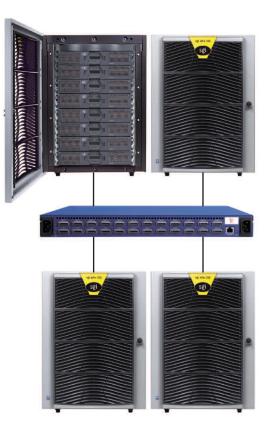**sgi**®

SGI® Altix® 1350 Cluster

SGI® Altix® performance and quality in a fully integrated cluster solution

System Highlights

- SGI Altix industry leading quality and performance in a competitively priced Itanium® 2 cluster
- Factory integrated cluster that is easy to deploy and administer
- "Expand on demand" architecture provides the flexibility to independently scale CPU, I/O, and memory resources to address changing business requirements
- Efficiently handles a diverse, multi-job workload for shortest time-to-solution
- Built with industry standard components for lowest risk and maximum investment protection
- The only cluster solution that delivers the bandwidth of multiple InfiniBand Host Channel Adapters per individual compute node for unbeatable scale-out capability and performance

Industry-leading Performance and Quality in a Competitively Priced Cluster

SGI Altix 1350 is a full-featured, fully integrated Intel® Itanium® 2 powered cluster that provides breakthrough performance and superior functionality in a competitively priced cluster solution. Based on the SGI® Altix® 350 server, a 64-bit powerhouse that delivers more real-world performance than any other mid-range system, the Altix 1350 cluster provides breakthrough capabilities for mixed workloads and cluster applications. Each Altix 350 compute node scales up to 32 processors, meaning that you spend less on software licensing costs and interconnect fabric, with fewer nodes to connect, manage and provision.

Fully Integrated Cluster Solution That Is Easy to Deploy and Administer

With the Altix 1350 cluster, SGI delivers a factory-integrated cluster that is easy to deploy and administer, with simpler configurations to manage, and the flexibility to address changing business requirements by scaling up and/or out as needed. Altix 1350 is a fully integrated high performance cluster solution that includes highly scalable Altix 350 compute nodes, InfiniBand, Gigabit Ethernet or Quadrics® interconnect fabric, and a complete software solution stack that comprises of industry leading Scali Manage™ cluster management software, Platform LSF software for managing and accelerating batch workload processing for compute- and data-intensive applications, and VoltaireVision™, which monitors interconnect fabric status.

Expand on Demand—The Industry's Most Flexible Growth Path

Altix 350 compute nodes scale from one to 16 processors and from two to 192GB of memory, and their flexible "expand on demand" capability allows users to deploy optimal configurations for their budgets, and scale I/O, processors, and memory independently for perfect right-sizing. Large node sizes also enable customers to efficiently run a diverse job workload mix, rather than retrofitting code to fit the hardware configuration. The Altix 1350 cluster is the only system on the market to support multiple InfiniBand Host Channel Adapters (HCA) per compute node for added bandwidth performance and flexibility in scale-out configurations.

Efficiently Handles a Diverse Workload for Shortened Time to Solution

The Altix 1350 cluster leverages the best of both worlds—SMP capability with large compute nodes plus cluster capacity—to efficiently handle a diverse workload and significantly enhance productivity. Each compute node can easily accommodate large jobs and model sizes, eliminating the need to expend resources on decomposing complex jobs or parallelizing code in order to process. With native 64-bit addressing and increased available memory for optimized HPC applications, the Altix 1350 cluster significantly decreases execution time, resulting in shortened time to solution for complex problems. In addition, the Altix 1350 cluster's large I/O capability supports 32 PCI slots, more peripherals, and more devices for enhanced multi-job I/O throughput capacity.

Based on Industry-Standard Components for Maximum Investment Protection

Based on Intel Itanium 2 processors as well as industry standard Linux®, memory modules, and interconnects, the Altix 1350 cluster fits easily into mixed HPC environments. Altix 1350 supports Red Hat® Advanced Server or SUSE® Linux Enterprise Server 9, with the option of turbo-charging HPC applications with SGI ProPack™. Users can take advantage of the wealth of 64-bit Linux applications available in the commercial and open-source communities, along with a complete suite of SGI supplied management tools tuned for HPC applications. SGI provides full support for the Altix 1350 cluster hardware and system software, eliminating the need to work with multiple vendors to resolve system problems.

SGI® Altix® 1350 Cluster

Altix 1350 Cluster Server Node - SGI Altix 350 Server

Processors
Up to 32 Intel Itanium 2 CPUs per node
- CPU clock rates/cache size

Speed	L3 Cache
1.6 GHz	9.0MB
1.6 GHz	6.0MB
1.5 GHz	4.0MB

Memory
Up to 384GB per node

PCI I/O
Up to 32 PCI-X slots
- 16 PCI-X buses
- 32 full-size 64-bit/133 MHz 3.3V PCI/PCI-X slots

Internal Storage
Up to 1.2TB (SCSI) or 2.6TB (SATA) disk storage per node
- 2 3.5" fixed media hot-pluggable drive bays
- 1 or 2 SCSI hard drives at 18GB (15k RPM) or 73GB (10k RPM) with IO-9 card
- 1 or 2 SATA hard drives at 80GB (7200 RPM) or 160GB (7200 RPM) with IO-10 card
- 1 DVD-ROM drive

InfiniBand Host Channel Adapters
Up to 8 Host Channel Adapters (HCAs) per compute node
- Maximum 24 HCAs for factory integrated cluster
- Maximum 100 nodes for systems running SGI® Message Passing Toolkit (MPT)

Maximum # of HCAs (per node)	Minimum Node Size (P)
1	2
2	4
4	8
8	16

High Speed Interconnect

InfiniBand
- 24 port, fully non-blocking, internally managed, 1U InfiniBand switch with redundant power supply
- PCI-X InifiniBand 4x Host Channel Adapters
- InfiniBand 4x cables: 2m, 3m, 5m, 7m, 10m
- Additional custom options (available with custom integration):
  - 288 port modular chassis Switch Router
  - InfiniBand to Fibre Channel Router
  - InfiniBand to IP Router

Gigabit Ethernet
- 24 port Gigabit Ethernet switches
- Base I/O Gigabit Ethernet ports
- PCI-X dual port Gigabit Ethernet network interface cards

Quadrics (available with custom integration)
- QM500 PCI-X Network adapter
- QS8A 8 port QsNetII switch
- QS5A 64 port QsNetII switch

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 TP900 (Ultra160 SCSI) (2GB Fibre Channel)

RAID
- SGI® InfiniteStorage TP9300 (2GB Fibre Channel)
- SGI® InfiniteStorage TP9300S (Serial ATA)
- SGI® InfiniteStorage TP9500 (2GB Fibre Channel)
- SGI® InfiniteStorage TP9500S (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® LTO gen2; Quantum® SDLT220/320; Sony® AIT-3, SAIT

Software

Operating System
- SUSE Linux Enterprise Server 9 with Service Pack 1
- SUSE Linux Enterprise Server 9 with SGI ProPack™ 4
- Red Hat® Enterprise Linux Advanced Server 4
- SGI Advanced Linux™ Environment with SGI ProPack™ 3

Interconnect Management
- VoltaireVision

Software Solution Stack
Cluster Management Software
- Scali Manage

Job Scheduling/Workload Management
- Platform LSF

Management Console
- SGIconsole™
- Cyclades AlterPath™ ACS (optional with custom integration)

Message Passing Interface (MPI)
- SGI® Message Passing Toolkit (MPT)
- MVAPICH

Packaging

Short rack:
- 17U (36.06" H x 25.41" W x 41.83" D)
- Maximum weight: 610 lbs
- 19-inch EIA standard with lockable front and rear doors

Tall rack:
- 39U (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

Support and Services
SGI offers full support for Altix 1350 cluster, its hardware and its system software. SGI also offers services to implement and integrate Linux applications in your environment. For more information, please contact your SGI representative.