intel® Leap ahead™

Intel® Xeon® Processor 5400[2] Series: Build Success into Your Business

Performance

- Up to 25% better performance than Quad-Core[1]
- Up to 2x better performance than Dual-Core[8]
- Up to 5x increased performance over Single-Core[7]

Energy Efficiency

- Up to 38% performance per watt
- 3 GHz Quad-Core at 80 W
- Lower idle power reduces system power

Reliability

- Intel-based servers have been a foundation of business technology for nearly 30 years and are built with more reliability features than completive alternatives

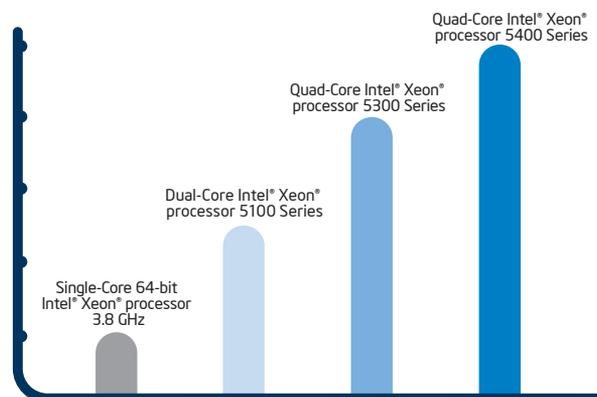# Boost Performance with 45nm Quad-Core Intel® Xeon® Processors

Since early 2006, multi-core Intel® processor-based servers have provided breakthrough performance and energy efficiency for organizations of all sizes, to help support an efficient, scalable, and flexible infrastructure. Now, the newest quad-core processors, built with Intel's high-performance, energy-efficient 45nm manufacturing technology, deliver up to 25% more performance than today's leading quad-core Intel processors.[1] Offered in the same stable technology platform you rely on for the broadest range of business needs today.

Built on the enhanced Intel® Core™ microarchitecture, the Quad-Core Intel® Xeon® processor 5400[2] series-based platforms are ideal for dense computing environments where exceptional performance and performance-per-watt are key requirements. Supported by the Intel® 5000 chipset family and high-performing Front-Side Busses (FSB), Quad-Core Intel Xeon processor 5400 series-based servers are expected to deliver improved performance with better power efficiency, providing up to a 38% performance-per-watt improvement over previous-generation processors.[3]

Enhanced Flexibility and Performance with Intel® Virtualization Technology

Intel® Virtualization Technology[4] (Intel® VT) offers enhanced flexibility and performance. A new feature called Intel® VT FlexMigration,[5] enables you to build one compatible virtualization pool and conduct live VM migration across all Intel Core microarchitecture-based servers, including the new Intel Xeon processor 5400 series, giving you the power to choose the right server platform to best optimize performance, cost, power and reliability. In addition, a new processor extension, Intel® VT FlexPriority, optimizes virtualization software efficiency by improving interrupt handling.

Performance Comparison for Intel® Xeon® Processor 5400 Series
(Comparing Integer performance using SPECint*_rate_base2006 on 64-Bit Linux*)

Single-Core 64-bit Intel® Xeon® processor 3.8 GHz

Dual-Core Intel® Xeon® processor 5100 Series

Quad-Core Intel® Xeon® processor 5300 Series

Quad-Core Intel® Xeon® processor 5400 Series

For more information on the Intel® Xeon® processor, visit www.intel.com/xeon

Xeon® inside™

Quad-Core and Dual-Core Intel® Xeon® Processor 5400 and 5200 Series[6]

Features	Benefits
Multi-core Processing	• 45nm technology boosts performance on a range of workloads. • Increased headroom for multi-threaded applications and heavy multi-tasking scenarios. • Helps boost system utilization through virtualization and application responsiveness. • Quad-core performance and cost/virtual machines. • Platform-compatible with other Quad-Core and Dual-Core Intel® Xeon® processors for ease of migration and IT stability.
Enhanced Intel® Core™ Microarchitecture	• Boosts performance on multiple applications/user environments and data-demanding workloads, while enabling denser data center deployments. through improved performance per watt. • The new 45nm Enhanced Intel Core microarchitecture delivers up to 38% more performance per watt in the same platforms and at the same system power level.[9] • Reduced idle processor power, lowers average server power consumption.
Large 12 MB of on-die L2 Cache (2 x 6 MB)	• Increases efficiency of L2 Cache-to-core data transfers, maximizing main memory to processor bandwidth. • Reduces latency by storing larger data sets closer to the processor, reducing the number of trips to main memory. • Up to 6 MB of L2 Cache can be allocated to one core.
Intel® Virtualization Technology[4] (Intel® VT)	A suite of processor enhancements that assists virtualization software to deliver more efficient virtualization solutions and greater capabilities including 64-bit guest OS support. • Intel® VT FlexPriority, a new Intel® VT extension that optimizes virtualization software efficiency by improving interrupt handling. • Intel® VT FlexMigration enables Intel Xeon processor 5400 and 5200 series-based systems to be added to the existing virtualization pool with single, 2, or 4+ socket Intel Core microarchitecture-based servers.
Intel® I/O Acceleration Technology (Intel® I/OAT) with next-generation improvements	• Next-generation improvements designed to significantly accelerate data processing across the entire platform through CPU utilization and latency improvements.
Fully Buffered DIMM (FBDIMM) technology	• Provides an increase in platform memory capacity and memory speed to either 533 or 667 MHz. • Support for up to 16 memory slots and 64 GB of system memory. • Enhances memory reliability with unique technology features compared to native DDR2 solutions.
Enhanced Front-Side Bus (FSB)	• New dedicated high-speed bus design enables increased throughput and bandwidth between each of the processors and the chipset. • Supporting 1333 and 1066 MHz.
Intel® 64 Architecture[10]	• Flexibility for 64-bit and 32-bit applications and operating systems.

(intel®)