SUPERMICRO®

Application Optimized Building Block Solutions®

Supermicro Servers Help PRACE to become one of the most advanced Supercomputer projects in the World

PRACE, the Partnership for Advanced Computing in Europe, was established by the European Union to create a European high performance computing (HPC) service for European supercomputer researchers. PRACE's near term objective is to evaluate petaflop-level technologies and by late 2009/2010 establish three to five permanent PRACE centers in Europe offering world-class HPC capabilities.

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The Supermicro SuperBlade® Win with PRACE Supermicro was selected by PRACE to provide the prototype for a multi-Petaflop class system to be deployed throughout the EC beyond 2010. This initial Supermicro prototype will be installed at SNIC/KTH in Sweden starting in 4Q 2009. It consists of 18 Supermicro SuperBlade® systems fully populated with 180 Six-Core AMD Opteron™ 8400 series processor blades incorporating 40 Gb/s QDR InfiniBand connectivity.

Supermicro joins a select group of Tier 1 supercomputer vendors supplying equipment to PRACE. This prototype system will give Supermicro the opportunity to win future large PRACE projects and will also provide valuable working experience with customers in Europe.

More About PRACE

The Partnership for Advanced Computing in Europe (PRACE) was established and funded by the European Union to create a permanent European HPC service. The fourteen PRACE partner countries and facilities comprise over 90% of Europe's HPC capacity, so it is a large and important project.

This dense blade design includes 240 sockets and 1440 cores in a standard 42U rack; with four sockets, 24 cores and 32GB of ECC Registered DDR2 800 MHz in 16 DIMM sockets.

PRACE's near term objective is to evaluate petaflop-level technologies and by late 2009/2010 establish three to five permanent PRACE centers in Europe providing world-class HPC capabilities, each center serving a particular application spectrum. The ambition of PRACE is to make Europe a leading player in supercomputing (both as a user and as a supplier of components, software, systems and services), to foster further EC integration through the pooling of investments and scientific knowledge, and to strengthen the competitiveness of the EC in fields such as medicine, climate, and energy.

The PRACE project evolves through Work Packages, each designed to further advance PRACE towards its goals. The First Work Package, or WP1, was proposed in 2006 to create a PRACE management infrastructure. Since that time six other Work Packages have been completed covering areas such as training, software, prototype and system deployments. For example, WP7 established five petaflop/s centers throughout Europe each equipped with a supercomputer from a Tier 1 supplier.

Since the PRACE centers established in WP7 will require periodic system renewals and continuous infrastructure upgrades, opportunities will arise for new vendors to offer more advanced technologies. This is where Supermicro enters the picture. In the most rcently announced WP8, covering future petaflop/s technologies, Supermicro successfully positioned its SuperBlade® with optimized air cooling and commodity AMD processors in contrast with the predominantly proprietary and liquid cooled supercomputer systems of WP7.

This was a big win for PRACE, for Supermicro, and for the future.

The PRACE installation at SNIC/KTH

The Supermicro SuperBlade® system will be installed in 4Q 2009 at PRACE partner SMIC/KTH in Sweden, that itself is a world class supercomputing facility. The Swedish National Infrastructure for Computing (SNIC) is a national meta-center for high-performance computing responsible for Sweden's six HPC centers, ensuring that these resources are used and developed optimally. The Royal Institute of Technology (Swedish: KTH) is a university in Stockholm. KTH is Scandinavia's largest institution of higher education in technology and one of the leading technical universities in Europe.

The Winning Supermicro SuperBlade® System

The Supermicro system selected by PRACE for deployment at SNIC/KTH includes SuperBlade® systems featuring SBA-7141A-T blades with 4-way Six-Core AMD Opteron™ 8400 series processors, 4x QDR (40Gb/s) InfiniBand, and IPMI 2.0 with KVM over IP and Virtual Media over LAN.

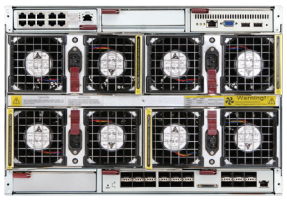
This dense blade design includes the very latest AMD SR5670/SP5100 chipset-based Socket F (1207) Platform supporting 4-way Six-Core AMD

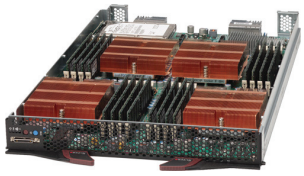
Opteron™ Six-Core 8400 Series processors. Each blade includes four sockets, 24 cores and up to 128GB of ECC Registered DDR2 800/667 MHz memory in 16 DIMM sockets, and one internal 2.5" SATA hard disk drive. With ten blades per 7U SuperBlade® enclosure, 240 sockets and 1440 cores can be supported in a standard 42U rack.

Additional Supermicro platform design advantages include high efficiency motherboard VRMs, highly effective optimized cooling subsystem, and N+1 redundant Gold Level high-efficiency (93%) power supplies. The SuperBlade® enclosure supports up to two hot-plug 4x QDR InfiniBand switches and up to two hot-plug management modules providing KVM over IP and IPMI 2.0 functionalities.

The SMIC/KTH deployment includes 18 SuperBlade® systems in 3 racks, thus providing an incredible 180 4-way servers with total 720 processors – 4320 cores. Depending on the series of the AMD Opteron™ processors each rack will have a capability of 12 to 15 teraflops according to KTH.

"We selected Supermicro because of the cutting edge blade technology in the supercomputing space," said Lennart Johnsson, Professor, School of Computer Science and Communications and Director of PDC at KTH and a Hugh Roy and Lillie Cranz Cullen Distinguished Professor of Computer Science, Mathematics and Electrical and Computer Engineering and Director of the Texas Learning and Computation Center, University of Houston. "Supermicro's leading power efficiency, high density, design along with AMD's latest six-core CPU and PCI-E Gen 2 chipset and the power management features offered at various levels were key deciding factors due to our environmental and cost concerns, concerns that are shared by PRACE partners. This new AMD based 4-way SuperBlade® will enable a savings in power and cooling costs of approximately 25% compared to traditional server technology, savings that can be invested beneficially for the research communities of PRACE and others."





Importance of the Win to PRACE and to Supermicro

Supermicro's SuperBlade® systems will help PRACE to assess the density and energy efficiency achievable through careful server designs using commodity components and their integration into clusters. System and CPU power management features are also critical. Specifically, PRACE expects to learn the following:

- Energy efficiency for scientific workloads comparable to best of breed proprietary designs at a fraction of the cost
- Leading-edge computational density
- Insights into realistic design goals for enhanced energy efficiency and density for the next generation of

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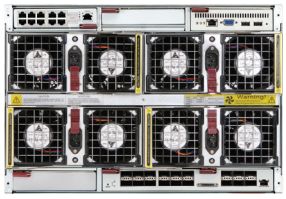
standard components based HPC clusters

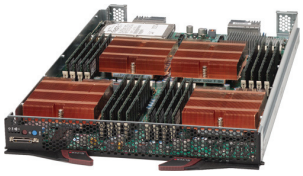
- Insights into effective systems, server and CPU management for energy efficient computing, including enhancements to software.

For Supermicro, in addition to the clear advantages of increased growth and development of its business in Europe, the prestigious PRACE win positions it among the most advanced supercomputer companies in the world. PRACE's numerous partners, affiliates, users and suppliers will gain an intimate knowledge of Supermicro's capabilities. Thus the PRACE win enhances Supermicro's stature, status, and leadership within the international IT community. The bottom line: the PRACE win will supercharge Supermicro's market position with its customers.

AMD SuperBlade®



Enclosure (Rear View)



SBA-7141A-T (Front Angle)

http://www.supermicro.com/products/superblade

Part ID	Enclosure Features
Server Blade	Up to 10 hot-plug server blades
Module Support	Supports both Intel® and AMD based blades
LED	Power LED, Fault LED
InfiniBand Switch	Up to two hot-plug 4x QDR IB Switches
Gigabit Ethernet Switch	Up to two hot-plug Gigabit Ethernet Switches
Management Module	Up to two hot-plug management modules providing remote KVM and IPMI 2.0 functionalities
Power Supply	Hot-Swap 1620W/2500W power supplies, N+1 redundant
Cooling Design	Front to back
Dimensions	12.2" x 17.6" x 29"