Datasheet

SGI™ Scalable Servers

SGI™ 2200, SGI™ 2400, SGI™ 2800

Features

- Support for hundreds of terabytes of data
- Deliver unparalleled I/O bandwidth capacity
- SGI 2200—Scales from 2 to 8 MIPS processors
- SGI 2400—Scales from 2 to 64 MIPS processors
- SGI 2800—Scales from 64 to 512 MIPS processors

Evolve Your System

SGI 2200 deskside and SGI 2400 and SGI 2800 rack servers are powerful, flexible, and scalable in all dimensions. Enter the product line with a two-processor SGI 2200 deskside system that can be seamlessly expanded as needed up to a 512-processor single-system image (SSI) SGI 2800 shared-memory server. The key building block of the SGI server family is a module that contains processors, I/O, memory, and power supplies. A single module supports two to eight MIPS® processors and up to 16GB of memory and provides more than 5GB per second of sustained I/O bandwidth. Expand your initial system by adding modules and linking them with the revolutionary CrayLink™ interconnect, a high-speed, scalable interconnect fabric that provides incremental bandwidth while maintaining the shared memory model of an SMP server.

Scalable Bandwidth and Capacity

Throughout the SGI family of servers, the ccNUMA architecture gives you the flexibility to balance your compute, memory, and I/O requirements to match your application demands. As you grow a system by adding modules, you increase processor and memory capacity, I/O bandwidth, and overall system bandwidth. Increasing system bandwidth as you add processors ensures that no matter how large the system or demands of the application, you will not be constrained by a saturated bus.

Reliable and Highly Available

The modular design of SGI 2200, SGI 2400, and SGI 2800 makes them naturally resilient to failure. ECC memory, redundant power and cooling, hot-pluggable disks, and Fibre Channel RAID storage options allow your system to tolerate failures without affecting important applications. SGI scalable servers support IRIS FailSafe™ software for your business-critical applications, providing failover capability among two or more modules to help ensure uninterrupted application availability.

Investment Protection

The SGI 2200, SGI 2400, and SGI 2800 servers are designed to run application software written for today's shared-memory execution environment and are binary compatible with other SGI IRIX® workstations and servers. This feature protects your investment in IRIX application software, facilitates new application development, and ensures availability of a wide range of open systems software for future use.

SGI Scalable Servers: SGI 2200, SGI 2400, SGI 2800

SGI 2200 Deskside System (single module)

• Processors	1 to 4 node cards, 2 to 8 CPUs
• I/O bandwidth	5.0GB/sec sustained, 6.24GB/sec peak
• I/O boards	12 XIO or 11 XIO and 3 PCI 32- or 64-bit
• Internal peripherals	5 3.5" Ultra SCSI devices, 1 5.25" CD-ROM
• Independent power	Yes
• Redundant power	Available
• Redundant cooling	Yes

SGI 2400 Rack System

• Processors	1 to 32 node cards, 2 to 64 CPUs
• I/O bandwidth	40GB/sec sustained, 49.92GB/sec peak
• I/O boards	96 XIO or 88 XIO and 24 PCI 32- or 64-bit
• Internal peripherals	40 3.5" Ultra SCSI devices, 8 5.25" CD-ROM
• Independent power	Yes
• Redundant power	Available
• Redundant cooling	Yes

SGI 2800 Rack System

• Processors	32 to 256 node cards, 64 to 512 CPUs
• I/O bandwidth	160GB/sec sustained, 199.68GB/sec peak
• I/O boards	384 XIO or 352 XIO and 96 PCI 32- or 64-bit
• Internal peripherals	160 3.5" Ultra SCSI devices, 32 5.25" CD-ROM
• Independent power	Yes
• Redundant power	Available
• Redundant cooling	Yes

Technical Specifications

Processor Data

• Microprocessor	MIPS RISC R10000® or R12000™ 64-bit CPU
• Primary caches	32KB two-way set-associative on-chip instruction cache 32KB two-way set-associative on-chip data cache
• Secondary cache	4MB or 8MB cache per CPU

Node Card

• CPU capacity	2 R10000 or R12000 CPUs
• Memory capacity	Up to 4GB ECC SDRAM
• Hardware cache coherency	Yes
• Interleaving	4-way per node card
• Memory bandwidth	680MB/sec sustained, 780MB/sec peak

Storage I/O Devices

XIO Cards Supported

- Base I/O includes internal SE Ultra SCSI, external SE Ultra SCSI, 10/100Base-TX, 2 460Kb/sec serial ports
- 4-port Ultra SCSI (3 differential, 1 SE or differential)
- 2-port Fibre Channel (copper or optical) for direct attach
- 2-port Fibre Channel (optical only) for fabric attach
- 1-port Fibre Channel for direct and fabric attach

PCI-64 Cards Supported

- 2-port Fibre Channel (copper or optical) for direct attach
- 2-port Fibre Channel (optical only) for fabric attach
- 1-port Fibre Channel (copper or optical) for direct and fabric attach

Network I/O Devices

XIO Cards Supported

- Base I/O includes internal SE Ultra SCSI, external SE Ultra SCSI, 10/100Base-TX, 2 460Kb/sec serial ports
- 4-port 100Base-TX and 6 460Kb/sec serial ports
- Gigabit Ethernet
- 1-port dual-attached FDDI
- 1-port single-attached FDDI
- 1-port or 4-port ATM OC3
- 1-port ATM OC12
- Digital Video I/O (CCIR601)
- GSN (Gigabyte System Network, 800MB/sec)
- 1-port HIPPI serial (100MB/sec)

PCI-64 Cards Supported

- 1-port dual-attached FDDI
- 1-port single-attached FDDI

I/O Expansion Devices

- XIO to internal PCI (3 slots) adapter
- XIO to external VME adapter (6U and 9U)

Mass Storage

• Interfaces	Ultra SCSI and Fibre Channel
• Maximum bandwidth	40MB/sec Ultra SCSI, 100MB/sec Fibre Channel
• Device capacity	9.1GB, 18.2GB
• External storage	Rack-mount vaults 6 3.5" Ultra SCSI devices 10 3.5" Fibre Channel devices
• RAID	Fast/Wide SCSI rack (80 3.5" devices)
• Maximum capacity	8.6TB per module (Ultra SCSI) 43.6TB per module (Fibre Channel) 171.8TB per module (Fibre Channel RAID)

Graphics

- IRISconsole™, InfiniteReality®

Dimensions and Weights

• Deskside system	25.5" H, 23" D, 21" W (65 cm H, 58 cm D, 53 cm W) 215 lb (98 kg)
• Rack system	73" H, 40" D, 28" W (185 cm H, 102 cm D, 71 cm W) 700 lb (317 kg)

Note: weights assume that modules are fully configured with processors, I/O, and peripherals.

Environmental (Nonoperating)

• Temperature	-20° to +60°C
• Humidity	10% to 95% noncondensing
• Altitude	40,000 MSL

Environmental (Operating)

• Temperature	+5° to +35°C, altitude 5,000 MSL +5° to +30°C, altitude 10,000 MSL
• Humidity	10% to 90% noncondensing
• Noise	50 dBa (deskside), 55 dBa (rack)

Electrical and Power

• Voltage (deskside)	110-220 VAC (configuration limits apply at 110 VAC)
• Voltage (rack)	220 VAC single-phase
• Frequency	50-60 Hz
• Heat/power	2,500 W, dissipation 8,500 BTU/hr (deskside) 5,500 W, 18,750 BTU/hr (rack)
• Electrical service/type	NEMA 5-20, type 110 VAC @ 20 amp (deskside) NEMA 6-20, 208 VAC @ 20 amp (deskside) NEMA 6-30, 208 VAC @ 30 amp (rack)

System Bandwidth

System bus bandwidth as measured by bisection bandwidth sustained (peak)

System size (CPUs)	Bisection bandwidth without Xpress links	Bisection bandwidth with Xpress links	Number of Modules
8	1.25GB/sec (1.56)	2.5GB/sec (3.12)	1
16	2.5GB/sec (3.12)	5GB/sec (6.24)	2
32	5GB/sec (6.24)	10GB/sec (12.5)	4
64	10GB/sec (12.5)	N/A	8
128	20GB/sec (25)	N/A	16
256	40GB/sec (50)	N/A	32
512	80GB/sec (100)	N/A	64

Software

• System software	IRIX 6.5 ASE, X/OPEN XPG4 BASE 95, IEEE POSIX 1003.2, and 1003.1b, 1003.1c FIPS 151-2, UNIX® System V.4, 4.3 BSD extensions, MIPS ABI, SVID issue 3, X11R6, Motif Window Manager 1.2, IRIS GL™, OpenGL®
• Networking	TCP/IP, NFS™ V2/V3, RSVP, DHCP, Bulk Data Service (BDSpro), NetVisualyzer™, SNMP management, SNMP MIB, NIS/ONC+
• Server software	XFS™ 64-bit journaled filesystem with guaranteed rate I/O, IRIS NetWorker, Performance Co-Pilot™ system and network performance monitoring software, System MIB (Provision), Software Distribution (Propel)
• Compilers	ANSI C, C++, Fortran 77, Ada, Pascal, Power C Accelerator (PCA), Power Fortran 77, Fortran 90, Power Fortran 90
• PC/Macintosh® integration	Syntax TotalNET Advanced server, supports Windows® 95 and Windows NT® (SMB), NetWare™, AppleShare®, Samba for IRIX
• Security	Trusted IRIX™ B1 security, Commercial Security Pack (CSP)
• Web server	Netscape® Enterprise server

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