



Datasheet

SGI® Origin® 350

Features

- Modular scalability
- Customized configurations
- Operating environment optimized for high-productivity computing

Modular Scalability for Technical Computing

SGI Origin 350 technical servers are the only midrange systems that enable truly modular, single-system configurations, providing completely independent scalability of I/O bandwidth, system bandwidth, computational performance, memory, storage, and visualization capabilities. Using the revolutionary SGI® NUMAflex™ architecture, SGI Origin 350 technical servers deliver sustained, multidimensional performance in compact, affordable, rack-mountable components.

Customized Configurations

With its compact form factor and individually scalable modules, SGI Origin 350 is an ideal choice for solving big problems in a little package. Users select only the components that optimally solve their problems, and SGI Origin 350 scales easily to meet the challenge of more complex problems over time. Customized configurations are built with the following modules.



Base technical server and compute expansion	The base SGI Origin 350 compute module can be a stand-alone technical server with two or four processors, up to 8GB memory, four PCI-X slots ¹ , two drive bays, and integrated power, all in 3.5 inches of rack space. Cable in more compute modules for additional computational power.
I/O expansion	Choose between PCI-X and PCI expansion. The PCI-X expansion module brings in four additional 64-bit PCI-X slots in 3.5 inches of rack space. The PCI expansion module ² has 12 64-bit PCI slots in 7 inches of rack height.
Memory expansion	The memory expansion module adds 8GB of additional memory capacity and four additional PCI-X slots in 3.5 inches.
Storage expansion	SGI Origin 350 supports connections to a variety of in-rack JBOD or external RAID storage devices in the SGI® Total Performance family of Fibre Channel storage systems.
Graphics options	SGI Origin 350 technical servers can be configured as SGI® Onyx® 350 visualization systems, with InfinitePerformance™ graphics cards inserted in dedicated slots in compute modules or with additional modules for InfiniteReality® graphics.
System scalability	The NUMAlink™ module provides additional system bandwidth and eight NUMAlink ports for larger system configurations. Using the NUMAlink module, users can easily create systems with as many as 32 processors, up to 64GB of memory, and up to 62 available PCI-X slots, all connected under a single IRIX® operating system image, with room in the rack left over for storage expansion.

High-Productivity Computing

Return on investment depends on productivity, and with SGI Origin 350 technical servers, the hardware and software are custom-designed for that purpose. The SGI® IRGO™ workflow-optimization features of the SGI® IRIX® operating system complement the modular scalability and customized configurations of SGI Origin 350, shortening end-to-end workflow. And SGI Origin 350 promotes the easy integration of HPC, visualization, and data management, optimizing productivity on the toughest challenges.



¹One PCI-X slot in the first compute module of an SGI Origin 350 technical server contains a PCI card that provides system I/O functionality. Two PCI-X slots and one PCI slot are left available to the user. Subsequent compute modules in the same system leave all four PCI-X slots available.

² The PCI expansion module requires a separate power bay.

SGI Origin 350
Technical Specifications

<p>Processor Data</p> <ul style="list-style-type: none"> • Microprocessor: 64-bit MIPS® R16000™ 600 MHz 64-bit MIPS R16000 700 MHz • Primary caches: 32KB two-way set-associative on-chip instruction cache 32KB two-way set-associative on-chip data cache • Secondary cache: 4MB ECC cache/processor 	<p>Mass Storage (cont'd)</p> <ul style="list-style-type: none"> • Tape: DDS4 SCSI external 24x IDE internal DVD • DVD/CD-ROM • SCSI JBOD: SGI® TP900 SCSI JBOD storage system up to 8 Ultra3 SCSI drives per enclosure (18GB or 73GB) SGI Total Performance family • Fibre Channel RAID
<p>Compute Module Configuration [2U]</p> <ul style="list-style-type: none"> • CPU capacity: 2 or 4 CPUs per chassis • Memory capacity: 1GB to 8GB ECC protected per chassis • Cache coherency: Fully in hardware • Interleaving: 4-way per bank • I/O bandwidth: 1.07GB/sec sustained, 2.4GB/sec peak • Memory bandwidth: 3.2GB/sec sustained, 3.2GB/sec peak • I/O slots [Base compute module]: Four PCI-X/PCI slots on two buses [3.3 V/universal] <ul style="list-style-type: none"> – Two available 64-bit 100 MHz PCI-X slots on one bus – One available 64-bit 66 MHz PCI slot on one bus – IO9 card included in fourth slot • I/O slots [Expansion compute module]: Four available PCI-X/PCI slots on two buses [3.3 V/universal] • Internal SCSI: 1 160MB/sec Ultra3 SCSI channel • Storage bay: 2 3.5" fixed-media hot-pluggable disk drive bays 1 3.5" CD/DVD drive bay • External SCSI: 1 160MB/sec Ultra3 SCSI channel [VHDCI] • Communication: 1 IOBase-T/1000Base-TX auto-sensing 4 115.2 Kbaud serial ports 1 NUMalink™3 port, 1.6GB/sec each direction 1 XIO™ port, 800MB/sec each direction [graphics or 2U PCI-X expansion or VME-usage only] 1 RTO output [real-time interrupt] 1 RTI input [real-time interrupt] 2 PS2 ports [keyboard/mouse] 1 LI diagnostic port • Redundancy: Hot-swappable redundant power supplies 	<p>Software</p> <ul style="list-style-type: none"> • System: IRIX® 6.5 Advanced Server Environment supports UNIX® 95, MIPS® ABI, Year 2000 • Networking: TCP/IP, NFS V2/V3, RSVP, DHCP, Bulk Data Service [BDSpro], SNMP, network load balancing software [REACT/pro™, guaranteed rate I/O] • Real-time: Apache Web server • Web server: ANSI C, C++, Fortran 77, Fortran 90, Ada95, Power Fortran Analyzer [PFA], Auto Parallelization Option [APO] • Compilers & tools: XFS™ 64-bit journaled filesystem, CXFS shared filesystem for SANs, Network File System, Samba® • Filesystems: Platform Computing LSF, disk quotas, job limits, cpusets, comprehensive system accounting • Resource management: Embedded Support Partner, checkpoint/restart, system partitions, Performance Co-Pilot™, CPU exclusion, live kernel dump • Reliability: IRIS FailSafe™ • High availability <p>Dimensions and Weights</p> <ul style="list-style-type: none"> • Compute, MPX, and PCI-X: 3.44" H, 27" D, 17.06" W [fits industry-standard 19" racks] [8.74 cm H, 68.58 cm D, 43.33 cm W] with bezel; 44.5 lb maximum [20.23 kg] • NUMalink: 3.35" H, 27.5" D, 17.38" W [8.51 cm H, 69.85 cm D, 44.15 cm W]; 18 lb maximum [8.18 kg] • PCI: 6.64" H, 27.74" D, 17.50" W [16.87 cm H, 70.46 cm D, 44.45 cm W]; 70 lb maximum [31.82 kg] <p>*An additional 8" front-end clearance is required for drive door to open properly.</p>
<p>NUMalink Expansion Module [2U]</p> <ul style="list-style-type: none"> • System expansion: 8 NUMalink ports • System bandwidth: 3.2GB/sec per NUMalink port • Maximum system size: 32 CPUs 64GB memory [ECC protected per module] <ul style="list-style-type: none"> – 1.2TB internal SCSI drives – 62 PCI-X slots 	<p>Environmental [Nonoperating]</p> <ul style="list-style-type: none"> • Temperature: -40°C to +60°C • Humidity: 10% to 95% RH, noncondensing • Altitude: 40,000 MSL
<p>External MPX Expansion Module [2U]</p> <ul style="list-style-type: none"> • Bus type: 64-bit/100 MHz PCI-X • PCI-X: Additional 4 slots [2 slots per bus] • PCI-X bandwidth: 760MB/sec sustained, 770MB/sec peak • Memory slots: 8 slots [8GB max capacity] • Connection: NUMalink port 	<p>Environmental [Operating]</p> <ul style="list-style-type: none"> • Temperature: +5°C to +45°C [5,000 MSL], +5°C to +35°C [10,000 MSL] • Humidity: 10% to 95% noncondensing • Altitude: 10,000 MSL • Noise: 48 dBA sound pressure, 6.1 bels sound power
<p>External PCI-X Expansion Module [2U]</p> <ul style="list-style-type: none"> • Bus type: 64-bit/100 MHz PCI-X • PCI-X: Additional 4 slots [2 slots per bus] • PCI-X bandwidth: 760MB/sec sustained, 770MB/sec peak • Connection: XIO port 	<p>Electrical and Power</p> <ul style="list-style-type: none"> • Voltage: 120/240 V AC auto-sensing worldwide power supply • Power supply: 500 W TPS module • Frequency: 50/60 Hz • Heat dissipation: 1,315 BTU/hr, maximum • Electrical service: 100/240 VAC @15A, single-phase cord • Service type: U.S., Japan, NEMA 5-15P [110 V], 6-15P [220 V]
<p>External PCI Expansion Module [4U]3</p> <ul style="list-style-type: none"> • Bus type: 64-bit/66 MHz PCI • PCI: Additional 12 slots [64-bit/66 MHz, hot pluggable] • PCI bandwidth: 420MB/sec sustained, 512MB/sec peak • Connection: NUMalink port 	<p>Regulatory</p> <p>SGI Origin 350 is classified FCC, CISPR, ICES, AS/NZS, VCCI, CNS Class A; CE, CSA NRTL, CSA CB</p>
<p>PCI/PCI-X Card Options</p> <p>ATM OC3 [1 port], ATM OC12 [1 port], HVD differential SCSI [2 ports], LVD/single-ended Ultra3 SCSI [2 ports], audio [8 port], serial, Gigabit Ethernet — copper [1 port], Gigabit Ethernet — optical [1 port], Fibre Channel 2Gb — optical [1 port], Fibre Channel 2Gb — optical [2 ports], Myrinet 2000 [1 port]</p>	<p>Services, Support and Warranty</p> <ul style="list-style-type: none"> • Warranty: One-year on-site hardware repair and parts replacement with next-business-day response time; 5x9 coverage • Embedded Support Partner: 7x24 proactive system monitoring and automatic rule-based failure notification to SGI support personnel. Easy access to online customer support information, publications, patches, and software downloads. • SGI® Supportfolio™: Online access to thousands of proven support solutions • SGI Knowledgebase: Broad range of services including customized, end-to-end integrated solutions based on SGI Origin 350. Managed Services range from installation and implementation to system tuning and system management. Support programs range from basic coverage to 7x24 accelerated response for mission-critical requirements. • Services and Support
<p>Mass Storage</p> <ul style="list-style-type: none"> • Interfaces: Ultra3 SCSI and Fibre Channel [external only] • Maximum bandwidth: 160MB/sec Ultra3 SCSI, 200MB/sec Fibre Channel • Device capacity: Ultra3 SCSI: 18GB, 73GB 	

³ Requires separate power bay [3U].



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