

Eurotech Presents Aurora, the New Petascale Supercomputer that Sets a Landmark in High Performance Computing

Eurotech, one of the leading companies in Embedded and High Performance Computing, presents Aurora, the revolutionary HPC system for installations of any size, up to multiple PetaFLOPS

Hamburg (Germany), June 23rd, 2009 – Eurotech, a leading provider of special purpose computing platforms, today unveiled Aurora, a revolutionary supercomputer that sets the pace for performance and efficiency. Aurora is packed with the most advanced solutions, such as quad-core high performance Intel® Xeon® 5500 processors series, 100Gbps per node bandwidth capacity, programmable on-node acceleration, multi-level synchronization networks and direct liquid cooling. Aurora sets a new standard of excellence in high performance computing.

“The Aurora supercomputer breaks the rules by removing the bottlenecks that limit the performance, efficiency and scalability of traditional systems”, said Giampietro Tecchioli, CTO and VP of Eurotech. “Its advanced technology permits unprecedented effective performance, sets a record for footprint reduction and radically cuts the total cost of ownership for installations of any size, with energy savings as high as 60%.”

“The Aurora project is the result of a multi-group effort and we are excited that the unique features of the Intel Xeon 5500 series processor have become the base for such an innovative supercomputer system architecture. The Intel Xeon 5500 series brings up the bar considerably by turning the chip into a intelligent, adaptable part of the server solution,” said Richard Dracott, general manager of Intel’s High Performance Computing Group.

Aurora takes full advantage of the latest high performance, power efficient Intel Xeon 5500 processors series.

The new generation processor is Intel’s most revolutionary server processor since the introduction of the Intel Pentium® Pro processor 14 years ago. It can automatically adjust to specified energy usage levels, speed-up data center transactions and customer database queries thanks to new features such as Intel Turbo Boost which increases system performance based on the user’s needs, and Integrated Power Gates that turn off unused cores to save electricity and reduce heat. In particular, Intel® Turbo Boost is a feature that allows the processor to operate at higher speeds if a workload needs it and as long the processor isn’t operating above its power and thermal limits. This allows the CPU to dynamically deliver additional performance above the base frequency if needed.

The Intel Xeon processor 5500 series also takes intelligent power to a new level with up to 15 automated operating states. These create significant improvements in chip power management by adjusting system power consumption based on real-time throughput and without sacrificing performance.

In addition, the user-friendly software environment is fully compatible with most existing HPC codes and tools, and requires minimal or no porting for near optimal performance. Extra acceleration is available using the integrated programmable accelerator.

Eurotech introduces the Unified Network Architecture™ (UNA) in Aurora, which offers dramatic advantages over conventional HPC systems by radically improving performance and feature set. At the same time, the UNA reduces the number of physical and logical layers for exceptionally low memory to memory latency.

In each node, the UNA integrates a 60Gbps switchless 3D torus, a 40Gbps switched Infiniband® network, three multilevel synchronization networks and a programmable network processor. User-programmable logic transparently enables the optimal routing of data packets and manages the multilevel synchronization networks, for seamless scalability up to multiple PetaFLOPS.

Another exciting innovation is the Aurora direct liquid cooling system, which eliminates vibrations and rotating parts while providing precise control over component temperature. By removing the typical sources of failure in traditional HPC systems – even the on-node storage is solid-state – and thanks to the embedded redundant design, Aurora is exceptionally reliable.

Aurora is one of the greenest HPC systems on the market: its efficient design is both light on the energy bill, eliminating the additional costs of traditional cooling, and also makes it possible to squeeze as much number crunching as possible from every Watt. Moreover, Aurora is environmentally conscious and so compact that even PetaFLOPS installations may be possible in existing locations, allowing a sustainable growth in performance and preservation of existing assets.

Come and see a live Aurora demo at ISC 09 (www.supercomp.de), Intel® Booth 430

Developed by the Alliance of Eurotech, PSI RAS, RSC SKIF with support from Intel® : “Aurora”, “SKIF series 4”, and “SKIF-Aurora” are different trademarks of the same product in different geographical areas

For more information, please visit the Eurotech website at www.eurotech.com/aurora

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