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Fact Sheet

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INTEL QUAD-CORE PROCESSOR UPDATE NOV. 16, 2006

Intel Corporation's multi-core processors are designed to increase the computer user's experience. Multi-core processors increase compute capability, enabling greater business productivity, more immersive home entertainment experiences and an increased server compute density.

Intel is now shipping its Intel® Core™ 2 Duo and Xeon 5100 microprocessors. These processors are based on the revolutionary Intel® Core™ microarchitecture, designed to provide powerful yet energy-efficient performance. With the power of dual cores, or computing engines, the processors can manage simultaneous tasks faster. They also can operate smoother when multiple applications are running, such as writing e-mails while downloading music or videos and conducting a virus scan. These dual-core chips also improve tasks, such as viewing and playing high-definition video, protecting the PC and its assets during e-commerce transactions, and enabling improved battery life for sleeker, lighter notebooks.

Intel is now shipping its latest Intel® Core™ 2 Extreme and Intel® Xeon® 5300 quad-core microprocessors. These microprocessors, also based on the Intel® Core™ microarchitecture, target dual-processor servers and high-end desktop PCs and will take advantage of highly threaded software applications that target these market segments. This includes the currently highly threaded server software environment, as well as the high-performance desktop PC environment that includes media creation software. Also, as Intel works with software developers on threading applications, next-generation games and office software will be able to take advantage of quad-core microprocessors.

Intel's Quad-Core Microprocessors
Intel Core 2 Extreme quad-core processor QX6700

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- World's best desktop PC processor for multimedia applications
- First quad-core desktop PC processor, providing unmatched performance on highly-threaded applications
- Astounding performance for gaming
- Compared to Core 2 Extreme dual-core processor:
 - Up to 80 percent faster on highly threaded applications**
 - Up to 58 percent better for intense multimedia applications like high-definition video encoding**
 - Up to 57 percent better when enjoying immersive 3D gaming**
- Available now

Intel® Core™ 2 Quad processor

- Multimedia powerhouse for demanding entertainment
- Ideal choice for processor intensive, highly-threaded applications
- Enjoy gaming at a new level with the performance of quad-core
- Available in January 2007

Quad-core Intel Xeon processor 5300 series

- Breakthrough performance from the industry's first quad-core server processor in a stable power envelope with 80 watts mainstream quad-core processors
 - Up to 50 percent above leading dual-core Xeon 5100 series**
 - Up to 2.5 times greater performance than other dual-core solutions (AMD Opteron 2000)**
 - Up to 4.5 times more performance than a single core Xeon (the world's most widely deployed server architecture)**
- Ultimate in powerful, dense and energy-efficient computing
- More headroom for server virtualization with twice the cores, threads and cache than any other 2-way standard high volume server platform.
- Intel Xeon processor-based systems are built with more server reliability and advanced performance features than competitive offerings, giving IT the headroom, reliability and compatibility you need to keep pace with business.
- Stable, compatible platform supporting dual-core and quad-core processors
- Available now

Quad-core Intel® Xeon processor - low voltage version

- Low voltage version of the Intel Xeon processor 5300 series
- 50 watt thermal design point (TDP), well suited for ultra-dense rack and blade servers
- Available during the first quarter next year

Quad-core Intel® Xeon processor 3200 series

- Quad-core performance and energy efficiency for single processor servers and workstation systems, available during the first quarter of 2007

Background

- **Engines for Intel-based platforms** – Multi-core processors are the engines that will drive Intel's digital home, office, mobile and enterprise platforms, addressing new and enhanced

multi-tasking, multi-threading and multi-user applications. These are integral parts of the Intel platforms that include chipsets, wireless chips, I/O processors, software and other user-centric silicon innovations in the areas of virtualization, manageability, security, 64-bits, XD technology, network acceleration and more.

- **Intel Core™ microarchitecture** – Intel® Core™ microarchitecture is Intel's new foundation for delivering even greater energy-efficient performance consistent with the Intel Core microarchitecture brand promise. This new microarchitecture extends the energy-efficient philosophy first delivered in Intel's mobile microarchitecture (formerly codenamed Baniyas) and greatly enhances it with many new and leading edge microarchitectural innovations as well as existing features. Key microarchitecture features include Intel® Wide Dynamic Execution, Intel Intelligent Power Capability, Intel Advanced Smart Cache, Intel Advanced Digital Media Boost and Intel Smart Memory Access.
- **Shipment Plans** – Intel has crossed over to our industry-leading 65nm process technology, and has shipped almost 50 million processors on this technology. Intel has shipped more than 6 million dual-core processors based on our Intel Core microarchitecture this year, and is actively working with the industry and software developers to transition to multi-core. The company plans to ship 1 million quad-core processors within three quarters after launch.
- **Desktop Multi-core** – In the second quarter of 2005, Intel delivered the dual-core Intel® Pentium® Processor Extreme Edition for PC enthusiasts and the dual-core Intel® Pentium® D processor for mainstream PC users. The Pentium Processor Extreme Edition also includes Hyper-Threading Technology, showcasing the capability of four software instruction threads simultaneously versus single and dual threads from other one and two-core processors. This January, Intel subsequently introduced a new Pentium D processor based upon its 65nm process technology. This processor doubles the level 2 cache to reduce latency to commonly used data. Intel began shipping the Core 2 Duo processor, based upon the new, state of the art, energy-efficient Intel Core microarchitecture, in July. The microarchitecture is also the foundation for the first desktop PC quad-core processor, the Intel Core 2 Extreme quad-core processor QX6700, which launched today.
- **Mobile Multi-core** – Intel introduced its first mobile optimized dual-core processor, the Intel® Core™ Duo processor, this January. The Intel® Core™ Duo processor is an integral part of the Intel® Centrino™ Duo mobile technology based platform. The processor is based on 65nm technology, supports multi-threading and included a power optimized smart cache along with new power management features. Intel is now shipping the Core 2 Duo mobile processor based upon the new, state of the art, energy-efficient Intel® Core™ microarchitecture.
- **Server Multi-core** – In the fourth quarter of 2005, Intel delivered both its first dual-core Intel Xeon® processor for two processor servers, as well as its first dual-core Intel Xeon processor for servers with four or more processors. Intel has also launched a dual-core Intel Xeon LV processor for low-power dual-processor server designs. The formerly codenamed Bensley and Glidewell platforms (server and workstation respectively) were launched in the

second quarter of 2006 along with the Dual-Core Intel Xeon 5000 series processors. Shortly afterward, Intel launched the first processors based on the revolutionary new Intel Core Microarchitecture the Dual-Core Intel Xeon 5100 processor, formerly codenamed Woodcrest. These dual-core processors radically cut CPU power consumption while boosting performance by up to 80 percent to give Intel unquestionable performance and performance-per-watt leadership. Intel's Quad-core Intel Xeon processor 5300 series, a quad-core variant of Woodcrest, now further extends Intel's technology leadership. The Dual-Core Intel Itanium 2 9000 series processors launched in July. These processors are the first to push beyond the 1 billion transistor mark and contain 1.72 billion transistors each, each processor is a testament to Intel's manufacturing prowess. Intel also launched the dual-core Intel Xeon processor 7100 series in August which competes in the multi-processor server space. The launch of the 7100 series marked the end of Intel's "Summer of Servers" where Intel's entire server lineup was refreshed.

- **Software Development** -- While Intel® Hyper-Threading Technology, introduced in 2002, and related developer and application enabling programs and services have led to mainstream operating systems and hundreds of multi-threaded applications, there continues to be much work left to do. Intel is dedicating thousands of software and solution architects, a range of programs and services, and a suite of developer tools and products to help the industry move forward on development of threaded code. In addition, in mid-2005 Intel announced that it has begun a broad evaluation program of thousands of dual-core enterprise platforms to software developers and enterprise customers
- **Manufacturing Investment** -- Intel has invested more than \$40 billion in capital expenditures since 2000 to bulk up manufacturing capacity with industry leading process technology. Intel has 14 manufacturing plants (or "fabs") worldwide and two more under construction. Five of these fabs are already producing 300mm-sized wafers, the "plates" on which semiconductor devices are made. These larger wafers produce about 2.5 times more chips per wafer than the older 200mm version and enable lower production costs, reducing the costs per individual component by about 30 percent. Intel, with 3 fabs in high-volume production using its leading-edge, 65nm process technology, has shipped 46 million microprocessors using this technology. Continuing capital investment and introduction of leading-edge technology enables Intel to satisfy increasing worldwide demand for its products while also enabling new features, such as powerful and energy-efficient dual core processors.

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