

PRODUCT BRIEF

Intel® Xeon® Processor

The Next Generation of Intelligent Server and Workstation Processors



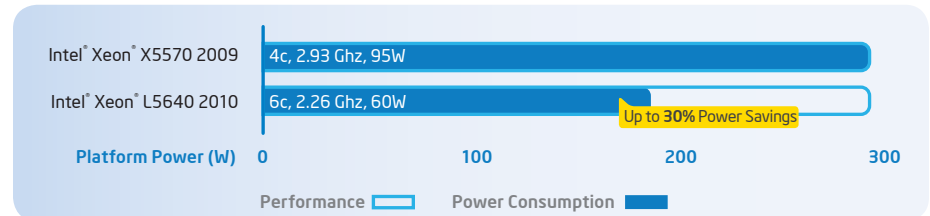
# Introducing the Intel® Xeon® processor 5600 series—the next generation of intelligent server and workstation processors.



Help your customers reduce operating costs and achieve rapid return on investment with the industry leading performance and energy efficiency of the Intel® Xeon® processor 5600 series.

### THE ADVANTAGES ARE CLEAR:

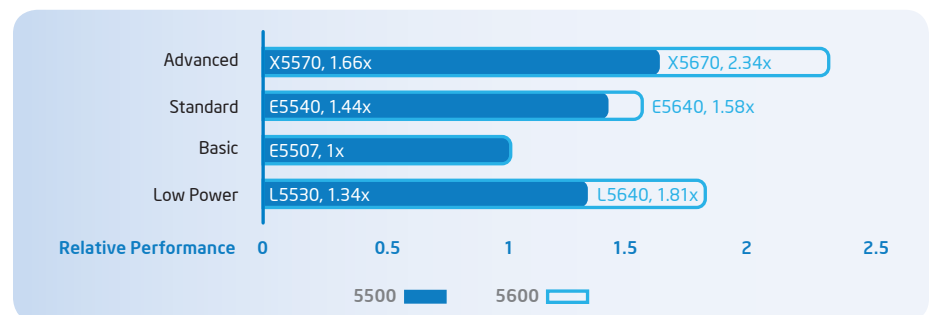
- **Intelligent performance.** Based on our 32nm microarchitecture, these new processors offer up to six processing cores and 12 megabytes of Level 3 cache for up to a *60 percent performance boost* over the Intel® Xeon® processor 5500 series.<sup>1</sup> Processor performance is optimized with Intel® Turbo Boost Technology<sup>2</sup> and Intel® Hyper-Threading Technology<sup>3</sup>, while new hardware-based instructions for the Advanced Encryption Standard accelerate secure server transaction performance.
- **Automated energy efficiency.** Intel® Intelligent Power Technology and low power states automatically adjust power consumption to meet processor and memory workloads. New low power processor SKUs and low-voltage DDR3 memory support options can increase power savings by up to 30% over the Intel Xeon processor 5500 series without sacrificing performance<sup>4</sup>.



Deliver the same performance at lower power levels with the Intel® Xeon® processor 5600 series.

- **Flexible virtualization.** The ability to support more virtualized machines at higher levels of performance than the Intel Xeon processor 5500 series allows you to consolidate capacity in virtualized environments, while the new Intel® Trusted Execution Technology (Intel® TXT)<sup>5</sup> enhances security from emerging threats.

### Understanding Your Performance Options

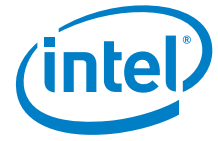


Each bar represents specint\_rate\_base2007 performance relative to the basic segment Intel Xeon processor E5507. Performance results estimated based on internal Intel analysis and are provided for informational purposes only. Individual results may vary<sup>6</sup>.

**PRODUCT BRIEF**

**Intel® Xeon® Processor**

The Next Generation of Intelligent Server and Workstation Processors



**The right processor for the right customers.**

SEGMENT	ADVANCED		STANDARD		LOW POWER	
Target Market	Users seeking the best performance and memory bandwidth		Users balancing cost and performance		Users looking for the lowest power system deployments	
Intel® Xeon® Processor Series	5500	5600 <small>NEW!</small>	5500	5600	5500	5600 <small>NEW!</small>
Thermal Design Power (TDP) Range	95W <sup>7</sup>	95W-130W	80W	80W	60W	40W-60W
Number of Intel® Architecture Nehalem-Based Cores	4	4-6 <small>+50%</small>	4	4	4	4-6 <small>+50%</small>
Number of Processing Threads	8	8-12 <small>+50%</small>	8	8	8	8-12 <small>+50%</small>
On-die Level 3 Cache (MB)	8	12 <small>+50%</small>	8	12 <small>+50%</small>	8	12 <small>+50%</small>
Frequency Range (GHz)	2.66-2.93 <sup>7</sup>	2.66-3.46 <small>NEW!</small>	2.26-2.53	2.40-2.66 <small>NEW!</small>	2.13-2.40	1.86-2.40 <small>NEW!</small>

## Key technologies of the Intel Xeon processor 5600 series.

A number of key technologies offered in the Intel Xeon processor 5600 series deliver important benefits to your customers. Introducing and reinforcing these technologies drive value and support your upgrade recommendations.

### Intel Turbo Boost Technology<sup>2</sup>

Performance on demand for users with rapidly changing workloads. Dynamically increases processor speeds when conditions allow by turning off unused cores and routing available power resources to the core(s) being utilized.

### Intel Hyper-Threading Technology<sup>3</sup>

Enables users to run multiple applications (including threaded software applications) simultaneously by supporting two processing threads on a single core. This provides higher performance for threaded workloads, greater system flexibility, and responsiveness.

### Additional DDR3 DIMM support—NEW!

Users seeking the fastest DDR3 read/write speeds without compromising memory capacity will benefit from support for up to two DDR3 DIMMs per channel at 1333 MHz, for up to 12 DIMMs/system. This is double the capacity supported by the Intel Xeon processor 5500 series and is available on Intel® Advanced Segment SKUs (X5650, X5660, X5667, X5670, X5677, and X5680). For users seeking even lower system power consumption, all SKUs of the Intel Xeon processor 5600 series support 1.35V DDR3 DIMMs.

### Intel Trusted Execution Technology (Intel TXT)<sup>5</sup>—NEW!

Ideal for users running virtualized systems that are vulnerable to virtual machine attacks; hypervisor, BIOS or other firmware attacks; malicious root kit installations; or other software-

based attacks not detected by runtime protections such as anti-virus software. Intel TXT creates a Measured Launch Environment to enable accurate measurement of all critical launch environment elements and a cryptographically unique identifier for each approved launch-enabled component. Any code that does not match approved code is blocked through hardware-based enforcement.

### Advanced Encryption Standard New Instructions (AES-NI)—NEW!

Offers users improved security of server data and transactions through faster encryption and decryption of sensitive information. Hardware-driven instructions accelerate AES operations used to encrypt and protect full disks, database-level information, and online secure sockets layer (SSL) transactions.

<sup>1</sup> Source: Intel internal measurements February 2010, comparing the Intel® Xeon® X5570 processor vs. the Intel® Xeon® X5680 processor using the CPU intensive benchmark Blackscholes.

<sup>2</sup> Intel® Turbo Boost Technology requires a PC with a processor with Intel Turbo Boost Technology capability. Intel Turbo Boost Technology performance varies depending on hardware, software, and overall system configuration.

<sup>3</sup> Intel® Hyper-Threading Technology (Intel® HT Technology) requires a computer system with a processor supporting HT Technology and an HT Technology-enabled chipset, BIOS, and operating system. Performance will vary depending on the specific hardware and software used.

<sup>4</sup> Source: Internal Intel estimates comparing Xeon® X5570 vs. L5640 SKUs using SPECint\_rate\_2006

<sup>5</sup> Intel® Trusted Execution Technology (Intel® TXT) has specific hardware and operating system requirements. Consult your motherboard manufacturer to find out if Intel TXT is supported.

<sup>6</sup> Performance results have been estimated based on internal Intel analysis and are provided for informational purposes only. Individual results may vary. Each bar represents Specint\_rate\_base2007 performance relative to the basic segment Intel® Xeon processor E5507. The Intel® Xeon® processor 5500 series SKUs used for this analysis are the X5570 (advanced), E5640 (standard) and L5640 (low power). The Intel® Xeon® processor 5600 series SKUs used for this analysis are the X5670 (advanced), E5640 (standard) and L5640 (low power).

<sup>7</sup> The W5590 (3.33 GHz, 130W TDP) and W5580 (3.2GHz, 130W TDP) SKUs are not included in this comparison as they were supported for workstations only.

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