SGI® Altix® 350 Server

A scalable mid-range server based on the 64-bit Linux® operating system

System Highlights
• Offers Best-in-class price and performance
• Flexible growth path with modular “expand-on-demand” architecture for processor, memory, and I/O scaling
• Provides supercomputing capabilities of Altix® 3000, scaled for the mid-range
• Enables powerful solutions for technical database and traditional cluster applications
• Open standards-based platform fits easily into mixed HPC environments

A Linux alternative to the proprietary SMP mid-range

Best-in-class price/performance
With Altix 350, SGI delivers production-ready, scalable 64-bit Linux to mid-range customers and developers. For technical users seeking supercomputing-class performance in a cost-effective, scalable platform, Altix 350 offers leading price/performance and “expand on demand” flexibility in an industry-standard architecture. This 64-bit powerhouse delivers more real-world performance than any other mid-range system, and provides breakthrough capabilities for technical database and traditional cluster applications. Unlike its proprietary competitors, Altix 350 is an industry-standard solution based on Intel processors and a robust, scalable Linux operating environment.

Expand on demand—the industry’s most flexible growth path
The Altix 350 server’s modular architecture supports the configuration of processors, memory, and I/O independently. Altix 350 scales up to 32 processors and 384GB of memory, while traditional cluster node vendors provide this level of scalability using two, three or even four different boxes. The Altix 350 server’s flexible “expand on demand” capability allows users to deploy optimal performance for their budgets, and to cost-effectively adjust their configurations as requirements shift.

Supercomputing architecture for the mid-range
The Altix 350 server incorporates the same high-performance shared-memory NUMAflex™ architecture implemented in the award-winning Altix 3000 series, scaled for cost-effective mid-range technical computing. Its large shared-memory node size efficiently handles complex problems without wasted communication overhead, and its world-leading 6.4GB/second interconnect helps maximize throughput. Altix 350 runs certified SUSE® Linux® Enterprise Server™ 9 or the SGI Advanced Linux™ Environment with SGI ProPack™, a standard Linux environment fully optimized for superior data handling, system administration, and resource management.

Enables powerful solutions
The Altix 350 server offers a unique combination of leading price/performance, configuration flexibility, and superior I/O capabilities, making it ideal for demanding technical applications. With its high bandwidth and large shared-memory capabilities, Altix 350 provides outstanding performance on popular database codes. Configured as a uniquely scalable cluster node, the Altix 350 server’s high-throughput architecture helps scientists and engineers increase productivity and reduce time-to-solution. When clustered using commercial interconnects, its larger node size drives higher throughput along with significantly lower infrastructure and administration costs.

Standards-based computing
Based on Intel® Itanium® 2 processors and a choice of standard Linux distributions, Altix 350 fits easily into mixed High Performance Computing (HPC) environments. Users can take advantage of the wealth of 64-bit Linux applications available in the commercial and open-source communities. In addition, the system includes a complete suite of system, resource, and data management tools designed to optimize HPC applications. SGI is unique in providing direct support for the Altix 350 server’s hardware and system software; and SGI’s Professional Services organization is available to assist in analyzing workflows and implementing optimal solutions.
Base System

Processors
Up to 32 Intel Itanium 2 CPUs
- Base Compute Module: 1, 2 processors
- Expansion Modules: 0, 1, 2 processors
- CPU clock rates/cache size
  Speed Cache
  1.6 GHz 3.2 MB L2
  1.6 GHz 6.0 MB L2
  1.5 GHz 4.0 MB L2

Memory
Up to 384GB
- Base Compute Module: 2-24GB
- Expansion Modules: 0-24GB

Memory sets
- Size DIMMs
  - 2GB 4 x 512MB DIMM
  - 4GB 4 x 1GB DIMM
  - 8GB 4 x 2GB DIMM

PCI I/O
Up to 32 PCI/PCI-X slots
- 2 PCI buses, full-size 64-bit/133 MHz
- 3.3V PCI/PCI-X slots (Base & CMPX only)
- Base Compute Module: 4 slots (3 available)
- Expansion Module: (CMPX only) 4 slots

Internal Storage
Up to 4.7TB (SCSI) or 5.1TB (SATA)
- Base Compute Module
  - 2 x 160MB/sec Ultra160 SCSI channels (one internal, one external) with IO/9 card
  - 2 x 3.5" fixed media
  - hot-pluggable drive bays
- 1 or 2 SCSI or SATA hard drives
  - 36GB (15K RPM) or 146GB (10K RPM) SCSI
  - 80GB (7200 RPM) or 160GB (7200 RPM) SATA
- 1 DVD-ROM drive
- Expansion: add 1-15 additional Base Compute Modules

Cluster Interconnects
- Gigabit Ethernet, Voltaire (InfiniBand™), Quadrics

Module Definition
The system can be expanded by adding the following modules, up to a total of 8 modules, including the initial Base Compute Module.

Base Compute Module
- 2U module with 1 or 2 processors, 2-24GB memory, and base I/O & storage as described under Base System

CPU Expansion Module
- 2U module with 1 or 2 processors and 2-24GB memory

CMPX Expansion Module
- 2U module with 0-2 processors, 0-24GB memory, and 4 PCI-X slots

Router Module
- 2U router with 8 NUMAnet 4 ports

External Storage Options
HBA interfaces
- 2Gb Fibre Channel, 200MB/sec peak bandwidth, optical
- Ultra160 SCSI, 160MB/sec peak bandwidth
- Gigabit Ethernet copper and optical

JBOD
- SGI® InfiniteStorage STP900 (Ultra160 SCSI) (2Gb Fibre Channel)
- SGI® InfiniteStorage STP9300 (2Gb Fibre Channel)
- SGI® InfiniteStorage STP900S (Serial ATA)
- SGI® InfiniteStorage STP9500 (2Gb Fibre Channel)
- SGI® InfiniteStorage STP900S (Serial ATA)

Data servers
- SGI® InfiniteStorage NAS 2000 (Gigabit Ethernet)
- SGI® InfiniteStorage NAS 3000 (Gigabit Ethernet)
- SGI® InfiniteStorage SAN 2000 (2Gb Fibre Channel)
- SGI® InfiniteStorage SAN 3000 (2Gb Fibre Channel)

Tape and libraries
- StorageTek® L20, L40, L80, L180, L700e, L5500, 9310, T9840B, T9840B/C, T9940B; ADIC® Scalar® 24, Scalar® 100, Scalar® 1000, and Scalar® 10000; IBM® 3560, 3590, LTO Gen1/Gen2; Seagate® LTO gen1; HP® LT Gen2; Quantum® SDLT220/320; Sony® AIT-3, SAIT

Dimensions and Weights

Modules
- 2U (3.44"H x 17.06"W x 26"D)
- Short rack
  - 1U (36.24"H x 25.41"W x 24.83"D)
  - Maximum weight: 610 lbs
  - 19-inch EIA standard with lockable front and rear doors
- Tall rack
  - 3U (75.82"H x 23.62"W x 41.25"D)
  - Maximum weight: 1547 lbs
  - 19-inch EIA standard with lockable front and rear doors

Environmental (Operating)
- Temperature
  - +5C to +35C, altitude 10000 MSL
  - +5C to +30C, altitude 5000 MSL

Environmental (Non-operating)
- Temperature
  - -40C to +60C
- Humidity
  - 10% to 95% noncondensing

Altitude
- 40,000 MSL

Electrical and Power
Power supply
- One standard 500W power supply per module. Each module can be outfitted with an optional redundant 500W power supply.

Voltage
- 200-240 VAC (North America/Japan); 230 VAC (International)

Power requirements (max)
- Short rack: 3.36 kW
- Tall rack: 7.20 kW

Software

System software
- SGI Advanced Linux Environment with SGI ProPack (includes SFS® 64-bit journaled filesystem, Performance Co-Pilot™, Data Migration Facility [DMF], Tape Management Facility [TMF])
- Compatible with Red Hat® Enterprise Linux AS 2.1®; runs all standard 64-bit Linux applications
- Supports certified SUSE Linux Enterprise Server 9

File systems
- XFS® 64-bit journaled filesystem
- CXFS™ shared filesystem

Compilers
- Intel Itanium Processor Family compilers: C/C++, Fortran
- GNU compilers: C, Fortran 77

Networking
- TCP/IP, NFS V2/V3, DHCP, SNMP management, SMI/P, NIS/ONC+
- Available server software
- CXFS™ shared filesystem

Support and Services
SGI provides full support for Altix 350 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.

SGI® Altix® 350 Server

1.5 GHz 9.0 MB L2

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