Datasheet

SGI® Origin® 300

Features

- Compact, affordable, high-performance modules
- Configurable for maximum compute, I/O, or data throughput
- Scalable from 2 to 32 MIPS processors[1] with shared memory

Compact, High-Performance Modularity

The SGI Origin 300 server is the latest advancement in the revolutionary SGI® NUMAflex™ approach to modular computing, designed to deliver maximum sustained performance in a compact, affordable design. Independent scaling of computational power, I/O bandwidth, and in-rack storage lets you configure a system tuned to your unique definition of real performance for demanding technical server applications. With its small footprint and highly modular design, the SGI Origin 300 server is ideal for computational throughput, media streaming, or complex data management.

As the newest member of the SGI® Origin™ family of servers, SGI Origin 300 provides dramatic price/performance advantages. This lowers your total cost of ownership while still delivering world-class performance.

Scalable, Customized Configurations

As a stand-alone computational system, an SGI Origin 300 server module packs the power of two or four MIPS® processors, the high-performance SGI® IRIX® operating system, and up to 4GB of memory into an ultradense, 3.5-inch, rack-mountable chassis. For more computationally intensive applications, you can add a second SGI Origin 300 server and double your capacity to up to eight MIPS processors and 8GB of memory in a single, shared-memory system. For applications requiring maximum I/O bandwidth, add a PCI module with 12 hot-swap PCI slots. When you need affordable, high-performance storage, connect the SGI® Total Performance 900 (TP900) storage module to the SCSI port in any SGI Origin 300 server. For ultimate scalability, an SGI Origin 300 server with a NUMAlink™ module[1] combines up to eight base server or PCI expansion modules—up to 32 processors with 32GB of memory, or up to 16 processors with as many as 56 PCI slots.

Affordable, High-Performance Storage Options

The SGI TP900 storage system provides easy, modular, high-performance disk expansion for the SGI Origin 300 server. TP900 emphasizes maximum throughput in a compact form factor, with up to eight SCSI disks—over half of a terabyte of data capacity—in only 3.5 inches of rack space. TP900 disk modules easily connect to the integrated SCSI port in SGI Origin 300 servers. And with your choice of one or two Ultra160 SCSI channels and the latest, state-of-the-art SCSI disks, TP900 can be optimized for either fast-retrieval or deep-archive configurations.

SGI Origin 300
Technical Specifications

Processor Data

• Microprocessor	64-bit MIPS RISC R14000™ 500 MHz or R14000A™ 600MHz
• Primary caches	32KB two-way set-associative on-chip instruction cache 32KB two-way set-associative on-chip data cache
• Secondary cache	500 MHz: 2MB ECC cache/processor 600 MHz: 4MB ECC cache/processor

Base SGI Origin 300 Single-Module Configuration

• CPU capacity	2 or 4 R14000 or R14000A™ CPUs per chassis
• Memory capacity	512MB to 4GB ECC protected per chassis
• Cache coherency	Fully in hardware
• Interleaving	4-way per bank
• I/O bandwidth	1.15GB/sec sustained 2.4GB/sec peak
• Memory bandwidth	630MB/sec sustained 3200MB/sec peak
• I/O slots	2 full-size 64-bit 66 MHz 3.3 V/universal PCI, 420MB/sec sustained 12 additional PCI slots with external PCI expansion module
• Internal SCSI	One 160MB/sec Ultra160 SCSI channel
• Storage bay	Two 3.5" fixed media hot-pluggable disk drive bays
• External SCSI	One 160MB/sec Ultra160 SCSI channel
• Communication	One 10Base-T/100Base-TX 3 115.2 Kbaud serial ports 1 NUMAlink port 1 XIO™ port (graphics usage only) 1 RTO (real-time interrupt) output 1 RTI (real-time interrupt) input 2 USB ports 1 L1 port
• Cooling	N+1 redundant cooling

Note: Dual-chassis system also available.

NUMAlink Configuration

• CPU capacity (without PCI module)	4 to 32 processors interconnect via NUMAlink cable in a rack with an 8-port NUMAlink router; requires power bay
• CPU capacity (with up to 4 PCI modules)	4 to 16 processors interconnect via NUMAlink cable in a rack with an 8-port NUMAlink router; requires power bay

Note: Other configurations available.

External PCI Expansion Chassis

• Bus type	64-bit/66 MHz PCI
• PCI slots	Additional 12 slots (64-bit/66 MHz, hot-pluggable)
• PCI bandwidth	400MB/sec sustained, 512MB/sec peak
• PCI buses	6 buses, 2 slots/bus

PCI Options

- ATM OC3 (1 port)
- ATM OC12 (1 port)
- LVD/single-ended Ultra160 SCSI (2 ports)
- Audio (8-port) serial
- Gigabit Ethernet—copper (1 port)
- Gigabit Ethernet—optical (1 port)
- Fibre Channel—optical (1 port)
- Myrinet 2000 (1 port)

External Storage

• Interfaces	Ultra160 SCSI and Fibre Channel (external only)
• Maximum bandwidth	160MB/sec Ultra160 SCSI 200MB/sec Fibre Channel
• Device capacity	Ultra160 SCSI: 18GB, 73GB
• Tape	DDS4 SCSI external
• CD-ROM	40x SCSI external
• SCSI JBOD	TP900 SCSI JBOD storage system Up to 8 Ultra160 SCSI drives per enclosure (18GB or 73GB)
• Fibre Channel RAID	SGI™ TP9100 or SGI™ TP9400 storage systems

External Storage (Cont'd.)

• Fibre Channel adapters	QLA 2200
• Fibre Channel RAID	SGI® TP9100 dual active controllers supporting direct and SAN attachment, optical/copper connection, CXFS™, and FailSafe™ Maximum capacity: configurations up to 60 drives (4.38TB with 73GB drives)
• Fibre Channel JBOD	TP9100, 12 drive enclosures Maximum capacity: up to 108 drives per TP9100 rack (7.884TB with 73GB drives)
• Fibre Channel RAID	SGI® TP9400 dual active controllers, direct and/or SAN fabric connectivity Multihost support, including CXFS and FailSafe Maximum capacity: 16TB with up to 220 73GB disk drives in 2 racks

Software

• System	IRIX® 6.5 Advanced Server Environment supports UNIX® 95, MIPS ABI, and Year2000 and has many capabilities to support RAS, resource management, real time, and system management
• Networking	TCP/IP, NFS V2/V3, RSVP, DHCP, Bulk Data Service (BDSpro), NetVisualyzer™
• Server	XFS™ 64-bit journaled filesystem with guaranteed rate I/O
• Web server	Netscape® Enterprise server, Apache Web server, SGI® Internet Gateway
• Compilers and tools	ANSI C, C++, Fortran 77, Fortran 90, Ada95, Power Fortran Analyzer Auto Parallelization Option
• PC and Macintosh®	Samba for IRIX Xinet (demo)
• High availability	IRIS FailSafe™

Support and Warranty

- SGI Origin 300 comes with a one-year hardware warranty with on-site next-day response; SGI offers a complete complement of comprehensive hardware and software service offerings that can be tailored to fit your needs
- The SGI industry-leading electronic support tool suite is available at no additional cost to Warranty, SGI® FullCare™, and SGI® FullExpress™ customers

Dimensions and Weights

• Rack-mounted dimensions	3.46" H, 26.15" D*, 19" W (fits industry-standard 19" racks) (8.8 cm H, 66.4 cm D, 48.3 cm W)
• Weight	36 lb (16.36 kg) maximum

*An additional 8" front-end clearance is required for drive door to open properly.

Environmental (Nonoperating)

• Temperature	-40° to +60°C (-40° to +140°F)
• Humidity	10% to 95% noncondensing
• Altitude	40,000 ft MSL

Environmental (Operating)

• Temperature	+5° to +35°C (+41° to +95°F), 5,000 ft MSL, +5° to +30°C (+41° to +86°F), 10,000 ft MSL
• Humidity	10% to 95% noncondensing
• Altitude	10,000 ft MSL
• Noise	50 dBa

Electrical and Power

• Voltage	110/220 VAC auto-sensing worldwide power supply
• Power supply	WTX 460 W
• Frequency	50/60 Hz
• Heat dissipation	1,194 BTU/hr, maximum
• Electrical service	100/120 VAC at 15 A, 200/240 VAC at 15 A, single-phase cord
• Service type	U.S., Japan, NEMA 5-15P (110 V), 6-15P (220 V)

Regulatory

- SGI Origin 300 is classified FCC Class A, CE, CSA, TUV, UL, CISPR A, and VCCI Class 2 certified

[1] Scalability beyond 8 processors requires a NUMAlink module.

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