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# Intel News Release

## Intel Introduces The Pentium® Processor With MMX™ Technology

### Intel MMX™ Technology Delivers Improved PC Performance, Software and New Capabilities for Desktop and Mobile Computers

SANTA CLARA, CALIF. – Jan. 8, 1997 -- Intel Corporation today introduced the Pentium® processor with MMX™ technology, the first microprocessor to incorporate Intel's new technology for improved performance on media-rich applications. Processors for both desktop and mobile computers are available immediately. A broad number of PC manufacturers are introducing systems based on this processor, many bundled with a variety of software designed for Intel MMX technology. This combination of new PCs and software will enhance users' experience on the desktop or on the road by enabling higher quality graphics, video and audio.

"The concerted effort by members of the computing industry made it possible for the simultaneous availability of new systems and new software that takes advantage of Intel's new processor technology," said Mike Aymar, vice president, Desktop Products Group. "We believe the combined capabilities will appeal to the broadest range of consumers yet. The PC experience will be enhanced through a new wave of systems and software that provide such features as life-like color, full-screen video and graphics, real-time animation and manipulation of images, 3D audio and dynamic lighting," Aymar said.

The Pentium processor with MMX technology is the highest performance Pentium processor available. It is offered at 166 and 200 MHz for desktop systems, which are initially focused on the consumer market segment. The two speeds of processors are also offered as individually boxed products for systems integrators and value-added resellers through authorized Intel distributors. The 150 and 166 MHz processors for mobile computers are targeted at the business market segment.

Broad support for Intel's MMX technology in the software community has led to the development of new educational, reference, games, and communications applications, the first of which are available today and many more of which are expected to be announced throughout the year. Many will support hybrid capabilities, combining the advantages of high-performance local processing and media storage with the benefits of an Internet link for accessing multimedia web content, interacting with other people, or updating applications.

**For Business Users**
Business professionals who use notebook computers benefit as well from the Pentium processor with MMX technology. "By introducing this processor for desktop and mobile systems simultaneously, new applications designed for MMX technology are immediately available to the mobile user," said Stephen Nachtsheim, vice president, Mobile and Handheld Products Group. He said examples of such applications include videoconferencing over standard telephone lines, software-based video and 3D graphics, and digital image editing and communications. "Notebook manufacturers will continue to keep pace with desktop computers not only in

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performance, but in significant enhancements such as MMX technology."

**New Logo**
New hardware and software logos have been developed for use in advertising, marketing and promotional campaigns beginning this month. The new logos will help consumers match the software to the hardware so that they may enjoy the best PC experience. Systems based on the Pentium processor with MMX technology will be identified with the addition of a triangular "hat" in the upper left corner of the well-known "Intel Inside® Pentium processor" swirl and lettering. The new hardware logo is licensed to system vendors under the ongoing Intel Inside program. The rainbow-colored "hat" with the "MMX" lettering symbolizes the enhanced capabilities of both the computer and the software. Under a new program, the triangular "hat" logo is being licensed to ISVs for use on software which has been designed to take advantage of Intel MMX technology.

**MMX Technology**
Announced last year, Intel's MMX technology is the most significant enhancement to the programmer's view of the Intel architecture in the last 10 years. The technology's development arose several years ago in response to the rise of media-based computing and its dramatic demand on processor performance to generate high-quality graphics, video and sound. The rise of the Internet and the challenge of delivering this rich media experience over existing communications lines further drove the need for higher performance. Intel engineers developed 57 new instructions to enhance the performance of compute-intensive loops typically found in these types of applications.

MMX technology maintains complete compatibility with the Intel Architecture and is also fully compatible with widely used operating systems and application software. The technology will be included in future processors, including Pentium OverDrive® processors, the first of which will be introduced in the first half of this year for upgradable Pentium processor-based systems.

**Technical Details**
The new processors are built on Intel's enhanced 0.35 micron CMOS process technology which allows it to deliver high performance with low power consumption. Packed with 4.5 million transistors, the Pentium processor with MMX technology includes several architectural enhancements, in addition to MMX instructions. They include a doubled onchip cache size to 32KB and more efficient branch prediction, which provide increased performance of 10 to 20 percent on standard CPU benchmarks. The addition of MMX technology-enabled software will provide even more performance and quality improvements, depending on the type of application and the extent to which the software developer incorporates the new instructions.

On Intel's Media Benchmark the Pentium processor with MMX technology delivers more than 60 percent performance improvement when compared with an equivalent speed Pentium processor. This benchmark, which measures performance on media-rich applications, consists of audio, video, imaging and 3D geometry components.

SPEC CPU95 performance for the 200 MHz processor is 6.41 SPECint95 and 4.66 SPECfp95. Performance for the 166 MHz processor is 5.59 SPECint95 and 4.30 SPECfp95. The iCOMP(R) Index 2.0 ratings are 182 and 160, respectively.

Both the desktop and mobile versions of the processor utilize dual voltage levels. The processor's input and output pins operate at 3.3 volts for compatibility with today's components. The desktop processor's inner core operates at 2.8 volts while the mobile processor

desktop processor is 15.7 watts and thermal design power for the mobile version is 7.8 watts.

Boxed processors for desktop systems are packaged with a fan heatsink, CD sampler with software developed for MMX technology, installation manual, certificate of authenticity, and Intel Inside® program label.

**Pricing**
In 1,000-unit quantities, the 166-MHz and 200-MHz Pentium processors with MMX technology in ceramic or plastic pin grid array (PPGA) packages for the desktop are priced at $407 and $550, respectively. In 1,000-unit quantities, the 150-MHz and 166-MHz Pentium processors with MMX technology in Tape Carrier Packaging or PPGA for mobile systems are priced at $443 and $550, respectively. The mobile processor pricing reflects a premium for the lower voltage operation required for notebook computers. Pricing and availability of boxed processors can be obtained from authorized Intel distributors.

**About Intel**
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