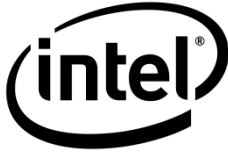**Intel Corporation**
2200 Mission College Blvd.
P.O. Box 58119
Santa Clara, CA 95054-1549

Fact Sheet

CONTACT: Nick Knupffer
             (408) 250 7265
             Nick.knupffer@intel.com

Record-Shattering Performance of Intel® Xeon® Processor 7500 Series Powers Mission-Critical Computing

SANTA CLARA, Calif., March 30, 2010 – The Intel® Xeon® processor 7500 series delivers exceptional scalable performance, setting over 20 new world records[1] for expandable enterprise and technical servers. This means technical computing solutions can be delivered in record time and businesses can efficiently consolidate multiple older enterprise systems into a single server for energy efficiency and cost savings.

World records include:

Highlights on Intel® Xeon® processor 7500 series-based servers (March 30, 2010)				
Segment - Benchmark	Partner / Platform	Software Details	Result (Up to relative gain over Intel Xeon processor X7460†)	Importance
64-Socket (64S)				
General Purpose Computing - SPECint*_rate_base2006‡	SGI Altix* UV 1000	Intel® Compiler 11.1, Novell* SUSE* LINUX Enterprise Server	10,400 base score (N/A)	Overall world record
Technical Computing - SPECfp*_rate_base2006‡	SGI Altix* UV 1000	Intel® Compiler 11.1, Novell* SUSE* LINUX Enterprise Server	6,840 base score (N/A)	x86 world record
8-Socket (8S)				
General Purpose Computing - SPECint*_rate_base2006‡	Fujitsu PRIMEQUEST* 1800E	Intel® Compiler 11.1, Red Hat* Enterprise LINUX 5.4	1,250 base score (2.5x)	Number one 8-socket x86 world record
Enterprise Resource Planning – SAP* Sales and Distribution (SD) Two-tier Standard Application Benchmark	Fujitsu PRIMEQUEST* 1800E	SAP Enhancement package 4 for SAP ERP 6.0*, SQL Server* 2008 database	16,000 Benchmark Users (3.6x)	Number one 8-socket world record
Technical Computing -	Fujitsu	Intel® Compiler 11.1,	887 base score (N/A)	Number one

-- more --

SPECfp*_rate_base2006‡	PRIMEQUEST* 1800E	Red Hat* Enterprise LINUX 5.4		8-socket x86 world record
Server-side Java* - SPECjbb*2005‡	Fujitsu PRIMEQUEST* 1800E	Oracle* JRockit* 6 P28.0.0	3,321,826 bops, 103,807 bops/JVM (N/A)	Number one 8-socket world record
Database – TPC Benchmark* E	NEC Express* 5800 /A1080a-E (available 24 June 2010)	SQL Server 2008* R2 database, Windows Server 2008 R2	3141.76 tpsE @ $768.92/tpsE (2.7x)	Overall world record
4-Socket (4S)				
SAP* BI Datamart Standard Application Benchmark	Fujitsu PRIMERGY* RX600-S5	Oracle* 11g RAC, NetWeaver* 7.0 (non-Unicode)	854,649 query navigation steps[2] (N/A)	Overall two-tier world record
Database – TPC Benchmark* E	IBM System x* 3850 X5 (System generally available March 31, 2010. The total solution availability is July 30, 2010).	SQL Server 2008* R2 database, Windows Server* 2008 R2	2022.64 tpsE @ $493.92/tpsE (2.8x)	Number one 4-socket world record
Enterprise Resource Planning – SAP* Sales and Distribution (SD) Two-tier	IBM System x* 3850 X5	SAP* enhancement package 4 for SAP ERP 6.0, IBM DB2* 9.7 database	10,450 Benchmark Users[2] (3.4x vs. Windows Server*)	Number one 4-socket on Windows Server*
Server-side Java* - SPECjbb*2005‡	IBM System x* 3850 X5	IBM J9* JVM, Windows Server* 2008 R2	2,012,730 bops; 125,796 bops/JVM (3.2x)	Number one 4-socket x86 world record
Java* Application Server – SPECjEnterprise*2010‡	IBM System x* 3850 X5	IBM WebSphere* Application Server V7, IBM J9* 6 JVM	3110.3 EjOPS (1.9x over Intel Xeon processor X5670)	Single-node world record
SPECjAppServer*2004‡	Dell PowerEdge* R910	Oracle* WebLogic Server 10.3.3	11,057 JOPS @standard (2.5x)	Number one single-node world record
General Purpose Computing - SPECint*_rate_base2006‡	Cisco UCS* C460 M1	Intel® Compiler 11.1, Novell* SUSE* LINUX Enterprise Server	723 base score (2.6x)	Number one 4-socket x86 world record
High Performance Computing (HPC) – LS-DYNA*	Cisco UCS* C460 M1	Car2car workload, Fedora* Core 12 x86_64 OS	41,727 seconds (2.1x over Intel Xeon processor X5670)	Fastest single-node Topcrunch.org posting
HPC - SPECompM*2001	SGI Altix* UV 10	Intel® Compiler 11.1	107,248 result score[3] (2.1x over Intel Xeon processor X5680)	x86 world record
HPC - SPECompL*base2001	Cisco UCS* C460 M1	Intel® Compiler 11.1, Red Hat* Enterprise Linux	607,818 base score[3] (2.2x over Intel Xeon processor X5680)	x86 world record
Virtualization - VMmark*	IBM System x* 3850 X5	VMware* ESXi v4.0 Build 240223	71.85 @ 49 tiles (3.5x)	Overall world record
Energy Efficiency – comparison to 2005 single-core 64-bit Intel® Xeon® MP 3.33GHz	Intel pre-production platform	SPECint*_rate _base2006‡	20:1 physical platform consolidation, estimated <12 month payback	Refresh 2005 servers to physically consolidate 20:1
2-Socket (2S)				
Server-side Java* - SPECjbb*2005‡	Dell PowerEdge* R810	IBM J9* JVM, Windows Server* 2008 R2	1,011,147 bops; 126,393 bops/JVM (9% over Intel Xeon processor X5680)	Number one 2-socket world record
General Purpose Computing – SPECint*_rate_base2006‡	IBM System x* 3850 X5	Intel® Compiler 11.1, Novell* SUSE* LINUX Enterprise Server	362 base score (2.5x)	Number one 2-socket x86 world record

†Unless noted otherwise, relative performance increase vs. X7560 (2S = 2P/16C/32T, 4S = 4P/32C/64T, 8S = 8P/64C/128T, or 64S = 64P/512C/1024T)

Performance comparisons based on published, submitted, or approved Intel Xeon processor X7560 (24M Cache, 2.26GHz, 6.40GT/s Intel® QPI) based server platform results as of March 26, 2010. Configuration details and additional comparisons are available in the configuration details section of the website.

For all server benchmarks, see http://www.intel.com/performance/server/xeon_mp/server.htm.
For HPC, see www.intel.com/performance/server/xeon_mp/hpc.htm.
For VMmark*, see www.intel.com/performance/server/xeon_mp/virtualization.htm.
For energy efficiency, see http://www.intel.com/performance/server/xeon_mp/eep.htm.
For scalability, see http://www.intel.com/performance/server/xeon_mp/scalability.htm.

[1]World record claim based on comparison of like socket server platforms based on x86 architecture unless otherwise stated. Performance results based on published/submitted results as of March 26, 2010.
For detailed performance results and more information about all the world record claims see http://www.intel.com/performance/server/xeon_mp/summary.htm
[2]The SAP certification number was not available at press time and can be found at the following Web page: www.sap.com/benchmark. Comparison made to best published 4-socket or 8-socket Intel Xeon processor X7460 – based server using Microsoft Windows Server* operating system:
• Certificate 2009001, NEC Express*5800 A1160, 8-socket (8P/32C/32T), 4485 SD Benchmark Users
• Certificate 2009032, HP ProLiant*BL680c G5, 4-socket (4P/24C/24T), 3058 SD Benchmark Users.
[3]SPECompM* and SPECompL* results on Intel® Xeon® processor 7500 series-based server were obtained using 64 OpenMP threads over four sockets. Marked as under review until published on www.spec.org.

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, Go to: http://www.intel.com/performance/resources/benchmark_limitations.htm.

Relative performance for each benchmark is calculated by taking the actual benchmark result for the first platform tested and assigning it a value of 1.0 as a baseline. Relative performance for the remaining platforms tested was calculated by dividing the actual benchmark result for the baseline platform into each of the specific benchmark results of each of the other platforms and assigning them a relative performance number that correlates with the performance improvements reported.

TPC Benchmark* is a trademark of the Transaction Processing Council. See www.tpc.org for more information.
‡SPEC*, SPECint*, SPECfp*, SPECjbb*, SPECjEnterprise*, SPECompM*, SPECompL*, and SPECjAppServer* are trademarks of the Standard Performance Evaluation Corporation. See www.spec.org for more information.

Competitive benchmark results stated above reflect results published on http://www.spec.org, http://www.tpc.org, http://www.topcrunch.org, or http://www.vmware.com/products/vmmark/results.html of 29 March 2010. Importance column claims based on noted socket Intel 7500 Chipset-based platform comparing to all related best published results on www.spec.org (SPEC), TPC.org, topcrunch.org, or VMware.com as of March 26, 2010 (in order of presentation):
i. Based on 64S platform submitted result comparing to all SPECint*_rate_base2006 results published.
ii. Based on 64S platform submitted result comparing to all SPECfp*_rate_base2006 x86 results published.
iii. Based on 8S platform submitted result comparing to all 8S SPECint*_rate_base2006 x86 results published.
iv. Best in class up to 8-sockets, two-tier SAP* SD Standard Application Benchmark result.
v. Based on 8S platform submitted result comparing to all 8S SPECfp*_rate_base2006 x86 results published.
vi. Fujitsu PRIMEQUEST* 1800E server (8 chips, 64 cores, 128 threads) 3,321,826 SPECjbb2005 bops, 103,807 SPECjbb2005 bops/JVM compared to all 8S SPECjbb*2005 results published.
vii. TPC Benchmark* E world record claim based comparing to all TPC-E published results.
viii. Best two-tier SAP* BI Datamart Standard Application Benchmark result comparing to all published results.
ix. TPC Benchmark* E 4-socket record claim based comparing to all TPC-E 4-socket published results.
x. Best in class up to 4-sockets, two-tier SAP* SD Standard Application Benchmark results using Windows Server* operating system.
xi. IBM System x* 3850 X5 server (4 chips, 32 cores, 64 threads) 2,012,730 SPECjbb2005 bops, 125,796 SPECjbb2005 bops/JVM compared to all 4S x86 SPECjbb*2005 results published.
xii. SPECjEnterprise*2010 comparison presented above is based on the best performing 4-processor server to all other in a single-node configuration.
xiii. SPECjAppServer*2004 comparison presented above is based on the best performing 4-processor server to all other in a single-node configuration.
xiv. Based on 4S platform submitted result comparing to all 4S SPECint*_rate_base2006 x86 results published.

-- more --

xv.   Best car2car workload single-node result comparing to all other published results on www.topcrunch.org.

xvi.   Based on 4S platform submitted result comparing to all 4S SPECompM*2001 x86 results published.

xvii.   Based on 4S platform submitted result comparing to all 4S SPECompL*base2001 x86 results published.

xviii.   Based on 4S platform submitted result comparing to all VMmark* results published.

xix.   Measured internally by Intel – see http://www.intel.com/performance/server/xeon_mp/eep.htm?iid=perf_server_lhn+mp_ee for more details.

xx.   Dell PowerEdge* R810 server (2 chips installed, 16 cores, 32 threads) 1,011,147 SPECjbb2005 bops, 126,393 SPECjbb2005 bops/JVM compared to all 2S SPECjbb*2005 results published.

xxi.   Based on 2S platform submitted result comparing to all 2S SPECint*_rate_base2006 x86 results published.

Intel® Virtualization Technology requires a computer system with an enabled Intel® 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® Hyper-Threading Technology (Intel® HT Technology) requires a computer system with a processor supporting Intel® HT Technology and an Intel® 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® HT Technology, see www.intel.com/products/ht/hyperthreading_more.htm.

Intel® 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® 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.

Intel® products are not intended for use in medical, life saving, life sustaining, critical control or safety systems, or in nuclear facility applications. All dates and products specified are for planning purposes only and are subject to change without notice.

Intel does not control or audit the design or implementation of third party benchmarks or Web sites referenced in this document. Intel encourages all of its customers to visit the referenced Web sites or others where similar performance benchmarks are reported and confirm whether the referenced benchmarks are accurate and reflect performance of systems available for purchase.