system – decent non-Micro-ATX motherboard, good SVGS if games is your thing, a large and fast HD, and lots of RAM (or at least the option to add later). In practice, I use Pentium 4 only for video editing or audio recording systems that are based on i875P motherboards, have 2 x 512M DDR400 for that dual-channel 800MHz base speed, and typically 3 x 120G S-ATA HDs (1 for system, the other two as a 240G RAID 0 workspace).

If you just "buy a Pentium 4" you will end up with Micro-ATX trash that will stunt the chip's ability to deliver. Puny HD, built-in SVGA with no AGP slot, 533MHz base speed – that's the sort of bottom-scraper junk that some builders drop Pentium 4 into, knowing that the gormless will only ask about processor.

On the advantages:

- HyperThreading (new P4 only) helps background tasks
- most RAM access caught in Level 1 cache
- most of the rest in Level 2 cache
- law of diminishing returns when boosting L2 cache size
- only the few remaining RAM accesses go to RAM

So in effect, going 800MHz instead of 400MHz doubles the remaining 5% or so of your memory accesses that the L1 and L2 caches missed, 128k L2 cache does most of the work that 256k L2 does, and 512k a bit more after that. Pentium 4's nice-to-have, yes, but the same money can bring in larger benefits when spent elsewhere in spec-boosting a price-hero system. Start with the HD, make sure mobo doesn't suck.

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> Running Windows-based av to kill active malware is like striking  
> a match to see if what you are standing in is water or petrol.  
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