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Intel Launches Its Most Secure Data Center Processor

Second-Generation High-K Metal Gate 32nm Processors Blend Security, Performance, Energy Efficiency

NEWS HIGHLIGHTS:

- First 32nm process technology-based enterprise-class processors integrate robust security capabilities that enhance data integrity and server virtualization.
- Delivering up to 60 percent greater performance than the previous-generation processor, data centers can replace 15 single-core servers with one server and achieve a return on their investment in as little as 5 months.
- First six-core embedded computing processors drive unmatched performance for connected devices.
- Highest-end desktop processor offers stunning performance for digital content creation, 3-D rendering, massive multitasking and extreme gaming.

SANTA CLARA, Calif.--(BUSINESS WIRE)-- Combining unprecedented security, performance and energy efficiency, Intel Corporation today launched the Intel(R) Xeon(R) Processor 5600 series. The new processors deliver two new security features -- Intel(R) Advanced Encryption Standard New Instructions (Intel(R) AES-NI), and Intel(R) Trusted Execution Technology (Intel(R) 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."

Enhanced Security

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(R) Core(R) 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.

More Performance, Less Energy

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(R) Turbo Boost Technology, Intel(R) Hyper-Threading Technology and improved Intel(R) 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(R) Xeon(R) 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.

World Record Performance

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 SPEComp*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(R) Core(TM) 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(R) 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(R) 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*.

"Napoleon: Total War is based on our second-generation multi-threaded engine and the latest Intel Core i7-980X processor, allowing us to bring a more realistic user experience by immersing them more deeply in the heat of battle," said Mike Simpson, creative director, Creative Assembly Software*. "We take advantage of the increased core count on the Intel Core i7-980X by adding greater animation detail to fighting units on both land and sea, allowing the game to have higher visual fidelity."

Systems

Starting today and continuing over the next 45 days, server and workstation systems based on the Intel Xeon processor 5600 series are expected to be announced by a wide variety of system manufacturers around the world, including Cisco*, Dell*, Fujitsu*, HP, IBM* and Oracle*.

Many software vendors are also supporting Intel Xeon processor 5600-based platforms, including Citrix*, IBM*, Microsoft*, Novell*, Oracle*, Red Hat*, SAP AG* and VMware*. To learn more about how Intel and major software vendors deliver outstanding platforms, please visit www.intel.com/business.

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. To facilitate reseller transition to this new processor series, 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.

For more details on the Intel Xeon processor 5600 processor series, visit www.intel.com/xeon. For more details on world records and other claims, visit www.intel.com/performance/server/xeon/summary.htm

More information on the Intel Core i7-980X is available at www.intel.com/products/processor/corei7ee/index.htm.

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** As always, check with your board vendor for specific support details. A BIOS update will be required.

*** Warning: Altering clock frequency and/or voltage may (i) reduce system stability and useful life of the system and processor; (ii) cause the processor and other system

components to fail; (iii) cause reductions in system performance; (iv) cause additional heat or other damage; and (v) affect system data integrity. Intel has not tested, and does not warranty, the operation of the processor beyond its specifications.

World record claim based on comparison of two socket server platforms based on x86 architecture. Performance results based on published/submitted results as of March 16, 2010. Platform configuration details are available at www.intel.com/performance/server/xeon/summary.htm.

Performance tests and ratings are measured using specific computer systems and/or components and reflect the approximate performance of Intel products as measured by those tests. Any difference in system hardware or software design or configuration may affect actual performance. Buyers should consult other sources of information to evaluate the performance of systems or components they are considering purchasing. For more information on performance tests and on the performance of Intel products, visit www.intel.com/performance/resources/limits.htm or call (U.S.) 800-628-8686 or 916-356-3104.

Intel(R) Virtualization Technology requires a computer system with an enabled Intel(R) processor, BIOS, virtual machine monitor (VMM) and, for some uses, certain platform software enabled for it. Functionality, performance or other benefits will vary depending on hardware and software configurations and may require a BIOS update. Software applications may not be compatible with all operating systems. Please check with your application vendor.

Intel(R) Hyper-Threading Technology (Intel(R) HT Technology) requires a computer system with a processor supporting Intel(R) HT Technology and an Intel(R) HT Technology-enabled chipset, BIOS, and operating system. Performance will vary depending on the specific hardware and software you use. For more information including details on which processors support Intel(R) HT Technology, see www.intel.com/products/ht/hyperthreading_more.htm.

Intel(R) Turbo Boost Technology requires a Platform with a processor with Intel Turbo Boost Technology capability. Intel Turbo Boost Technology performance varies depending on hardware, software and overall system configuration. Check with your platform manufacturer on whether your system delivers Intel Turbo Boost Technology. For more information, see www.intel.com/technology/turboboost.

Intel(R) processor numbers are not a measure of performance. Processor numbers differentiate features within each processor family, not across different processor families. See www.intel.com/products/processor_number/ for details.

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Source: Intel Corporation