

Intel Xeon processor E5-2600 product family: Powering the cloud to handle 15 billion connected devices

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Addressing the incredible growth of data traffic in the cloud, Intel Corporation announced the record-breaking Intel Xeon processor E5-2600 product family. These new processors deliver leadership performance, best data center performance per watt, breakthrough I/O innovation and trusted hardware security features to enable IT to scale. These processors are not only at the heart of servers and workstations, but will also power the next generation of storage and communication systems from leading vendors around the world.

Forecasts call for 15 billion connected devices and over 3 billion connected users by 2015. The amount of global data center IP traffic is forecasted to grow by 33 percent annually through 2015, surpassing 4.8 zettabytes per year, more than 3 times the amount in 2011. At these levels, each connected user will generate more than 4GB of data traffic every day – the equivalent of a 4-hour HD movie. This will increase the amount of data that needs to be stored by almost 50 percent per year. In order to scale to meet this growth, the worldwide number of cloud [servers](#) is expected to more than triple by 2015.

"The growth in cloud computing and connected devices is transforming the way businesses benefit from IT products and services," said Diane Bryant, [Intel](#) vice president and general manager of the Datacenter and Connected Systems Group. "For businesses to capitalize on these innovations, the industry must address unprecedented demand for

efficient, secure and high-performing datacenter infrastructure. The [Intel Xeon](#) processor E5-2600 product family is designed to address these challenges by offering unparalleled, balanced performance across compute, storage and network, while reducing operating costs."

The key requirements to enable IT to scale are performance, energy efficiency, I/O bandwidth and security. With the best combination of performance, built-in capabilities and cost-effectiveness, the new Intel Xeon processor E5-2600 product families are designed to address these requirements, and become the heart of the next-generation data center powering servers, storage and communication systems.

Supporting up to eight cores per processor and up to 768GB of system memory, the Intel Xeon processor E5-2600 product family increases performance by up to 80 percent compared to the previous-generation Intel Xeon processor 5600 series. The family also supports Intel Advanced Vector Extension (Intel AVX) that increases the performance on compute-intensive applications such as financial analysis, media content creation and high performance computing up to 2 times.

Additional built-in technologies such as Intel Turbo Boost Technology 2.0, Intel Hyper-Threading Technology and Intel Virtualization Technology provide IT with flexible capabilities to increase the performance of their infrastructure dynamically. These performance advances have led the Intel Xeon processor E5-2600 product family to capture 15 new dual socket x86 world records.

Modern data centers must improve the raw performance they deliver, but also do so efficiently by reducing power consumption and operating costs. The Intel Xeon processor E5-2600 product family continue Intel's focus on reducing total cost of ownership by improving energy efficient performance more than 50 percent^{1,4} as measured by SPECpower_{ssj} 2008 compared to the previous generation Intel Xeon processor 5600

series. These processors offer support for tools to monitor and control power usage such as Intel Node Manager and Intel Data Center Manager, which provide accurate, real-time power and thermal data to system management consoles. In addition, Intel's leadership performance allows IT managers to meet their growing demands while optimizing software license and capital costs.

With the unprecedented growth in data traffic it is essential that systems not only improve computational abilities, but also enable data to flow faster to support data-hungry applications and increase the bandwidth within the data center. The Intel Xeon processor E5-2600 product family meets these needs with Intel Integrated I/O (Intel IIO) and Intel Data Direct I/O (Intel DDIO). Intel DDIO allows Intel Ethernet controllers and adapters to route I/O traffic directly to processor cache, reducing trips to system memory reducing power consumption and I/O latency. The Intel Xeon processor E5-2600 product family is also the first server processors to integrate the I/O controller supporting PCI Express 3.0 directly into the microprocessor. This integration reduces latency up to 30 percent compared to prior generations and with PCI Express 3.0 can up to triple the movement of data into and out of the processor.

The high-performance processing power along with Intel Integrated I/O and advanced storage features such as PCIe non-transparent bridging and asynchronous DRAM refresh, makes the Intel Xeon processor E5-2600 product family also an ideal choice for storage and communications solutions.

Increasing bandwidth demands driven by server virtualization and data and storage network consolidation have led to strong growth in 10 Gigabit Ethernet deployments, with adapter port shipments exceeding 1 million units in each quarter of 2011. Today's announcement of the Intel Ethernet Controller X540 demonstrates Intel's commitment to driving 10 Gigabit Ethernet to the mainstream by reducing implementation costs.

This industry-first single-chip 10GBASE-T solution is designed for low-cost, low-power LAN on motherboard (LOM) and includes flexible I/O Virtualization and Unified networking support at no additional cost.

The Intel Xeon processor E5-2600 product family reaffirms Intel's commitment to providing a more secure hardware foundation for today's data centers. Intel Advanced Encryption Standard New Instruction (Intel AES-NI) helps systems to quickly encrypt and decrypt data running over a range of applications and transactions. Intel Trusted Execution Technology (Intel TXT) creates a trusted foundation to reduce the infrastructure exposure to malicious attacks. These features in partnership with leading software applications will help IT protect their data centers against attack and scale to meet the demands of their customers.

Starting today, system manufacturers from around the world are expected to announce hundreds of Intel Xeon processor E5 family-based platforms. These manufacturers include Acer, Appro, Asus, Bull, Cisco, Dell, Fujitsu, HP, Hitachi, Huawei, IBM, Inspur, Lenovo, NEC, Oracle, Quanta, SGI, Sugon, Supermicro and Unisys.

The Xeon processor E5-2600 product family will be offered with 17 different parts which range in price from \$198 to \$2,050 in quantities of 1,000. Additionally three single-socket Intel Xeon [processor](#) E5-1600 parts will be offered for workstations which range in price from \$284 to \$1,080.

More information: www.intel.com/content/www/us/en/processors/xeon/xeon-5000-sequence.html

Source: Intel

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