

SGI® Altix® XE Servers and Clusters

Delivering Top Flexibility,
Performance and Value for the
Simplest to the Most Complex
Workflows

System Highlights

- Top performance with Dual-Core and Quad-Core Intel® Xeon® Processor-based servers and cluster nodes
- Flexible packaging with options for maximum extensibility or ultra-dense cluster configurations
- Superior TCO with breakthrough energy efficiency (50 watts/socket) and performance density (up to 16 processor cores per 1U chassis)
- Easy to build and deploy with custom-configurable, factory integrated clusters

Advanced Cluster Platform Provides Top Performance for Enhanced Productivity

SGI Altix XE servers and clusters deliver top value and price/performance, based on the winning combination of Intel® Dual-Core and Quad-Core Xeon® Processor-based architecture and SGI expertise in designing and delivering the most advanced High-Performance Computing (HPC) systems on the market today. The SGI Altix XE systems support a super-fast 1333 MHz front-side bus, up to 32GB of memory per compute node, and an ultra-dense architecture that packs up to sixteen cores in a slim 1U form factor. Add to this support for DDR InfiniBand, quad-core processors, fully-buffered DDR2 memory, and an option to drive clusters with an Altix XE240 head node for advanced extensibility, redundancy, and I/O rich-features—and you have the most powerful cluster solutions available.

SGI Altix XE servers run industry-standard operating systems, with a choice of SUSE® Linux Enterprise Server, Red Hat® Enterprise Linux®, and Microsoft® Windows® Compute Cluster Server 2003. In addition, the SGI® ProPack™ 5 for Linux® OS option includes resource management tools and enhanced development libraries like Flexible File Input/Output (FFIO) which provides programmers with fine-grained control of I/O transfers to maximize performance. The Altix XE product line supports a broad selection of development tools and applications from Intel, other third parties, and the open source Linux community. Finally, when deployed in combination with the SGI Altix family of Intel® Itanium®2 Processor-based servers, the SGI Altix XE product line provides the industry's best end-to-end solution for demanding workflow requirements.

Flexible Packaging to Optimally Address Needs

SGI Altix XE clusters are available in a choice of two packages, designed to optimally meet diverse customer needs. The SGI Altix XE1200 cluster offers advanced extensibility, with a rich set of expansion and I/O options to address the broadest range of compute requirements. Based on an innovative new board design, the SGI Altix XE1300 supports up to 16 processor cores per 1U package, delivering industry-leading performance density and cost efficiency. Both support one or two Dual-core or Quad-core Xeon processors, and up to 32GB memory per node. In addition, customers can choose from standalone Altix XE210, Altix XE240, and Altix XE310 servers, an ideal solution for departmental computing.

Breakthrough Value with Low Total Cost of Ownership (TCO)

With a choice of packaging options to optimally match requirements, the SGI Altix XE product family offers outstanding price/performance and low total cost of ownership. With an innovative new board design, the Altix XE1300 cluster drives customer value to a new level, with ultra-dense packaging that minimizes space and power-related expense, and reduces the cost of interconnect cabling and cards. Fewer cards and cables in turn enhance overall cluster reliability, delivering breakthrough customer value. SGI Altix XE clusters are backed by SGI world-class customer support organization, and a full 3-year warranty.

Custom-Configured, Factory Integrated Clusters Simplify Deployment

SGI Altix XE clusters can be custom-configured to support the full spectrum of customer requirements, and are fully integrated and tested at the factory prior to shipment making them ready-to-deploy upon delivery. The SGI Altix XE cluster solution offers customers industry-leading software tools for cluster and workload management.

SGI® Altix® XE Servers and Clusters

	SGI® Altix® XE210	SGI® Altix® XE240	SGI® Altix® XE310
Node Type	Head or Compute	Head or Compute	Compute (2 nodes per XE310)
Processors	Up to two Dual or Quad-Core Intel® Xeon® Processors, 5100 or 5300 Series • Front Side Bus: 1333 MHz • L2 Cache: 4.0MB for Dual-core, 8.0MB for Quad-core		
Memory	32GB DDR2 667 MHz FBDIMM memory Supports memory sparing and mirroring		64 GB DDR2 667 MHz FBDIMM memory (32GB per node) Supports memory sparing and mirroring
Dimensions and Weights	1U, (1.703"H x 16.93"W x 27.25"D), 31 lbs. max	2U (3.44"H x 16.93"W x 27.75"D), 65 lbs. max	1U (1.7"H x 17.26"W x 27.75"D), 54 lbs. max
PCI Slots	1 x PCIe x8 (low profile) 1 x PCI-X 133 MHz (full height)	Option One: • 2 x PCIe x4 (low profile) • 2 x PCIe x4 (full height) or 1 x PCIe x8 (full height) • 1 x PCI-X 133 MHz (full height) Option Two: • 2 x PCIe x4 (low profile) • 3 x PCI-X 133 MHz (full height)	2 x PCIe x8 (1 per node)
Integrated I/O	• 16MB ATI (ES1000) graphics • 1 x RJ45 Serial B port on rear • 3 x USB 2.0 port; 1 front, 2 rear • PS/2 Keyboard & Mouse ports • 2 x RJ45 10/100/1G Ethernet (Intel® 82563EB)		• 2 x InfiniBand port (1 per node), optional • 2 x COM port (1 per node) • 2 x VGA (1 per node) • 4 x Gigabit Ethernet (2 per node) • 4 x USB ports (2 per node)
Internal Storage	Three SATA/SAS drive bays • 3.5" SATA drive - 250GB, 7200 RPM - 500GB, 7200 RPM • 3.5" SAS drive - 73GB, 15000 RPM - 146GB, 15000RPM - 300GB, 15000 RPM • 1 x DVD-ROM or DVD-RW drive	Five SATA/SAS drive bays • 3.5" SATA drive - 250GB, 7200 RPM - 500GB, 7200 RPM • 3.5" SAS drive - 73GB, 15000 RPM - 146GB, 15000 RPM • 1 x DVD-ROM or DVD-RW drive	Four SATA drive bays (2 per node) • 3.5" SATA drive - 250GB, 7200 RPM - 500GB, 7200 RPM
I/O Expansion	Cluster Networking Cards • PCI-X and PCIe SDR and DDR InfiniBand HCAs • PCI-X and PCIe quad- and dual-port port 10/100/1G Ethernet cards	I/O Expansion Modules • Dual Gigabit Ethernet expansion I/O module • Single-port 4x SAS-IB 3Gb/s external SAS expansion I/O module • Optional hardware RAID (levels 0, 1, 5, and 10)	Cluster Networking Cards - PCIe SDR and DDR InfiniBand HCAs - PCIe quad- and dual-port 10/100/1G Ethernet cards
External Storage	• SGI® InfiniteStorage series • StorageTek® tape libraries	• IBM 3590, LTO-2, LTO-3 • HP® LTO-2, LTO-3	• Quantum® SDLT, SDLT220/320, SDLT600 • Sony® AIT-3, SAIT, DTF

Software System Software

- SUSE® Linux Enterprise Server 9 (XE210 and XE240 only)
- SUSE® Linux Enterprise Server 10
- SGI ProPack™ 5 for Linux®
- Red Hat® Enterprise Linux® 4
- Red Hat® Enterprise Linux® 5
- Microsoft® Windows® Compute Cluster Server 2003

Software Solution Stack

- **Cluster Management Software:** Scali Manage
- **Job Scheduling/ Workload Management:** Altair® PBS Professional™
- **Interconnect Fabric Management:** Voltaire GridStack
- **Filesystem:** XFS™ 64-bit journaled filesystem (avail. on SUSE Linux OS), CXFS™ shared filesystem for SANs
- **Network File System:** Samba, NFS

Development Tools

- **Programming Languages:** Intel C++ Compiler, GNU GCC, Intel Fortran Compiler (Fortran95), GNU GNAT, AdaCore GNAT Pro, Java2 1.4.2, BEA JRockit
- **Debuggers:** Intel Debugger (ldb) included w/Intel compilers, GNU gdb, Etnus TotalView, Allinea DDT, Intel Thread Checker
- **Libraries:** Intel Math Kernel Library, Intel Math Kernel Library Cluster Edition, Intel Integrated Performance Primitives, Intel Threading Building Blocks
- **Parallel Programming:** Intel MPI, Voltaire MPI in Voltaire IBHost and Voltaire GridStack, OpenMP included w/Intel compilers, Intel Cluster OpenMP, Intel Trace Analyzer and Collector, Allinea DDT
- **Performance Analysis:** Intel VTune Performance Analyzer, Intel Trace Analyzer & Collector

Environmental for XE210/240:

Environmental (Operating)

- **Temperature**
- +10°C to +35°C, altitude 5000 MSL
- +10°C to +30°C, altitude 10000 MSL

Environmental (Non-operating)

- **Temperature**
- -40°C to +70°C, altitude 40,000 MSL
- **Humidity**
- 90% non-condensing @35°C @28C for 2U)

Electrical and Power Supply

XE210 and XE240

- **1U Chassis**
- One 600W power supply
- **2U Chassis**
- One 750W power supply with an optional redundant 750W power supply
- **Voltage**
- Switchable 100-120 VAC or 200-240 VAC (North America/Japan);
- 230 VAC (International)
- **Power Requirements (max)**
- Short Rack: 3.36 kW
- Tall rack: 7.20 kW

Support and Services

SGI provides support for hardware and systems software. SGI also offers services to implement and integrate Linux applications in your environment. For more information, please see www.sgi.com/support.

Environmental for XE310:

Environmental (Operating)

- **Temperature**
- +10°C to +35 °C
- **Humidity**
- 8% to 90% non-condensation

Environmental (Non-operating)

- **Temperature**
- -40°C to +70°C
- **Humidity**
- 5% to 95%

XE310

- One 980W power supply
- **Voltage**
- Switchable 100-120 VAC or 200-240 VAC (North America/Japan);
- 200-240 VAC (International)
- **Power Requirements (max.)**
- Short rack: 8 kW
- Tall rack: 32 kW
- Optional water cooling available for tall rack



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