SGI® CloudRack™ X2

Introducing the Scalable Workgroup Cluster

CloudRack X2 is a unified enclosure that combines extreme densities with breakthrough energy efficiency for cluster computing. CloudRack X2 opens up new deployment capabilities for CloudRack technology. Deploying the enclosure as a standalone unit on casters yields the ideal workgroup cluster. For scale-out data center usage, CloudRack X2 can also be easily mounted in any standard 19" rack-mount environment.

CloudRack X2 assures maximum power usage, cooling efficiency, and staggering server densities with up to 216 cores per enclosure in a footprint of only five square feet. CloudRack X2 capitalizes on an ultra-efficient Eco-logical™ design that uses fan-less and cover-less 1U server trays installed vertically in the 14U enclosure.

Innovative Power XE™

Power XE is an enclosure-level power distribution technology that obviates individual, server-level power supplies in favor of hot-swappable, redundant rack-level power supplies with no incremental cost or loss of efficiency. Hot-pluggable, N+1 redundant rectifiers significantly improve power distribution effectiveness by converting incoming AC power to 99 percent efficient 12VDC power at the server level. Further, Power XE maximizes the number of serves that can operate on the same circuit by minimizing power harmonics in the power mains.

Turn up the Thermostat!

CloudRack X2 is thermally optimized to safely operate in much higher ambient temperatures, up to 104°F (40°C). This can mean significant operating cost savings from reduced power consumption by Computer Room Air Conditioning (CRAC) units. Hot swappable, easily serviceable N+1 redundant autonomic fan arrays provide thermally managed enclosure-level airflow. These intelligent fans remarkably reduce fan power consumption by over 80 percent compared to conventional rackmount servers.

Design to Order, Optimized for Internet, HPC and Graphics Environments

SGI DTO processes assure CloudRack X2 systems are tailored to your computing environment and optimized to support your specific computing applications. Enclosures are available to address needs ranging from HPC workgroup clusters to high-performance quad-socket database servers and scale-out Internet deployments. GPU-based configurations are even available to speed graphics calculations. For investment protection, CloudRack X2 is ready to take advantage of next generation AMD and Intel designs. CloudRack X2 systems are rigorously tested then shipped to your data center floor, ready for immediate integration.

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SGI CloudRack X2
The Scalable Workgroup Cluster

CloudRack X2 Enclosure Specifications

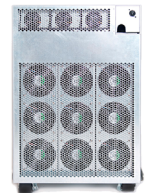|	
Enclosure Model	CR2000-14U
Enclosure Type	19" rackmount enclosure or standalone use on casters
Max. Trays	Nine plus 2U available for networking equipment
Max. Servers	18 dual-socket
Max. Processors (Cores)	36 (216 cores)
Max. 3.5" Drives (Max. Capacity)	108 (216TB)
Max. 2.5" Drives (Max. Capacity)	108 (54TB)
Cooling Architecture	N+1 redundant, hot-swappable fan arrays in rear of enclosure. Server trays are fanless to maximize reliability and thermal efficiency.
Airflow	Front-to-back, ideal for hot-aisle, cold-aisle environments
Max. Ambient Temperature	Up to 104°F (40°C). Does not apply to all configurations.
Input Power	180–250VAC (50–60Hz)
Power Architecture	Power XE™ 12VDC internal power distribution. AC-DC rectifiers can be configured with N+1 redundancy.
Max. Rectifier Modules	Three
Dimensions (HxWxD)	24.4" (14U) x 17.6" x 41". Height is 27.2" on optional casters.

Rack-mounted front

Front

Back

Sample CloudRack X2 Compatible Server Tray Specifications

Server Tray Model	TR2106-TY9	TR2108-TY8	TR2102-2TY9	TR2108-2F1	TR2108-G1
Servers	One dual-socket	One dual-socket	Two dual-socket	Two dual-socket	One dual-socket
Chipset	Intel 5500 or 5520	Intel 5520	Intel 5500 or 5520	Two NVIDIA nForce Pro 3600 MCP	AMD SR5690 + SP5100
Max. Processors	Two Intel® Xeon® quad- or six-core 5500 or 5600 series	Two Intel® Xeon® quad- or six-core 5500 or 5600 series	Four Intel® Xeon® quad- or six-core 5500 or 5600 series (two/server)	Four AMD Opteron™ dual-core 2200, quad-core 2300 or six-core 2400 series (two/server)	Two AMD Opteron™ eight- or 12-core 6100 series (two/server)
Max. Cores	12	12	24 (12/server)	24 (12/server)	24
Max. Memory	96GB	144GB	192GB (96GB/server)	128GB (64GB/server)	128GB
Memory Slots & Type	12 x 1333/1066/800 MHz DDR3 ECC reg.	18 x 1333/1066/800 MHz DDR3 ECC reg.	24 x 1333/1066/800 MHz DDR3 ECC reg. (12/server)	16 x 800 MHz DDR2 ECC reg. (eight/server)	16 x 1333/1066/800 MHz DDR3 ECC reg. (16/server)
Hard Disk Drives (Max. Capacity)	Four 2.5" (max. 2TB) SATA II hot-swap drives plus two 3.5" (max. 4TB) SATA II quick-release drives	Eight 3.5" (max. 16TB) SAS or SATA II quick-release drives	Two 2.5" (max. 1TB) SATA II hot-swap drives (one/server)	Eight 3.5" (max. 16TB) SAS or SATA II quick-release drives (four/server)	Eight 3.5" (max. 16TB) SAS or SATA II quick-release drives
Networking	Dual GigE (Intel 82576) and optional QSFP QDR Mellanox InfiniBand port	Dual GigE (Intel 82576)	Dual GigE (Intel 82576) and optional QSFP QDR Mellanox InfiniBand port/server	Dual GigE (2 x Marvell 88E1116)/server	Three GigE (Intel® 82576EB + 82574L)/server

A complete listing of all CloudRack trays compatible with CloudRack X2 along with full specifications can be found at sgi.com/CloudRackX2.