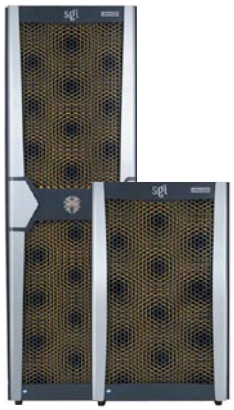
A New Era of High Efficiency Scalable Computing for Breakthrough Performance

SGI® Altix® ICE



SYSTEM HIGHLIGHTS

Purpose-built for data-intensive computing

Integrated visualization and storage Infrastructure based on SGI® InfiniteStorage and VUE product lines

Efficient blade architecture reduces complexity, minimizes downtime and simplifies management

Factory integrated SGI "power up & go" design for rapid deployment and immediate productivity

Designed with Processing Efficiency in Mind

SGI Altix ICE was built with efficient throughput performance in mind. The SGI Altix ICE integrated blade architecture was designed from the ground up to minimize system overhead and communication bottlenecks that can rob efficiency and scalability especially for data intensive workflows. SGI Altix ICE combines the powerful Intel® Xeon® processor 5500 series architecture with a unique board and interconnect design that delivers up to 512 processor cores in a single rack, and easily scaling to thousands of nodes to address the most challenging compute problems. And, with flexibility to optimize for sheer performance or price/performance, SGI Altix ICE delivers breakthrough value by precisely addressing customer needs—today and tomorrow.

Across the Board Efficiency with Maximum Uptime and Simplified Usage

SGI Altix ICE raises the bar for TCO value in a platform designed to drive power/cooling efficiency and advanced reliability, easily addressing the demanding requirements of today's data center. The SGI Altix ICE platform leverages SGI field-proven power and cooling technology innovations, developed from years of SGI supercomputer experience. SGI has leveraged this and other SGI technology innovations in SGI Altix ICE, virtually eliminating cables, wasted space and energy loss while designing in system component redundancy for enhanced reliability. The SGI Altix ICE diskless blade architecture further enhances security, reliability and eliminates a critical point of system failure, while reducing power/cooling requirements and overall system cost. The result? A system with unmatched reliability, efficiency, performance, and overall value.

"Power Up & Go" with SGI Altix ICE

The SGI Altix ICE "Power Up & Go" design delivers 6 TFlops of compute power per rack for an immediate boost in processing power and productivity. An elegant design that integrates blades, switches, interconnect, storage, and visualization, makes it easy to build and manage SGI Altix ICE systems. SGI follows the same design principle of "simple and clean" on the software side, delivering SGI Altix ICE as a fully integrated system that ships with the SGI® Tempo systems management tool, supplemented by the SGI® ProPack™ library, with features to further enhance application efficiency and software development. SGI Altix ICE sets a new standard for simplicity and ease of use in the world of scale-out computing.

Designed to Address the Growing Data Intensive Pain Point

With 25+ years of solving the worlds most data intensive computing and visualization problems, SGI imparts that DNA into the complete range of SGI high-performance server, visualization, and storage solutions along with industry-leading professional services and support to enable customers to efficiently overcome the challenges of complex dataintensive workflows and accelerate breakthrough discoveries, innovation, and information transformation.

SGI® Altix® ICE

Configuration Specifications

www.sgi.com/servers

Compute Blades	IP-83	IP-85	IP-95
Processors	• Intel® Xeon® 5200 Series • Intel® Xeon® 5400 Series	• Intel® Xeon® 5200 Series • Intel® Xeon® 5400 Series	• Intel® Xeon® 5500 Series
Memory/IO	• 8 fully buffered memory DIMM slots per blade • 1GB, 2GB, and 4GB 800MHz DIMMs	• 16 fully buffered memory DIMM slots per blade • 1GB, 2GB, and 4GB 800MHz DIMMs • Low profile PCIE x16 networking slot	• 12 DDR3 DIMM slots per blade • 2GB, 4GB, 8GB 1333MHz DIMMs

Blade Enclosures	ICE 8200LX	ICE 8200EX
Interconnect	• Two 20Gb/sec or 40Gb/sec IB switch blades, one high performing plane • Standard or Enhanced Hypercube, Fat Tree topology	• Four 20Gb/sec or 40Gbsec IB switch blades, two high performing planes • Standard or Enhanced Hypercube or Fat Tree topology
	• Dedicated Gigabit Ethernet administrative network, chassis management controller	
Power and Cooling	• 5+1 redundant 1625W 12V • DC output front-end power supplies / 7+1 redundant 175mm blowers	
Storage	Network Attached Storage Solutions (NAS)	
High-performance IPoIB	• SGI® InfiniteStorage NEXIS 9000 • SGI® InfiniteStorage NEXIS 7000 • SGI® InfiniteStorage NEXIS 2000	
Racks		
42U (30”W x 40”D) Tall Rack	• Each rack supports up to 4 blade enclosures, each with up to 16 two-socket compute blades, accommodates up to 128 sockets and 512 cores per rack • Standard 19” racks also supported, each with up to 2 blade enclosures and 10U of extra space for storage • Cooling: Air (standard) or water (optional)	
Hierarchical Controller Management Framework (HMF)	• System Administration Controller [Tier 1]	Rack Leader Controller (RLC) [Tier 2]	Chassis Management Controller (CMC) [Tier 3]
Controllers	• One per SGI Altix ICE system • Provisions out software to RLC • Pulls aggregated cluster management data from RLC	• Minimum one per rack node and via IB to two blade enclosures • Holds blade boot images • Runs fabric management software • Aggregates cluster management data for rack	• One per blade enclosure • Controls master power to all compute nodes • Monitors power and blade enclosure environment
Service Nodes	• Login Service Node (minimum one per system) • Gateway Service Node • Batch Service Node • Storage Service Node (may be used to satisfy login service node minimum requirement) • GPU (optional): NVIDIA® Quadro® FX 3800/4800/5800 and Tesla® C1060	
System Software		
Operating Systems	• SUSE® Linux Enterprise Server 10 or 11 • Red Hat® Enterprise Linux 5	
Cluster Solution Stack	• Optimized drivers and system monitoring: SGI Foundation Software 1 • Optimized system and application performance: SGI ProPack™ 6 for Linux® • Cluster Management Software: SGI® Tempo • Job Scheduling/ Workload Management: Altair® PBS Professional™ • Fabric Manager: SGI InfiniBand Fabric Manager with OpenSM • InfiniBand Host Stack: SGI OFED 1.4	

Software Development		Development Tools
Programming Languages and Debuggers	• C & C++: Intel C++ Compiler, GNU GCC • Fortran: Intel Fortran Compilers (Fortran 95), GNU GCC (Fortran77) • Debuggers: Intel Debugger included with Intel compilers, GNU GDB • TotalView Debugger and MemoryScape Memory Debugger • Intel® Thread Checker	• Intel®VTune Performance Analyzer • Intel® Trace Analyzer & Collector • Interactive Supercomputing Star-P®
Libraries	• Intel® Math Kernel Library • Intel® Integrated Performance Primitives • Intel® Threading Building Blocks • Intel® MPI Library	• Platform MPI • OpenMP included with Intel compilers • SGI Message Passing Toolkit

Corporate Office
46600 Landing Parkway
Fremont, CA 94538
tel 510.933.8300
fax 408.321.0293
www.sgi.com

North America +1 800.800.7441
Latin America +55 11.5185.2860
Europe +44 118.912.7500
Japan +81 3.5488.1811
Asia Pacific +61 2.9448.1463