



New numbering system

FOR INTEL® SERVER PROCESSORS



New numbering system

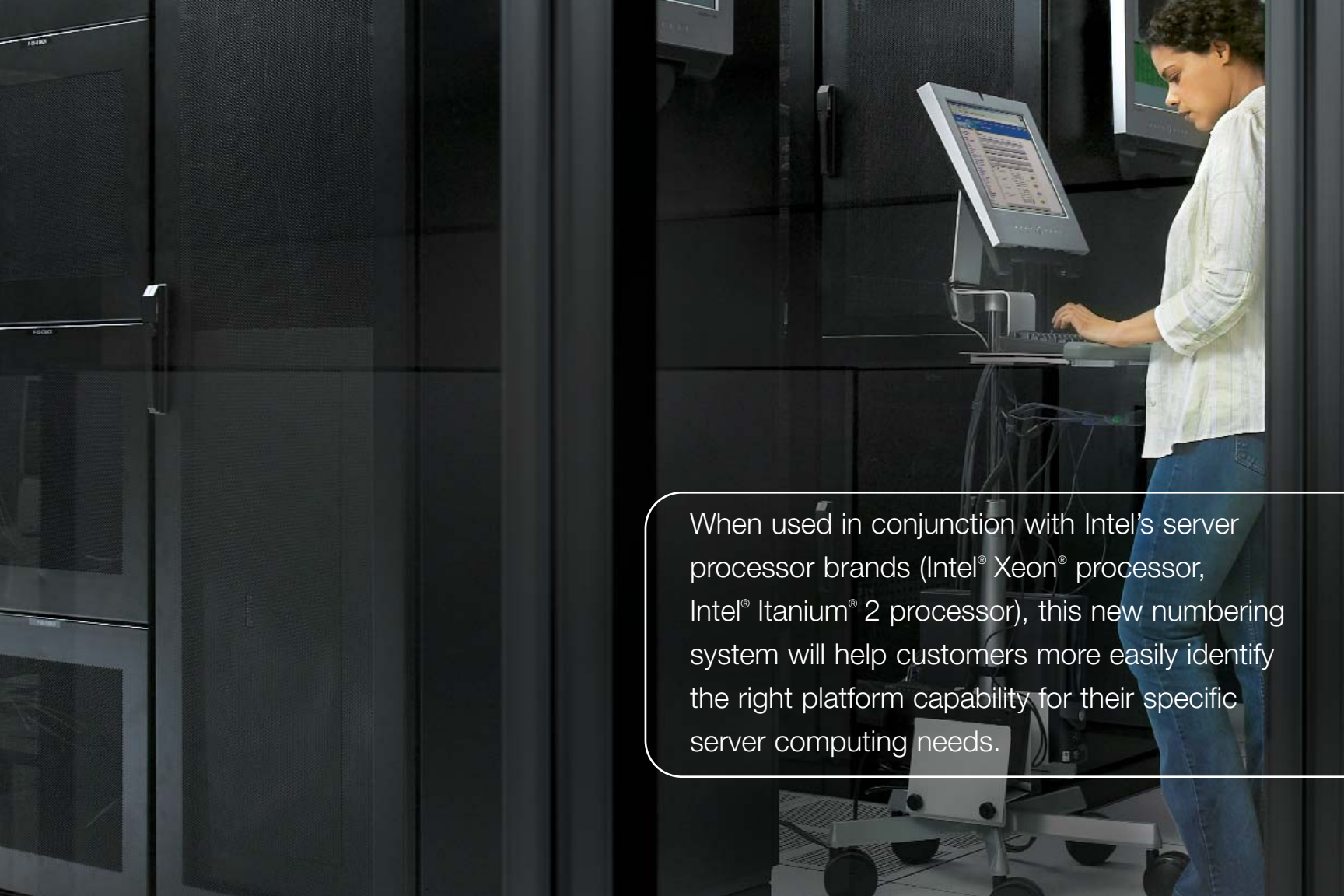
Intel is introducing “processor numbers” for its server platform processors and chipsets to take into account advances brought about by innovative new Intel® technologies. Processor numbers allow customers to consider features besides just clock speed (GHz) — features like architecture, front-side bus, cache, and other innovative Intel technologies that also enhance performance. This enables you to make more informed decisions when choosing a processor for your usage environment.



goes beyond GHz

27

26



When used in conjunction with Intel's server processor brands (Intel® Xeon® processor, Intel® Itanium® 2 processor), this new numbering system will help customers more easily identify the right platform capability for their specific server computing needs.

Background

Historically, Intel has used processor speeds to differentiate products. But with the evolution of Intel technologies both within the processor and beyond, processor speeds alone no longer define performance.

In 2004, Intel introduced processor numbers for desktop and mobile systems with the goal of allowing customers to quickly differentiate among comparable processors and consider more than one processor feature during the selection process.

For this same reason, Intel's server platform processors are now being transitioned to a numbers-based nomenclature — the only difference being that server processors will use four digits instead of three, and chipset and board numbers will also align with the new processor numbering scheme. This will make it easier for customers to match appropriate components for a given server platform segment.

Processor numbers at a glance

WHAT IT IS

- Differentiates the relative features within a processor family
- Indicates more features, more of a single feature³, or a change in architecture
- Combined with the brand, helps guide consumers in selecting the right processor

WHAT IT ISN'T

- A way to compare numbers across processor families
- A measurement of higher performance
- The only factor in selecting a processor

The elements of performance

When comparing processor numbers, it's important to keep in mind that there are other key features besides clock speed that contribute to the processor's overall value. For example, there may be a case where the processor number increases because a front-side bus speed or cache increases, while the clock speed stays the same or even decreases.

Here are some of the elements that affect the composition of a processor number:

Architecture: Basic design of a microprocessor. May include process technology and/or other architectural enhancements.

Cache (MB/KB): A temporary storage area for frequently accessed or recently accessed data. Having certain data stored in a cache speeds up the operation of the computer. Cache size is measured in megabytes (MB) or kilobytes (KB).

Clock Speed (GHz/MHz): Speed of the processor's internal clock, which dictates how fast the processor can process data. Clock speed is usually measured in GHz (gigahertz, or billions of pulses per second).

Front-Side Bus (GHz/MHz): The connecting path between the processor and other key components such as the memory controller hub. FSB speed is measured in GHz or MHz.

Processors (sometimes in conjunction with chipsets and/or server board components) may also contain other Intel technologies and capabilities that affect performance and may be reflected in incremental processor numbers. These include features such as Hyper-Threading Technology,¹ 64-bit technology, Intel® Virtualization Technology, Intel® I/O Acceleration Technology, Intel® Active Management Technology,² etc.

How to choose

Each Intel® server processor family is designed for a particular use. And within each family, there are multiple “models” offering different combinations of features and capabilities — which may or may not include differences in clock speed. This is where part numbers come in.

USAGE

- Volume DP servers/workstations based on the Intel® Xeon® Processor
- Greater scalability with MP server platforms based on the Intel® Xeon® Processor MP
- Maximum performance and scalability for RISC replacement usage

PROCESSOR SEQUENCE

- Intel® Xeon® Processor 5000 sequence
- Intel® Xeon® Processor 7000 sequence
- Intel Itanium® 2 Processor 9000 sequence

What each number means

Intel® processor names will be composed of the processor family and a 4-digit processor sequence number. The number plus the processor family make up the overall “processor name.”

What the new numbering system is not

It's important to note that individual processor/chipset/board numbers are not tied one-to-one with specific features. Instead, these numbers represent a combination of features relative to other numbers within a sequence.

For example, the 9050 sequence is not necessarily more powerful than the 9040 sequence. Instead, the numbers are based on a combination of more features, more of a feature, or a change in architecture within the brand family and sequence.

For example, in the Dual-Core Intel® Xeon® Processor 7041, the “1” does not specify a front-side bus speed, or a feature such as Intel Virtualization Technology. It only represents that the 7041 has a *different* feature set than the 7040. Processor numbers are also not a measurement of performance. A higher number does not necessarily mean higher performance for any given usage model or system configuration.

Also, linear increments between processor numbers are not meant to indicate linear feature advancements. For example, the differences in processor features between an Intel Xeon Processor 5050 and an Intel Xeon Processor 5070 will not be the same as between a 7050 and a 7070, even though both pairs of processors are separated by an increment of 20 digits.

Aligning chipset and board numbers

Chipset numbers will be aligned to the appropriate processor for ease of matching, and are indicated by a one-letter suffix. For example, in the name Intel® 5000X, the X identifies this as a chipset and 5000 identifies it as a chipset for the Intel Xeon Processor 5000 series.

Again, the letter suffix does not have any inherent meaning — for instance, “A” is not necessarily more powerful than “B.”

Board numbers are based on the chipset number and are indicated by a 2-letter suffix following the chipset suffix. For example, Intel® Server Board S5000PSL is the server board for the volume segment (Star Lake) family based on the Intel 5000P chipset.

When will these changes take effect?

The transition to numbers-based nomenclature will begin with the introduction of Dual-Core Intel Xeon processors in late 2005.

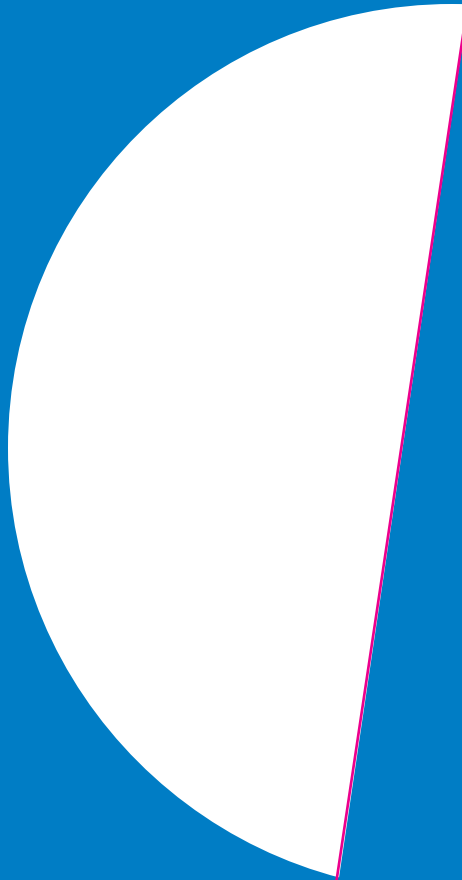
Processors that use GHz and cache size as identifiers today will continue to use those identifiers. Chipsets and boards that are already named will continue to use those names. Some dual-core processors with processor numbers will launch with chipsets that already have names.

Alignment between processors, chipsets, and server boards will initiate as new server chipsets — launching in 2006 — begin to use the new numbering convention.

Uni-Processor (UP) workstations will continue to use the desktop processor and chipset numbers and naming convention. Entry UP servers will continue to use desktop processor numbers, but will adopt the new chipset numbering scheme in the latter half of 2006.



INTEL® SERVER PLATFORM
New n
make choice



Visit www.intel.com/servers for more details
on server processor numbers.

¹Intel® Active Management Technology requires a system with an Intel® 945G Express Chipset, Intel® PRO/1000 PM network connection and appropriate third-party software.

²Hyper-Threading Technology requires a computer system with an Intel® Xeon® processor supporting Hyper-Threading Technology and an HT Technology-enabled chipset, BIOS and operating system. Performance will vary depending on the specific hardware and software you use. See <http://www.intel.com/info/hyperthreading/> for more information including details on which processors support HT Technology.


³Note that there may be more of one feature and less of another

Processor numbers do not reflect processor performance. The application of numbers to Intel® processors is effective starting October 2005.

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