Datasheet

SGI™ Origin™ 3200C

Scalable Cluster

Features

- Scalability to thousands of MIPS processors
- Easy cluster administration and manageability
- Independent scalability of I/O and storage
- High-performance CXFS clustered filesystem
- Bundled tools for message passing and load balancing
- High-performance, low-latency interconnect

The Ultimate in Scalability

SGI expands its industry leadership in technical computing scalability with SGI Origin 3200C. The 3200C cluster system uses high-performance, low-latency switches to connect hundreds or thousands of MIPS® processors, using the same snap-together bricks as other SGI™ Origin™ 3000 series servers. Multidimensional scalability allows you not only to add nodes in a pay-as-you-grow fashion, but also to tailor your system's I/O and disk ratios independently. And with the SGI™ Advanced Cluster Environment manageability tools and high-performance CXFS™ clustered filesystem, managing large clusters has never been easier.

High-Performance Cluster Computing

SGI Origin 3200C supports high-bandwidth switches with less than 10-microsecond latency, providing maximum throughput for your parallel MPI applications. And with eight CPU nodes, more work can be done locally using OpenMP™ or distributed shared memory programming. The journaled, 64-bit CXFS filesystem gives concurrent access to all files on IRIX®, Linux®, or Microsoft® Windows NT® systems, with guaranteed consistency.

Easy Manageability

SGI Origin 3200C ships with the latest in cluster administration tools from SGI. With integrated console management, performance monitoring, and automated application installation system-wide, you can administer a cluster just as you would a shared-memory machine. Built-in workload distribution software lets you schedule jobs across all nodes. And the industry-leading SGI CXFS filesystem gives you guaranteed consistency. In addition, the industry's best message-passing libraries are bundled into one cohesive toolkit.

Flexibility and Investment Protection

With the revolutionary SGI NUMAflex™ computing model in the underlying node structure, you decide how much CPU, I/O, memory, and disk infrastructure to add to SGI Origin 3200C. Each node starts with one or two C-bricks (four to eight CPUs) and one I-brick (base I/O), and the system can be expanded by adding P-bricks (PCI slots), X-bricks (XIO slots), or D-bricks (JBOD disk slots). Every system component can be upgraded, maintained, or redeployed independently, so the 3200C cluster system can evolve as quickly as your computing needs.

SGI Origin 3200C
Technical Specifications

C-brick

- Processors: 4 R12000™ or R14000™* CPUs
- Memory: Up to 8GB ECC SDRAM in 4 banks
- Memory kits: 512MB, 1GB, 2GB*
- Memory controller: 5-port crossbar
- Memory bandwidth: 5.6MB/sec total memory bandwidth; Interleaving 4-way per C-brick

I-brick

- Ports: 2-ports USB, 100Base-T, 1-port IEEE 1394, 1-port serial, 1-port Fibre Channel
- Internal devices: 1 system disk standard, CD-ROM drive
- Disk interface: Fibre Channel
- I/O interface: One 64-bit/66 MHz PCI bus, 2 slots; one 64-bit/33 MHz PCI bus, 3 slots

P-brick

- Interface: 64-bit/66 MHz PCI, 3.3 V, and Universal
- Number of buses: 6
- Number of slots: 12 (2/bus) full-length
- Total I/O bandwidth: 3.1GB/sec peak total

X-brick

- Interface: XIO
- Number of slots: 4
- Total I/O bandwidth: 2.4GB/sec peak

D-brick

- Interface: 66 MHz/2GB Fibre Channel, SAN aware
- Drive bays: 12 hot-plug, 3.5" power 110/220 V, redundant power supplies standard
- Maximum bandwidth: 200MB/sec
- Device capacity: 18GB, 36GB, 73GB JBOD

Power Bay

- Power requirements: 200 VAC external source
- Power distribution: 48 VDC internally distributed to all bricks

PCI Adapters

- 1-port Fibre Channel optical
- 1-port Fibre Channel copper
- 1-port ATMOC3
- 1-port ATMOC12
- 1-port Gigabit Ethernet optical
- 1-port Gigabit Ethernet copper
- 2-port Ultra SCSI single-ended
- 2-port Ultra SCSI differential
- 2-port Ultra2 SCSI (LVD)
- 8-port digital audio

XIO Adapters

- 1-port FDDI dual attach
- 1-port HIPPI 800 serial
- Digital video
- Digital video with DVCPro
- High-definition video
- 1-port GSN (half bandwidth)
- 1-port GSN (full bandwidth)
- VME 6U
- VME 9U
- 1-port ATMOC3*

Mass Storage

- HBA interfaces: Fibre Channel, Ultra SCSI, Ultra2 SCSI
- RAID controller: Fibre Channel, 128MB cache; 2 controllers per SGI™ TP9100 module
- Internal loops: Two standard
- Maximum capacity: 166TB JBOD, 656TB RAID
- RAID storage: TP9100 RAID rack; maximum of 9 TP9100 modules

Environmental (Operating)

- Temperature: +5 to +35°C, altitude 5,000 MSL; +5 to +30°C, altitude 10,000 MSL
- Humidity: 10% to 90% noncondensing

Environmental (Nonoperating)

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

Electrical and Power

- Voltage: 220 VAC, single-phase and 3-phase, 50/60 Hz
- Heat/power: 4,500 W maximum per power bay
- Electrical service/type: NEMA 6-30, 208 VAC @ 30 amp

Dimensions and Weights

- SGI Origin 3200C rack: 74" H x 50" D x 30" W; 39U internal usable space; 970 lb
- I/O rack: 74" H x 50" D x 30" W; 39U internal usable space; 1,050 lb max.
- RAID/JBOD rack: 71" H x 32" D x 24" W; 38U internal usable space; 1,265 lb max.

Cluster Interconnects

- Myrinet 2000: 64/32-bit, 66/33 MHz, Myrinet/PCI interfaces; 64-bit IRIX memory addressing; 2+2Gb/sec links; 16-port crossbar Myrinet switches; Myrinet HSSDC cables (3 m and 10 m)
- Gigabit Ethernet: 32/64-bit, 66/33 MHz short PCI form-factor Gigabit Ethernet interface; Fully compliant with IEEE 802.3z (fiber) and IEEE 802.3ab (copper) standards; 1000Mb/sec bandwidth; TCP checksum offload, interrupt coalescing, and scatter/gather support; Optional jumbo frames support; Interoperable with major switches

Software

- System software: IRIX 6.5 Advanced Server Environment, X/OPEN XPG4 BASE 95, IEEE POSIX 1003.2, and 1003.1b, 1003.1c FIPS 151-2, UNIX® System 4.4, 4.3 BSD extensions, MIPS ABI, SVID issue 3, X11 R6, Motif Window Manager 1.2, IRIS GL™, OpenGL®
- Advanced Cluster Environment (ACE) for IRIX: Management; Console—Integrated Console Management; Performance monitoring—Performance Co-Pilot™; Automated application installation—RoboInst performs in-place installations and upgrades of system software without manual deinstalls; Performance—Message Passing Toolkit provides optimized implementation of the industry's top message-passing libraries together as one product; Platform Computing Corporation's Load Sharing Facility (LSF) for effective workload distribution and job scheduling
- CXFS filesystem: Concurrent file access from all systems to all files on IRIX, Linux, and Windows NT systems; Journaled, shared, 64-bit with guaranteed filesystem consistency; Maximum file size: 9 million terabytes; Maximum filesystem size: 18 million terabytes; Backup/restore—Dump/restore, bru, cpio, tar; Legato NetWorker for IRIX and many popular commercial backup packages; Support for hierarchical storage—Data Management API (DMIG-DMAPI)
- Cluster software: MPI Toolkit, LSF, and IRIX Advanced Cluster Environment provide centralized administration to support clustered or partitioned servers, job scheduling, accounting, load balancing of batch/interactive jobs, S/W distribution with RoboInst, and user, system, and network management
- Compilers: ANSI C, C++, Fortran 77 and 90, ADA, Pascal, Power C Accelerator (PCA), Power Fortran 77 and 90

**Available Q1CY01.*

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