

Breakthrough Density and Configurability for Cluster Computing

KEY FEATURES

Breakthrough Density
24U and 42U cabinets
with up to 1824 cores
per cabinet

**Innovative Power XE™
Power Distribution
Technology**
99 percent efficient
12VDC distribution
eliminates stranded
power and provides
nearly perfect
phase balancing

High Reliability
N+1 redundant power,
self-managed air flow
with redundant fan
arrays, and extended
server life with
centralized, redundant
components

**Extreme Thermal
Efficiency**
Supports data
center operation at
temperatures up to
104°F (40°C)

Design to Order
The widest range of
performance, processor,
efficiency, disk, memory
and networking
combinations
ever offered

SGI® CloudRack™ C2



Cool, Clean and Efficient

CloudRack C2 is a unified cabinet that combines extreme densities with breakthrough energy efficiency for cluster computing. CloudRack C2 delivers dramatic bottom-line savings by eliminating stranded power (a data center's power capacity which is paid for, but ultimately unused). It assures maximum power usage, cooling efficiency, and staggering server densities with up to 1824 cores per cabinet. CloudRack C2 capitalizes on an ultra-efficient, rack-centric Eco-Logical™ design which uses fan-less and cover-less 1U server trays installed in 24 inch wide 24U and 42U intelligent cabinet configurations.

Innovative Power XE

Power XE is a cabinet-level power distribution technology that virtually eliminates the inherent data center "stranded power" problem and provides nearly perfect (>95 percent) phase balancing. It 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 servers that can operate on the same circuit by minimizing power harmonics in the power mains.

Turn up the Thermostat!

CloudRack C2 is thermally optimized to allow data centers to operate at much higher temperatures, up to 104°F (40°C). Higher system temperature tolerance means significantly reduced power consumption by Computer Room Air Conditioning (CRAC) units which in turn drives radically reduced data center operating cost. Hot swappable, easily serviceable N+1 redundant autonomic fan arrays provide thermally managed cabinet-level airflow. These intelligent fans remarkably reduce fan power consumption by over 80 percent compared to conventional AC enclosures.

Design to Order Optimization

SGI DTO processes assure CloudRack C2 systems are tailored to your computing environment and optimized to support your specific computing applications. Cabinets in 24U and 42U configurations are built ready to take advantage of next generation AMD and Intel designs for better performance, energy efficiency, and virtualization capabilities. CloudRack C2 systems are rigorously tested then shipped to your data center floor, ready for immediate integration.



SGI CloudRack C2

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CloudRack C2 Cabinet Specifications

www.sgi.com/CloudRackC2

Enclosure Model	CR2000-24U	CR2000-42U
Enclosure Type	24U cabinet	42U cabinet
Max. Trays	22 plus 2U available for networking equipment*	38 plus 4U available for networking equipment*
Max. Servers	44 dual-socket	76 dual-socket
Max. Processors (Cores)	132 (1056 cores)	228 (1824 cores)
Max. 3.5" Drives (Max. Capacity)	264 (528TB)	456 (912TB)
Max. 2.5" Drives (Max. Capacity)	264 (132TB)	456 (228TB)
Cooling Architecture	N+1 redundant, hot-swappable fan arrays in rear of cabinet. Server trays are fanless to maximize reliability and thermal efficiency.	N+1 redundant, hot-swappable fan arrays in rear of cabinet. Server trays are fanless to maximize reliability and thermal efficiency.
Airflow	Front-to-back, ideal for hot-aisle, cold-aisle environments	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.	Up to 104°F (40°C). Does not apply to all configurations.
Input Power	180–250VAC (50–60Hz) with multiple 2-phase and 3-phase PDU options	180–250VAC (50–60Hz) with multiple 2-phase and 3-phase PDU options
Power Architecture	Power XE™ 12VDC internal power distribution. AC-DC rectifiers can be configured with N+1 redundancy.	Power XE™ 12VDC internal power distribution. AC-DC rectifiers can be configured with N+1 redundancy.
Max. Rectifier Modules	Six	12
Dimensions (HxWxD)	47.2" (24U) x 24" x 46"	78.7" (42U) x 24" x 46"

* Optional 2U additional networking available with two fewer trays.

Sample CloudRack C2 Compatible Server Tray Specifications

Server Tray Model	TR2106-TY9	TR2108-TY8	TR2102-2TY9	TR2108-2F1	TR2108-2G1
Servers	One dual-socket	One dual-socket	Two dual-socket	Two dual-socket	Two dual-socket
Chipset	Intel 5500 or 5520	Intel 5520	Intel 5500 or 5520	Two NVIDIA nForce Pro 3600 MCP	Two AMD SR5690 + SP5100 MCP
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)	Four AMD Opteron™ eight- or 12-core 6100 series (two/server)
Max. Cores	12	12	24 (12/server)	24 (12/server)	48 (24/server)
Max. Memory	96GB	144GB	192GB (96GB/server)	128GB (64GB/server)	256GB (128GB/server)
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)	32 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 (four/server)
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 C2 along with full specifications can be found at sgi.com/CloudRackC2.

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