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Backgrounder

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From Pentium Pro to Nehalem: the Story of Transformation

SANTA CLARA, March 30, 2009 – Intel Corporation has launched its most important server product in almost 15 years today, the Intel® Xeon® Processor 5500 series. The 17 new chips are based on the record-setting Nehalem architecture, and will speed the next surge in innovation. Boasting breakthrough capabilities and unprecedented performance and energy-efficiency, the Xeon 5500 series delivers dramatic leaps in intelligence, data center electricity usage control and adaptability.

The new products represent only the latest chapter in a larger story dating back to 1995 when Intel launched the Intel® Pentium® Pro processor. At that time, fewer than 750,000 servers based on Intel architecture were sold, representing only 10 percent of the total revenue for server hardware purchases. The Pentium Pro processor was Intel's first chip optimized for server workloads and the architecture became the backbone of the Internet.

Today, eight of 10 servers are based on Intel technology. While proprietary systems are still on the market, Intel-based servers continue to experience incredible growth, especially into higher-end applications. These applications – from high performance to cloud computing – will benefit most from the new Xeon 5500 series.

The Xeon 5500 series contains several breakthrough capabilities that will alter the technology landscape. Performance gains in the Intel 2-socket server generation are greater than for any Xeon processor Intel has ever delivered – a 70-125 percent higher performance across a range of workloads when compared to systems based on the Xeon 5400 series.

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Due to constrained physical environments, today's server systems are often unable to adapt to increasingly diverse workloads. The Xeon 5500 series offers several technologies that improve system versatility and remove limits on the number and types of applications users can run. Intel Turbo Boost Technology, Hyper-Threading Technology, Power Gating, Extended Page Tables and Intel Virtualization Technology (VT) FlexMigration deliver outstanding results on a broad range of workloads -- optimized for parallelism or sensitive to clock frequency, virtualized or native, performance critical or power limited.

The Xeon 5500 series will play a key role in advancing two areas, all the while showcasing the chip family's extensive versatility. The first is discovery and invention. As the foundation of small- and large-scale high-performance computing solutions, the Xeon 5500 series delivers performance that helps scientists unravel the mysteries of the universe, or speeds the time-to-market of new products from local manufacturers.

Secondly, as the Internet expands toward Intel's vision of 15 billion connected devices, the Xeon 5500 series will also be the foundation for the transformation of Internet infrastructure. The industry has a common goal of running applications from optimized hardware, which are available on demand and scalable to the masses. Often called cloud computing, this vision will only become a reality by incorporating the adaptability, capability and intelligence of the Xeon 5500 series.

A discussion of the most important server architecture in more than a decade would not be complete without addressing the current economic environment. In this time of economic challenges, customers can replace older Xeon servers with the Xeon 5500 series and get as fast as an 8-month payback. This combination of immediate-benefit and long-term upside, not to mention its dynamic new features, makes the Xeon 5500 series truly exceptional.

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