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New Intel® Xeon® Processors Accelerate Time to Insight, Transforming Data into Business Advantage

Intel® Xeon® Processor E7 v3 Product Families Deliver Advanced Performance and Reliability for Real-Time Analytics and Mission-Critical Computing

SANTA CLARA, Calif.--(BUSINESS WIRE)-- Intel Corporation today announced the Intel® Xeon® processor E7-8800/4800 v3 product families, delivering accelerated business insight through real-time analytics and enhanced performance and reliability for mission-critical computing.

Intel Xeon Processor E7 v3 wafer and CPU package (Photo: Business Wire)

Real-time business intelligence is a top priority for companies across the full spectrum of industries, from healthcare to retail to telecommunications, among others. The need to rapidly extract actionable insight from large volumes of data is driving demand for new technologies for in-memory computing and big data analytics. Considering the current and future demand for in-memory computing, Gartner believes that revenue in this market will exceed $9.5 billion by year-end 2018, and at least 50 percent of large organizations will adopt in-memory computing to enable digital business strategies[1].

The Intel Xeon processor E7 v3 family helps customers to securely process and analyze massive data sets in system memory for faster decision-making and improved operational efficiency, giving companies a competitive edge.

“In the digital services economy, success or failure can depend on how quickly businesses act on insight from vast stores of data,” said Diane Bryant, senior vice president and general manager of the Data Center Group at Intel. “The Intel Xeon processor E7 v3 family is the engine for accelerating business intelligence through real-time analytics, enabling businesses to improve customer satisfaction through more personalized products and services, generate new revenue streams and enhance operational efficiency.”

News Facts

- With 20 new performance world records across a broad range of mission-critical applications, the new processor family achieves a 40 percent average performance improvement compared to the prior generation[2].
- The processor family delivers up to 6x improvement in business processing application performance for in-memory transactional workloads[3] optimized with the new Intel® Transactional Synchronization Extensions (Intel® TSX).

- With up to 18 cores, a 20 percent increase in cores compared to the prior generation, and up to 45 megabytes of last-level cache, the processor family can deliver up to 70 percent more decision support analytic sessions per hour[4].
- Product family delivers up to 10x greater performance per dollar while driving up to an 85 percent lower total cost of ownership compared to alternative RISC architectures[5] by reducing the cost of hardware acquisition and power and cooling.
- The processors support configurations up to 32 sockets[6] with support for the industry's largest memory capacity per socket[7] (8-socket systems are capable of supporting up to 12 terabytes of DDR3 or DDR4 memory technology).
- New security and reliability capabilities, including increased cryptographic performance via the latest Intel® Advanced Encryption Standard New Instructions (Intel® AES-NI), as well as additional micro-architectural improvements. Intel® Run Sure Technology, a unique set of reliability, availability and serviceability (RAS) features for the Intel Xeon processor E7 family[8], is enhanced with new features designed to further ensure "five nines" availability for mission-critical applications.
- Product family comprises 12 processor models, including multiple segment optimized processors such as two high-frequency models that are designed for a subset of database applications requiring the fastest cores available.
- Starting today, 17 system manufacturers from around the world will begin announcing Intel Xeon processor E7 v3 family-based platforms. These manufacturers include Bull*, Cisco*, Dell*, Fujitsu*, Hitachi*, HP*, Huawei*, Inspur*, Lenovo*, NEC*, Oracle*, PowerLeader*, Quanta*, SGI*, Sugon*, Supermicro* and ZTE*.
- (*Editor's note:* Intel and Cloudera today announced details on how the partnership is successfully driving enterprise adoption of analytics at scale, including new product enhancement such as the implementation of Intel AES-NI that delivers a 2.5x improvement[9] in encryption off-load performance, enabling an entire Hadoop data set to be encrypted with a system overhead ranging from 1 to 4 percent depending on the workload[10].)

Transforming Businesses through Real-Time Analytics

Nippon Paint, one of the largest paint suppliers in Asia, is currently using Intel Xeon processor E7 v2 running SAP HANA in-memory analytics software to capture consumer behaviors with greater accuracy and accelerate its ability to analyze and act on data for optimized supply chain and marketing campaigns.

"Through real-time analytics, Nippon Paint is able to capture and analyze customer preferences such as colors, design styles and designers, and tailor products and services to specific customer needs," said Justin Chen, CIO, Nippon Paint. "Actionable data that used to take days and weeks to analyze and report on is now available in near real time. We're currently testing with new Intel Xeon processor E7 v3-based systems to take advantage of the higher performance and reliability features to further accelerate data-driven customer insight."

Pricing Details

The Intel Xeon processor E7 v3 product family will be offered with 12 different processor models that range in price from $1,224 to $7,175 in quantities of 1,000. Complete pricing details are available at http://intc.com/priceList.cfm.

Supporting Resources

- Online press kit: http://newsroom.intel.com/docs/DOC-6409
- Customer video: Value of Real-Time Analytics
- Intel blog: A Foundation for Real-Time Insights via Analytics
- Intel blog: The New Frontier for Business Competitiveness
- Fact sheet: Performance World Records
- Social: Blogs, Podcasts and Video
- Join the conversation: @IntelITCenter using #NowPossible and #XeonE7

About Intel

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Results have been estimated or simulated using internal Intel analysis or architecture simulation or modeling, and provided to you for informational purposes. Any differences in your system hardware, software or configuration may affect your actual performance.

Cost reduction scenarios described are intended as examples of how a given Intel-based product, in the specified circumstances and configurations, may affect future costs and provide cost savings. Circumstances will vary. Intel does not guarantee any costs or cost reduction.

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Software and workloads used in performance tests may have been optimized for performance only on Intel microprocessors. Performance tests, such as SYSmark and MobileMark, are measured using specific computer systems, components, software, operations and functions. Any change to any of those factors may cause the results to vary. You should consult other information and performance tests to assist you in fully evaluating your contemplated purchases, including the performance of that product when combined with other products. For more complete information visit http://www.intel.com/content/www/us/en/benchmarks/intel-product-performance.html. Claim configuration details as of 5 May 2015.

[1] Source: Gartner, Predicts 2015: In-Memory Computing's Disruptive Impact Extends to Digital Business Enablement, Doc #G00270792, November 2014.

[2] Twenty performance world records based on results published at SPEC.org, SAP http://www.sap.com/benchmark and TPC.org. Full details are available at http://www.intel.com/content/www/us/en/benchmarks/server/xeon-e7-v3/xeon-e7-v3-world-record.html. Up to 1.4x average performance increase claim based on generational scaling of comparable 4x Intel Xeon processor E7-8890 v3 compared to E7-4890 v2 geometric mean average across 12 benchmark results (est. SPECint*_base2006 1.06x, STREAM 1.07x, est. SPECfp*_base2006 1.09x, Est. SPECfp*_rate_base2006 1.16x, SPECint*_rate_base2006 1.16x, Brokerage OLTP tps 1.25x, Warehouse OLTP tpm 1.39x, Server Consolidation VM 1.39x, LINPACK 1.68x, SAS New Mixed Analytics* 1.72x, and SAP HANA* SPS9 with Intel® TSX OLTP tpm 6x. For more complete information, see http://www.intel.com/performance/datacenter.

[3] Up to 6x business processing application performance improvement claim based on SAP* OLTP internal in-memory workload measuring transactions per minute (tpm) on SuSE* LINUX Enterprise Server 11 SP3. Configurations: 1) Baseline 1.0: 4S Intel Xeon processor E7-4890 v2, 512 GB memory, SAP HANA* 1 SPS08. 2) Up to 6x more tpm: 4S Intel Xeon processor E7-8890 v3, 512 GB memory, SAP HANA* 1 SPS09 which includes 1.82x improvement from general software tuning, 1.50x generational scaling, and an additional boost of 2.27x for enabling Intel TSX.

[4] Up to 70 percent more analytic sessions per hour based on SAS* New Mixed Analytics workload comparing 4-socket servers running Intel® Xeon® processor E7-8890 v3 (45 M Cache, 2.50 GHz) scoring 0.19 session per hour to E7-4890 v2 (37.5 M Cache, 2.80 GHz) scoring 0.11 sessions per hour.

[5] Up to 10x greater performance per dollar driving up to an 85 percent lower total cost of ownership claim based on estimated SPECint*_rate_base2006 performance of 8-socket server using Intel® Xeon® processor E7-8890 v3 scoring 4980 priced at an estimated street price of $144,626 to 8-socket IBM Power E870 scoring 4830 priced at public list price of $1,592,788. Up to 85% better 4-year TCO through lower hardware and software costs claim based on Intel internal total cost of ownership tool normalizing integer throughput performance between the two options. Calculations include analysis based on performance, power, cooling, electricity rates, operating system and annual support/license costs. For more complete information visit http://www.intel.com/content/www/us/en/benchmarks/server/xeon-e7-v3/xeon-e7-v3-world-record.html.

[6] Requires node controller (available from 3rd party sources).

[7] Intel Xeon processor E7 v3 family provides the largest memory footprint of 1.5TB per socket compared to up to 1TB per socket delivered by alternative architectures, based on published specs.

[8] Intel Run Sure Technology also available with Intel® Itanium® processor family.

[9] Cloudera Hadoop* Single-Node Encryption Performance Case Study on Intel® Xeon® processor E5-2600 v3 product family: https://software.intel.com/en-us/articles/cloudera-hadoop-single-node-encryption-performance-case-study-on-intel-xeon-e5-2600-v3.

[10] Cluster configuration: 2 TB data set on 10-node cluster with 1 name node/resource manager, 1 Cloudera* services node, and 8 data nodes. Each node configured as Intel® Server System R2208WTTYS with two Intel® Xeon® processor E5-2699 v3 (18C, 2.3 GHz, 45 M, 145 W),128 GB DDR4 memory, Intel® Ethernet Controller X540-AT2 (10 Gbps), 1 x 32 GB Intel® SSD X25-E Extreme OS drive, 7x4 TB HDD 7 HDDs, 4 TB each. Seagate Constellation ES.3 ST4000NM0033 4 TB 7200 rpm 128 MB Cache SATA 6.0 Gbps 3.5"; 1 x 800 GB Intel® SSD DC P3700 for temp drive; Cent OS 6.5*, CDH v5.22 TB data set on 10-node cluster with 1 name node/resource manager, 1 Cloudera* services node, and 8 data nodes. Each node configured as Intel® Server System R2208WTTYS with two Intel® Xeon® processor E5-2699 v3 (18C, 2.3 GHz, 45 M, 145 W), 128 GB DDR4 memory, Intel® Ethernet Controller X540-AT2 (10 Gbps), 1 x 32 GB Intel® SSD X25-E Extreme OS drive, 7x4 TB HDD 7 HDDs, 4 TB each. Seagate Constellation ES.3 ST4000NM0033 4 TB 7200 rpm 128 MB Cache SATA 6.0 Gbps 3.5"; 1 x 800 GB Intel® SSD DC P3700 for temp drive; Cent OS 6.5*, CDH v5.2.

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