News Fact Sheet

Intel® Xeon® Processor E3-1200 v3 Product Family: Delivering Energy-Efficient Media Processing to the Cloud

June 3, 2013 — As part of the accelerated innovation in its data center server product lines with new generations built on the 22-nanometer manufacturing process, Intel Corporation today is launching the Intel® Xeon® processor E3-1200 v3 product family. Featuring the newly introduced "Haswell" architecture, the Intel® Xeon® processor E3-1200 v3 is designed to handle a variety of workloads targeted for numerous segments, including entry-level servers, data center graphics, microservers, workstations, storage and network appliances.

These new Intel Xeon processors deliver up to 18[1] percent better energy-efficient performance and up to 38[2] percent improvement in graphics performance, making the Intel® Xeon® processor E3-1200 v3 the ideal platform for innovating around energy-efficient computing. The new Intel® HD Graphics P4700 feature hardware accelerated media encode and decode technologies, and deliver a much more energy-efficient and higher-performing solution than today's infrastructure based on discrete graphics. When deployed in cloud data center environments, the new Intel Xeon processors will help reduce costs and increase media processing capabilities for cloud-based media service providers to better support customers wanting to upload and share their videos with friends on different mobile devices.

Energy-Efficient Graphics for Cloud Media Processing

From viewing marathons of movies and TV shows on Netflix*, to participating in daily video conferences with family in faraway countries, to repeated viewings of viral videos with millions of hits, consumers are fueling unprecedented Internet traffic with video viewing. In fact, according to Cisco*, video content exceeded 50[3] percent of global consumer Internet traffic in 2011, and mobile data traffic in 2012. By 2016, all TV, video on demand, P2P and Internet video combined may compose up to 86 percent of global consumer traffic[3].

To support this explosive growth, service providers require high-density and cost-efficient media transcode solutions while delivering superior image quality. The new Intel® Xeon® processor E3-1200 v3 product family equipped with Intel® HD Graphics P4700 will support more HD transcodes concurrently per rack than current discrete graphics solutions, delivering up to 4.6[4] more transcodes per rack and up to 64 percent[4] lower total cost of ownership (TCO) versus discrete graphics-based servers.

Intel Xeon processors E3-1200 v3product family combines fast transcode (10x Real Time 1080p 30 fps[5]) with image quality that rivals software transcoders. It is power- and features-optimized for high-density deployments in data centers, and enables exceptional media quality and speed to deliver a greater amount of video content to more consumers and businesses at lower costs.

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Other cloud-based graphics applications that will benefit from the Intel® Xeon® processor E3-1200 v3 product family include video analytics, such as searching for a particular image on closed circuit TV footage; hosting games on a server and streaming the images as interactive videos to clients such as set top boxes, tablets and smartphones; and desktop virtualization.

The graphics capability of this platform is bolstered by the Intel Media Software Development Kit (SDK). Supporting Linux* and Windows*, the Media SDK provides developers with a standard interface for video processing, simplifies third-party media application development and reduces the complexities of accessing hardware acceleration. The Media SDK also maximizes simultaneous use of CPU and Intel HD graphics capabilities for server-based video streaming, which delivers more concurrent HD transcodes at a significantly lower total cost of ownership. Production release for Media SDK is targeted for next quarter.

Low Power for Webscale Deployments

As Internet traffic grows, IT professionals are focusing on hardware and energy efficiency to control data center costs. The microserver segment addresses these needs by bringing together high-density designs with data center-ready, low power chips that can address webscale workloads. The Intel® Xeon® processor E3-1200 v3 product family demonstrates Intel's commitment to this segment by featuring two new low-power solutions.

- The Intel® Xeon® processor E3-1220L v3, available next quarter, is the lowest power Xeon ever produced at 13 Watts. This represents a 23 percent reduction in power from the previous Ivy Bridge-based generation processor.
- At 25 watts TDP, the new Intel Xeon processor E3-1230L v3 delivers up to 52[6] percent performance per watt advantage over the prior-generation processor.

These processors, combined with 32- and 64-bit support, error code correction (ECC) memory, Intel® Virtualization Technology (Intel® VT), and Intel® Hyper-Threading Technology, along with the support of the existing IA software ecosystem provide a seamless integration into the data center.

Ideal for Workstation Professionals

Workstation professionals demand performance, reliability and stability, and the Intel® Xeon® processor E3-1200 v3 equipped with Intel® HD Graphics P4600 provides a tested, optimized and certified solution to deliver fast and accurate results for professional applications and support for ECC Memory to increase the platform's reliability.

Energy-Efficient Intelligent Storage

The Intel® Xeon® processor E3-1200 v3 is an ideal processor for rack-mount storage platforms, providing optimal performance per watt for entry level storage solutions. In addition, the enhanced transcoding capabilities enable more IP cameras to be supported by one network video recorder, allowing for a scalable and flexible solution.

Ideal for Communications Infrastructure

Three SKUs of the Intel Xeon processor family are optimized for OEMs designing network appliances and other communications devices that need extended lifecycle support while their products are being tested and deployed in the network. The Intel Xeon processor E3-1275 v3, E3-1225 v3 and E3-1268L v3 provide the compute and media/graphics capabilities needed to deliver and manage high-quality video/audio content in the network.

Product details and pricing:

Xeon E3v3	Base Clock Speed	Turbo Clock Speed	Base Gfx Speed	Turbo Gfx Speed	Cache	TDP	TB	HT	CPU Cores/Threads	Gfx Cores	1K Tray Unit Price
E3-1275V3	3.5 GHz	3.7 GHz	350 MHz	1.25 GHz	8M	84W	√	√	4/8	2	$339
E3-1245V3	3.4 GHz	3.6 GHz	350 MHz	1.2 GHz	8M	84W	√	√	4/8	2	$276
E3-1225V3	3.2 GHz	3.4 GHz	350 MHz	1.2 GHz	8M	84W	√		4/4	2	$213
E3-1285V3	3.6 GHz	3.8 GHz	350 MHz	1.3 GHz	8M	84W	√	√	4/8	2	$662
E3-1285LV3	3.1 GHz	3.5 GHz	350 MHz	1.25 GHz	8M	65W	√	√	4/8	2	$774
E3-1280V3	3.6 GHz	3.8 GHz	---	---	8M	82W	√	√	4/8	---	$612
E3-1270V3	3.5 GHz	3.7 GHz	---	---	8M	80W	√	√	4/8	---	$328
E3-1240V3	3.4 GHz	3.6 GHz	---	---	8M	80W	√	√	4/8	---	$262
E3-1230V3	3.3 GHz	3.5 GHz	---	---	8M	80W	√	√	4/8	---	$240
E3-1220V3	3.1 GHz	3.3 GHz	---	---	8M	80W	√		4/4	---	$193
E3-1265LV3	2.5 GHz	3.1 GHz	350 MHz	1.2 GHz	8M	45W	√	√	4/8	1	$294
E3-1230LV3	1.8 GHz	2.3 GHz	---	---	8M	25W	√	√	4/8	---	$250
E3-1220LV3*	1.1 GHz	1.3 GHz	---	---	4M	13W	√	√	2/4	---	$193

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1.Baseline configuration: Intel® C206 chipset based Intel® Xeon® workstation platform with one Intel Xeon processor E3-1275 (quad-core, 3.4GHz, 8M cache), ASNBCPT1.86C.0085.P00 July 5, 2012, Intel® Hyper Threading Technology (Intel® HT Technology) best configuration, 8GB memory (2x4GB DDR3-1333 ECC UDIMM), Intel® HD Graphics P3000 with driver 2455, 2TB 7200RPM SATAIII HDD (WD2000FYYZ), Microsoft Windows 7* Service Pack 1. Source: Intel internal testing as of April 2013, SPECviewperf* 11 , geomean of 7 workloads (ensight-04, lightwave-01, maya-03, proe-05, sw-02, tcvis-02, snx-01)

Previous configuration: Intel® C226 chipset based Intel® Xeon® workstation platform with one Intel Xeon processor E3-1275 v2 (quad-core, 3.5GHz, 8M cache), ACRVMBY1.86C.0096.P00 September 9, 2012, Intel HT Technology best configuration, 8GB memory (2x4GB DDR3-1600 ECC UDIMM), Intel HD Graphics P4000 with driver 2712, 2TB 7200RPM SATAIII HDD (WD2000FYYZ), Microsoft Windows 7* Service Pack 1. Source: Intel internal testing as of April 2013, SPECviewperf* 11 , geomean of 7 workloads (ensight-04, lightwave-01, maya-03, proe-05, sw-02, tcvis-02, snx-01)
New configuration: Intel® C226 chipset based Intel® Xeon® workstation platform with one Intel Xeon processor E3-1275 v3 (quad-core, 3.5GHz, 8M cache), HSWLPTU1.86C.0116.R00 March 3, 2013, Intel HT Technology best configuration, 8GB memory (2x4GB DDR3-1600 ECC UDIMM), Intel HD Graphics P4600/4700 with driver 2989, 2TB 7200RPM SATAIII HDD (WD2000FYYZ), Microsoft Windows 7* Service Pack 1. Source: Intel internal testing as of April 2013., SPECviewperf* 11 , geomean of 7 workloads (ensight-04, lightwave-01, maya-03, proe-05, sw-02, tcvis-02, snx-01).

2. Baseline Configuration: Intel® C206 chipset based server platform with one Intel® Xeon ® Processor E3-1260L (Quad-Core, 2.4GHz, 8MB L3 cache), , Turbo Boost Disabled, Hyper-Threading Enabled, 8GB (2x4GB DDR3-1333 UDIMM), 64GB SATA SSD, Microsoft Windows* 2008 R2 SP1, Java SE Runtime Environment (build 1.6.0_30-b12), Java HotSpot 64-Bit Server VM (build 20.5-b03, mixed mode). Source: Intel internal testing as of Mar 2012. SPECpower_ssj2008* score: 3069
Previous Configuration: Intel® C206 chipset based server platform with one Intel® Xeon® Processor E3-1265L v2 (8M Cache, 2.5GHz), EIST Enabled, Turbo Boost Enabled, Hyper-Threading Enabled, 8GB (2x 4GB DDR3-1600 UDIMM), 64G 3Gb/s SATA SSD, Microsoft Windows* 2008 R2 SP1, Java SE Runtime Environment (build 1.6.0_30-b12), Java HotSpot 64-Bit Server VM (build 20.5-b03, mixed mode). Source: Intel internal testing as of Mar 2012. SPECpower_ssj2008* score: 4291.2
New Configuration: Intel® C226 chipset based server platform with one Intel® Xeon® Processor E3-1265L v3 (8M Cache, 2.5GHz), EIST Enabled, Turbo Boost Enabled, C3 Disabled, C6 Enabled, Hyper-Threading Enabled, 8GB (2x 4GB DDR3-1600 UDIMM), 64G 3Gb/s SATA SSD , Microsoft Windows* 2008 R2 SP1, IBM J9 VM (build 2.6, JRE 1.7.0 Windows Server 2008 amd64-64 20120322_106209v)(JIT enabled, AOT enabled). Source: Intel internal testing as of April 2013. SPECpower_ssj2008* score: 5094

3. Source: Cisco Visual Networking Index Forecast and Methodology, 2011-2016

4.Results, which are provided for informational purposes only, were estimated as of March 2013 by Intel based on a comparison of performance (number of 1080p 30fps HD concurrent transcode per GPU) and related results utilizing Intel's product data and data published by nVidia* Kepler*. Any difference in system hardware or software design or configuration may affect actual performance. Intel does not control or audit the design or implementation of third party data referenced in this document. Intel encourages all of its customers to visit the websites of the referenced third parties or other sources to confirm whether the referenced data is accurate and reflects performance of systems available for purchase.
Platform configurations: Discrete graphics: 1U server with two Intel® Xeon® processor E5-2650, 2.0 GHz, 20MB cache, 8GT/s QPI, 8x1GB DDR3-1333 memory, 1 hard drive, 1 power supply, 2 nVidia* GTX680 graphics cards; Xeon E3v3: 3U microserver with twelve Intel® Xeon® processor E3-1285Lv3, 3.1 GHz, 8MB cache, 4x1GB DDR3-1333, 1 hard drive, 1 power supply. Concurrent transcode per GPU: 8 (Discrete graphics), 10 (E3v3). GTX680 transcode performance from nVidia* whitepaper at http://international.download.nVidia*.com/webassets/en_US/pdf/GeForce-GTX-680-Whitepaper-FINAL.pdf. Intel E3 transcode performance came from Intel whitepaper: Intel Quick Sync Video Technology on Intel® Iris™/Iris Pro Graphics (5100+ Series and Intel HD Graphics (4200+ Series)—Flexible Transcode Performance and Quality Explained.
Estimated comparison compared Intel® Xeon® E5 processors with nVidia* Kepler based GTX 680 discrete graphics in 1U rack servers against Intel® Xeon® E3-1200v3 in 3U 12-node micro servers. Calculation includes analysis based on number of concurrent 1080p 30fps HD transcodes supported per GPU, power, electricity rates, and estimated server costs. This assumes 15kW racks and $0.10 per kWh. All dollar figures are approximate. Platform power was estimated using CPU and graphics card TDP figures.

- Baseline platform: Intel server platform with two Intel® Xeon® processor E5-2650, 2.0 GHz, 20MB cache, 8GT/s QPI, 8x1GB DDR3-1333 memory, 1 hard drive, 1 power supply, 2 nVidia* GTX680 graphics cards
- New platform: Intel server platform with twelve Intel® Xeon® processor E3-1285Lv3, 3.1 GHz, 8MB cache, 4x1GB DDR3-1333, 1 hard drive, 1 power supply

5.Source: Intel Quick Sync Video Technology on Intel® Iris™/Iris Pro Graphics (5100+ Series and Intel HD Graphics (4200+ Series)—Flexible Transcode Performance and Quality Explained. Platform configuration: Intel® Xeon® processor E3-1285Lv3, 3.1 GHz, 8MB cache, 4x1GB DDR3-1333, 1 hard drive, 1 power supply.

6.Performance per Watt (Perf/W) improvement based on dividing SPECint*_base_rate2006 by processor TDP.
Baseline Configuration: Fujitsu* TX140 S1p with one Intel® Xeon® Processor E3-1265L v2 (8M Cache, 2.50 GHz), 16GB (2x8GB 2Rx8 PC3-10600E-11, ECC), 1 x 500 GB SATA, 7200 RPM, Intel® Hyper-Threading® Enabled, Intel® Turbo Boost Enabled, Red Hat* Enterprise Linux Server Release 6.2, Kernel 2.6.32-220.el6.x86_64,Compiler Version 12.1.0.293 of Intel C++ Compiler XE. Represents the best published results as of April 2013. Score: SPECint*_rate_base2006=169.
www.spec.org/cpu2006/results/res2012q2/cpu2006-20120522-22364.html
Processor TDP = 45W, Perf/W=3.76
New Configuration: Intel® C226 chipset based Intel® Xeon® server platform with one Intel® Xeon® Processor E3-1230L v3 (8M Cache, 1.8 GHz), 16GB (2x8GB Dual-Rank DDR3-1600 ECC UDIMM), 250 GB SATA 6Gb/s HDD, Intel® Hyper-Threading® Enabled, Intel® Turbo Boost Enabled, Red Hat* Enterprise Linux Server 6.3 for x86_64,Compiler version 13.0.0.133 of Intel C++ Studio XE and Intel Fortran. Source: Intel internal estimated measurements, April 2013. Score: SPECint*_rate_base2006=143. Processor TDP = 25W, Perf/W=5.72

Results in footnotes 1, 2, 4, 5 and 6 have been measured by Intel based on benchmark or other data of third parties and are provided for informational purposes only. Any difference in system hardware or software design or configuration may affect actual performance. Intel does not control or audit the design or implementation of third party data referenced in this document. Intel encourages all of its customers to visit the websites of the referenced third parties or other sources to confirm whether the referenced data is accurate and reflects performance of systems available for purchase.

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