

Intel Introduces Processor Numbers

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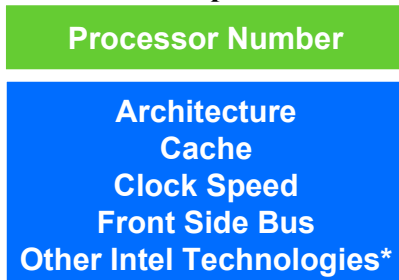
Background

Over the past few years, Intel has been making a conscious shift towards delivering broader enhancements to the PC platform beyond the traditional “clock speed” metric.

The most recent example of this shift occurred in 2003, when Intel launched a new computing platform for notebook PCs: Intel® Centrino™ mobile technology. Market research had shown that notebook users valued other features beyond clock speed. Benefits such as extended battery life, integrated wireless LAN capability, and smaller, lighter designs were also regarded as important for optimal notebook usage. Based on this user feedback, Intel Centrino mobile technology was developed. Look for Intel to continue along this trend of innovation with end user-driven technologies such as LaGrande Technology for security, Vanderpool Technology for virtualization, and much more.

Just as there may be additional capabilities in the platform beyond the processor, there are additional features within the *processor* beyond clock speed. In order to better convey the overall feature set of our processors and help end customers make more informed decisions about their PC purchase, Intel will introduce “processor numbers” for its desktop and notebook products.

CHART: Composition of a Processor Number



** As Intel processors evolve and advance over time, Intel will integrate new feature technologies and capabilities that may increment the processor number.*

Enhancing the PC Decision-Making Process

Intel’s use of processor numbers is meant to allow consumers to quickly differentiate among comparable processors and to analyze or take into account more than one processor feature during the selection process. Manufacturers in many industries use a product numbering or other categorization system to differentiate products based on prescribed feature sets. This makes it easier for end users to compare specific products within a product line or brand. For example, consumers considering a digital camera purchase may wish to compare optical zoom and digital zoom capabilities in addition to megapixels when selecting among various camera models. Similarly, when buying a new car, most consumers will consider more than sheer horsepower; they will likely also be concerned about fuel efficiency (miles per gallon), safety features, seating capacity, and other options.

Intel’s processor numbers will comprehend the following key features: underlying architecture, cache, front side bus, and other Intel technologies, in addition to clock speed. Over time, these processor

numbers will allow end customers to intelligently and accurately distinguish among individual processors by taking into account a broader set of features that contribute to the overall user experience.

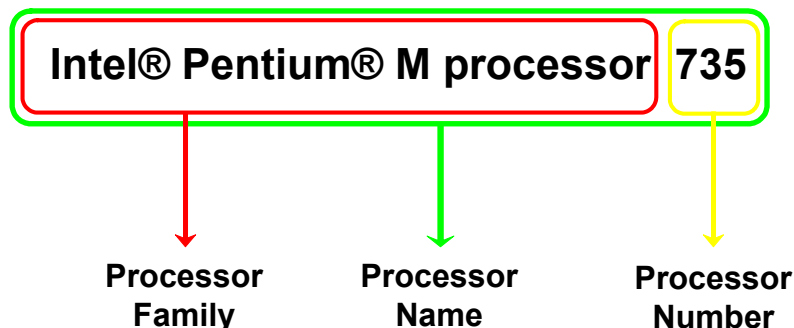
CHART: Processor Features & Definitions

Processor Feature	Feature Definition
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.

Processor Number Nomenclature System

Going forward, Intel processors will be named using a combination of the processor brand (the “processor family”) and a specific 3-digit number (the “processor number”).

EXAMPLE:



Processor numbers will be categorized in 3-digit numerical sequences such as 7xx, 5xx, or 3xx. This number plus the processor family comprise the overall “processor name”. Within each number sequence are specific processor numbers such as 735, 560, or 320. References to the clock speed in the processor name (as has been used in the past) will be replaced with the processor number, which now represent a broader set of features that influence the overall user experience. Processor families may also change to reflect changes in Intel’s product offerings.

Examples of specific Intel processor families include:

Desktop Processor Family	Number Sequence
Intel® Pentium® 4 processor (including the Intel® Pentium® 4 processor supporting Hyper-Threading Technology and Intel® Pentium® 4 processor with HT Technology)	5xx
Intel® Celeron® D processor	3xx

Mobile Processor Family	Number Sequence
Intel® Pentium® M processor*	7xx
Intel® Pentium® M processor Low Voltage (or LV)	7xx
Intel® Pentium® M processor Ultra Low Voltage (or ULV)	7xx
Mobile Intel® Pentium® 4 processor (including the Mobile Intel® Pentium® 4 processor supporting Hyper-Threading Technology and Mobile Intel® Pentium® 4 processor with HT Technology)	5xx
Intel® Celeron® M processor	3xx
Intel® Celeron® M processor Ultra Low Voltage (or ULV)	3xx

* The Intel® Pentium® M processor is the processor component of the Intel® Centrino™ brand, which also encompasses a mobile chipset and integrated wireless LAN capability.

All processor families have their own unique value proposition and correspond to differing usage models for the end customer. Once customers decide how they wish to use their PC, they can select a processor family (brand) based on their desired computing experience. In that context, processor numbers can then be used as a guide in determining what combination of features is most preferable.

A higher number within a processor family can indicate more processor features, more of a specific processor feature, or a change in architecture. Note that in some cases, a higher number processor may potentially have more of one feature and less of another.

For example, there may be a case where the processor number increments due to a front side bus increase (e.g. from 400 MHz to 533 MHz), or cache increase (e.g. from 512KB to 1MB), even though the clock speed may stay constant or decrease. When comparing processor numbers, it's important to keep in mind that there are other key features outside of clock speed that contribute to the overall value of the processor.

Processor Number Guidelines

Processor numbers should be used to differentiate between the relative overall features *within* a certain processor family (e.g. within the Intel® Pentium® 4 processor family) and *within* a numbering sequence (e.g. 550 vs. 540). However, the digits themselves have no inherent meaning, particularly when looking across families; e.g. 710 is not “better” than 510 simply because 7 is greater than 5 from a numerical perspective. The numbers are aligned with different processor families and thus represent different value propositions to the end customer.

Processor numbers are also **not** a measurement of performance. A higher number does not necessarily mean higher performance for any given usage model or any given system configuration. Tools are available to end customers wishing to evaluate processors from solely a performance-based perspective. In these cases, the customer may refer to industry-standard benchmarks which measure PC performance while running specific end user applications. Processor numbers do not represent specific system configurations but rather a set of available processor features, and therefore cannot be used as a proxy for system-level benchmarks. (For more information on industry-standard benchmarks and available performance data, please go to www.intel.com/performance.)

As mentioned earlier, a higher number does not always equate to higher clock speed, and furthermore, linear increments between processor numbers are not meant to indicate linear feature advancements. For example, the differences in processor features between an Intel® Pentium® M processor 725 and

an Intel® Pentium® M processor 730 will not be the same as between an Intel® Pentium® M processor 730 and an Intel® Pentium® M processor 735, even though both pairs of processors are separated by an increment of five digits.

It is Intel's intent that feature specifications for all processors will be made public and easily accessible to help end customers compare processor features within a given processor family and make educated purchase decisions.

TABLE: Processor Numbers at a Glance

What It Is	What It Isn't
Differentiates the relative features <u>within</u> a processor family	A way to compare numbers <u>across</u> processor families
Indicates more features, more of a single feature*, or a change in architecture	A measurement of higher performance
Combined with the brand, helps guide consumers in selecting the right processor	The only factor in selecting a processor

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

For More Information

Intel's processor number nomenclature is scheduled to take effect with mobile processors in May 2004 and with desktop processors in June 2004. Continue to check www.intel.com for more details on processor numbers as they develop.