

Intel Launches Xeon 5600 -- its Most Secure Data Center Processor

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Combining unprecedented security, performance and energy efficiency, Intel Corporation today launched the Intel Xeon Processor 5600 series.

The new processors deliver two new security features -- Intel Advanced Encryption Standard New Instructions (Intel AES-NI), and Intel Trusted Execution Technology (Intel TXT) -- that enable faster encryption and decryption performance for more secure transactions and virtualized environments, providing data centers with a stronger foundation for cloud security.

These are also the first server and workstation chips based on the groundbreaking, new Intel 32nm logic technology, which uses Intel's second-generation high-k metal gate transistors to increase speed and decrease energy consumption. The [Intel Xeon Processor](#) 5600 series supports up to six cores per processor and delivers up to 60 percent greater performance than the 45nm Intel Xeon processor 5500 series. In addition, data centers can replace 15 single-core [servers](#) with a single new one, and achieve a return on their investment in as little as 5 months.

Data centers will also benefit from the power efficiency of the Intel Xeon processor 5600 series. A two-socket server using the new low-voltage Intel Xeon processor L5640 can deliver the same performance as a server using the previous generation's champion; the Intel Xeon processors X5570 series, but with up to 30 percent lower platform power. For more information, see www.intel.com/performance/server/xeon/summary.htm.

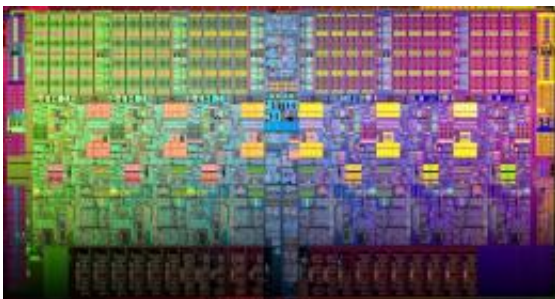
"The Intel Xeon Processor 5600 series will be the backbone of mainstream computing environments," said Kirk Skaugen, vice president and general manager of the Intel Architecture Group. "New security capabilities will boost the confidence of IT managers. Improvements in performance, server virtualization and [power consumption](#) will foster productivity and efficiency for a broad range of applications ranging from data transactions to workstations performing medical imaging and digital prototyping."

With emerging threats, new architectures and an ever-changing regulatory environment, security is an increasing concern for IT managers, and often an impediment to deploying more advanced computing infrastructures. The Intel Xeon processor 5600 series addresses these issues with features that help ensure greater data integrity.

The Intel Xeon processor 5600 series includes Intel AES-NI, a new set of instructions first introduced with the new 2010 Intel® Core® processor family. These instructions accelerate AES performance to enable faster data encryption and decryption for a wide range of applications such as database encryption features, full disk encryption and secure internet transactions.

Intel TXT will provide added security that cloud environments have been waiting for by enabling a more secure platform launch environment, along with providing more protection for applications that move between virtualized servers. Hardware-based capabilities integrated into the processor shield against malicious software to allow important applications and data to run more securely in a virtualized environment.

Working together, Intel TXT and Intel AES can ensure that virtualized environments experience better performance and functionality, and are more secure when they are launched, migrated or at rest.



Color photograph of Intel Xeon processor 5600 series die. The die size is 248 mm² with 1.17 billion transistors.

The security of the Intel Xeon processor 5600 series is matched by performance, versatility and [energy efficiency](#) that will help increase the

efficiency of data center operations. Technologies such as Intel Turbo Boost Technology, Intel Hyper-Threading Technology and improved Intel Virtualization Technology (VT) adjust to the performance requirements of users, enhance multitasking and increase the reliability and manageability of consolidated IT environments.

The frequency-optimized quad-core version of the Intel Xeon processor 5600 series peaks at 3.46 GHz with a TDP of 130 watts, while the six-core version reaches 3.33 GHz with a TDP of 130 watts. Advanced six-core versions will top out at 2.93 GHz and TDP of 95 watts, and the standard quad-core processor will reach 2.66 GHz at 80 watts. Low voltage versions of the chip will have TDPs as low as 60 watts and 40 watts and feature six and four cores respectively.

Intel also announced the availability of the Intel Xeon processor L3406 series. Targeted for use in the single processor micro server segment, the Intel Xeon processor L3406 series has a TDP of only 30 watts, making it ideal for high-density form factors and power-sensitive environments.

The Intel Xeon processor 5600 series extends performance gains delivered by the Intel Xeon Processor 5500 with 12 new world records for two-socket servers and workstations.

These processors enable outstanding energy-efficient performance and establish a new SPECpower_ssj2008 record for a single node server and a multi-node server. Specifically, the IBM x3650 M3 (single-node server system) delivered 2,927 overall ssj_ops/watt, up to a 42 percent gain over the previous-generation Intel Xeon processor 5500 series, and IBM dx360 M3 (multi-node server system) reports a result of overall 3,038 ssj_ops/watt, up to a 31 percent gain over previous-generation processors. Fujitsu's PRIMERGY RX300 S6 two socket server with two Intel Xeon processors L5640 series meets the needs of those customers who desire performance of the Intel Xeon processor X5570 series but

uses up to 30 percent lower platform power.

Fujitsu's PRIMERGY RX300 S6 system established world record Java performance (a SPECjbb2005 score of 928,393 bops, up to a 46 percent boost over previous generation), world record ERP performance (SAP-SD 2-Tier ERP 6.0 Unicode score of 4,860 benchmark users, up to a 27 percent boost over previous-generation result) and world record Web serving performance (SPECweb2005 score of 104,422, up to a 25 percent boost over previous-generation result). Dell's PowerEdge R710 system established a new 2S server platform performance world record for SPECint_rate_base2006 with a score of 355 and for SPECfp_rate_base2006 with a score of 248.

Cisco's UCS B250 M2 servers powered with two Intel Xeon processor X5680 series set a world record for virtualization performance with a VMMark score of 35.83 at 26 tiles, up to a 42 percent performance gain over previous-generation product. Cisco's UCS B200 M2 platform delivered a record score on SPECComp Mbase2001 and Cisco's UCS C250 M2 platform also delivered a world record on SPECjAppServer2004 benchmark.

For detailed performance results and more information about world record claims see

www.intel.com/performance/server/xeon/summary.htm

New Embedded Processors

In addition to enterprise-class processors, Intel launched today three unique processors for the embedded computing segment, including the first six-core processors, the Intel Xeon E5645 and L5638, the quad-core L5618 and E5620 processors. These processors, featuring 7-year lifecycle support, are built for thermally constrained and robust communications environments, and will route applications more quickly

and efficiently between connected devices.

Extreme 32nm

Today Intel also announced availability of the new Intel Core i7-980X Processor Extreme Edition, the company's first 32nm, six-core processor with 12 computing threads for client applications. Offering stunning performance for digital content creation, 3-D rendering, multitasking and hardcore gaming, the new Intel Core i7-980X is drop-in compatible with most existing Intel X58 Express chipset-based motherboards. Running at 3.33 GHz, the Intel Core i7-980X is overclocking-enabled to provide flexibility to advanced users who want to adjust their speed settings, and has 12MB of Intel Smart Cache - 50 percent more than the current Intel flagship desktop processor. At the recent Game Developer's Conference in San Francisco, highly threaded games and digital content creation titles were shown, such as Ubisoft R.U.S.E, Sega's Napoleon: Total War, and Cakewalk Sonar Producer.

The Intel Xeon processor 5600 series ranges in price from \$387 to \$1,663 in quantities of 1,000. The E5645, L5638 and L5618 embedded processors are priced at \$958, \$958 and \$530, respectively, in quantities of 1,000. The Intel Core i7-980X is priced at \$999 in 1000-unit quantities. All currently shipping Intel Server Boards and Systems that support the previous-generation Intel Xeon processor 5500 series also support the [Intel](#) Xeon processor 5600 Series.

Source: Intel

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