Intel Corporation 2200 Mission College Blvd. Santa Clara, CA 95052-8119



# Fact Sheet

CONTACT: Nick Knupffer 408-250-7265 nick.knupffer@intel.com

# **Intel Targets Insatiable Demand for HPC Performance**

SANTA CLARA, March 30, 2009 - Intel Corporation launched today the Intel® Xeon® 5500 series, a groundbreaking product for the high performance computing (HPC) community. The HPC segment is constantly seeking the best performance in a variety of scientific areas, including human discovery, outer space, basic building blocks of matter, disease and weather prediction. In all of these cases the Xeon® 5500 series processor-based platforms will allow the computing industry to move to PetaFLOPS-class machines (A quadrillion [thousand trillion] FLoating point Operations Per Second) that will enable a new era of discovery and invention.

This latest processor introduction delivers the largest performance gains for memory-bandwidth constrained HPC applications, which will especially benefit from the Xeon® X5570, X5560 and X5550. These processors deliver a huge jump in overall platform bandwidth enabled by Intel® QuickPath interconnect which supports up to 6.4 GT/s, and a three-channel integrated memory controller that supports DDR 1333 MHz, enabling more than triple the memory bandwidth of the previous-generation platform based on the STREAM benchmark<sup>1</sup>.

Intel's HPC customers are truly future-minded, delivering exciting applications and enabling robust workloads based on the Xeon® 5500 series. The examples below

provide testimony of how customers are taking advantage of the intelligent performance

of these processors to advance innovation.

#### From Scinet:

"Scinet has an insatiable demand for performance to conduct workloads on groundbreaking research in aerospace, astrophysics, bioinformatics, chemical physics, climate change prediction, medical imaging and the global ATLAS project, which is investigating the forces that govern the universe," said Dr. Chris Loken, chief technology officer. "The clusters based on the new Intel® Xeon® 5500 series keep us on the leading edge of HPC technology innovations to enable new discoveries."

### From Sinopec Nan Jing IGP:

"The Intel® Xeon® 5500 series is changing the way we approach problems in the oil and gas industry", said Professor Zhao Gai Shan, senior engineer of Sinopec Nan Jing IGP. "The Intel® Xeon® 5500 series helps us increase the Geophysics complexity and problem size, and also process the results in less time with better accuracy."

### From Northrop Grumman:

"Our weather modeling and science just got faster," said Randall J. Alliss, Ph.D., Northrop Grumman, Advisory Services Division (TASC). "The next-generation Intel® Microarchitecture, codenamed Nehalem, really changes the game. It automatically increases processor frequency and utilizes hyper-threading when needed, resulting in up to 2.88 times faster performance over the current quad-core servers."

## From Phillips Healthcare:

"Our Brilliance Workspace workstations show 50 percent improvement in performance when running on the latest Nehalem-based workstation," said Baruch Sabbah, Workstation program manager, CT Engineering, Philips Healthcare. "Delivering enterprise-class real-time image processing is a CPU intensive task. The Intel® Xeon® 5500 series enables us to further enhance our market leadership position."

#### From the Forschungszentrum Jülich:

"Application performance is critical to the work we carry out at the Forschungszentrum Jülich," said Dr. Norbert Eicker, Forschungszentrum Jülich. "This ranges from understanding atmospheric chemical processes, which is the basis of climate models, to further insight into fusion-energy, neurosciences, biophysics, nanosystems, and even elementary particles. Clearly, the greater application performance we can achieve the greater understanding we receive. And ultimately, this hopefully leads to new developments with far-reaching and beneficial implications. Crucial for application performance in HPC is memory bandwidth and IO performance. The Intel® Xeon® 5500 series definitely is a leap ahead in both respects. Therefore JSC decided to base the next-generation general-purpose supercomputer JuRoPA on this processor."

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1. Details for Stream Claim: Stream Triad used for comparison. Xeon 5400 HPC platform: SuperMicro server platform X7DWA-N with two Intel Xeon X5482(HTN 3.20GHz) with 2x6M L2 Cache, 1600 MHz system bus, Intel 5400 series chipset, 16GB (8x2GB) FB DDR2-667MHz. Intel server pre-production platform with two Intel® Xeon Processor X5570, 2.93GHz with 8M L3 Cache, 6.4QPI, Intel 5520 Chipset. Red Hat EL5-U1 64-bit; 8 Copies, HT OFF, 6-2GB, 1333Mhz DIMMs. For more information on the stream benchmark see: www.cs.virginia.edu/stream/ref.html