Cray CS400-AC™ Specifications

Architecture	Air cooled, up to 80 nodes per rack cabinet
Processor, Coprocessor and Accelerators	Support for up to 12-core, 64-bit, Intel® Xeon® processor E5-2600 v4 Optional support for Intel® Xeon Phi™ v100 coprocessors and NVIDIA® Tesla® GPU computing accelerators
Memory	Up to 512 GB DDR4 RAM in GreenBlade systems and up to 1,536 GB in rackmount servers
Interconnect and Networks	FDR InfiniBand with Connect-IB®, QDR True Scale Host Channel Adapters or Intel® Omni-Path Host Fabric Interface
	Options for single- or dual-rail fat tree or 3D torus
	1 GbE and 10 GbE Ethernet for management
	Redundant networks (InfiniBand, GbE and 10GbE) with failover
System Administration	Advanced Cluster Engine (ACE™) • Complete remote management capability • GUI and command line system administration • System software version rollback capability • Redundant management servers with automatic failover • Automatic discovery and status reporting of interconnect, server and storage hardware • Cluster partitioning into multiple logical clusters, each capable of hosting a unique software stack • Remote server control (power on/off, cycle) and remote server initialization (reset, reboot, shutdown) • Scalable fast diskless booting for large node systems and root file systems for diskless nodes • Multiple global storage configurations
Reliable, Available, Serviceable (RAS)	Redundant power, cooling and management servers with failover capabilities All critical components easily accessible
Resource Management and Job Scheduling	Options for SLURM, Altair PBS Professional, IBM Platform™ LSF, Adaptive Computing Torque, Maui and Moab, and Grid Engine
File System	Cray® Sonexion®, NFS, Local FS (Ext3, Ext4 XFS), Lustre®, GPFS and Panasas® PanFS® available as global file systems
Disk Storage	Full line of FC-attached disk arrays with support for FC, SATA disk drives and SSDs
Operating System	Red Hat, SUSE or CentOS available on compute nodes ACE Management Servers delivered with Red Hat Linux®
Performance Monitoring Tools	Open source packages such as HPCC, Perfctr, IOR, PAPI/IPM, netperf
Compilers, Libraries and Tools	Options for Open MPI, MVAPICH2, Intel MPI and IBM Platform MPI libraries Cray Programming Environment on Cluster Systems (Cray PE on CS), PGI, Intel Cluster Toolkit, NVIDIA® CUDA®, CUDA C/C++
	OpenCL, DirectCompute Toolkits, GNU, DDT, TotalView, OFED programming tools and many others
Power	Power supplies deliver up to 38 kW per cabinet, with actual consumption based upon configuration
	Optional 480V power distribution with a choice of 208V or 277V three-phase power supplies
Cooling Features	Air cooled Airflow: up to 3,000 cfm in densest configuration; Intake: front; Exhaust: back Optional passive or active chilled cooling rear door heat exchangers
Cabinet Dimensions (HxWxD)	42U/19": 78.39" (1,991 mm) x 23.62" (600 mm) x 47.24" (1,200 mm) standard rack cabinet
Cabinet Weight	42U/19": up to 1,856.3 lbs.; 232 lbs./sq. ft. per cabinet
Support and Services	Turnkey installation services with worldwide support and service options

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Cray Inc. 901 Fifth Avenue, Suite 1000 Seattle, WA 98164 Tel: 206.701.2000 Fax: 206.701.2500 www.cray.com

Cray CS400-LC™ Specifications

Architecture	Liquid-cooled cluster architecture, up to 60 nodes per 42U rack
Processor, Coprocessor and Accelerators	Support for 12-core, 64-bit, Intel® Xeon® processor E5-2600 v4 product family
Memory	Up to 1,024 GB registered ECC DDR4 RAM per compute node using 16 x 64GB DDR4 DIMMs
Interconnect and Networks	External I/O interface
	10 GbE Ethernet
	FDR InfiniBand with ConnectIB®, QDR True Scale Host Channel Adapters or Intel® Omni-Path Host Fabric Interface
	Options for single- or dual-rail fat tree or 3D torus
System Administration	Advanced Cluster Engine (ACE™) • Complete remote management capability • Graphical and command line system administration • System software version rollback capability • Redundant management servers with automatic failover • Automatic discovery and status reporting of interconnect, server and storage hardware • Ability to detect hardware and interconnect topology configuration errors • Cluster partitioning into multiple logical clusters, each capable of hosting a unique software stack • Remote server control (power on/off, cycle) and remote server initialization (reset, reboot, shut down) • Scalable fast diskless booting for large node systems and root file systems for diskless nodes
Reliable, Available, Serviceable (RAS)	Redundant power, cooling and management servers with failover capabilities Redundant networks (InfiniBand, GbE and 10 GbE) with failover All critical components easily accessible and hot swappable
Resource Management and Job Scheduling	Options for SLURM, Altair PBS Professional, IBM® Platform™ LSF®, Adaptive Computing Torque, Maui and Moab, and Grid Engine
File System	Cray® Sonexion®, NFS, Local FS (Ext3, Ext4 XFS) Lustre® and Panasas® PanFS® available as global file systems Cray® TAS, an open, capacity-optimized, tiered data system
Disk Storage	Full line of FC-attached disk arrays with support for FC, SATA disk drives and SSDs
Operating System	Red Hat, SUSE or CentOS
Performance Monitoring Tools	Open source packages such as HPCC, Perfctr, IOR, PAPI/IPM, netperf
Compilers, Libraries and Tools	Options for Open MPI, MVAPICH2 or Intel MPI Libraries Cray Compiler Environment (CCE), Cray LibSci, PGI, Intel Cluster Toolkit compilers, NVIDIA® CUDA™, CUDA C/C++, Fortran
	OpenCL, DirectCompute Toolkits, GNU, DDT, TotalView, OFED programming tools and many others
Power	Up to 38 kW per cabinet depending on configuration
	208V/230V/277V power
	Optional 480V power distribution with 277V power supplies
Liquid Cooling Features	Low-pressure secondary loop completely isolated from primary datacenter liquid loop Field-serviceable cooling kits with integrated pressure and leak detection with remote monitoring
Cabinet Dimensions (HxWxD)	82.40" (2,093 mm) H x 23.62" (600 mm) W x 59.06" (1,500 mm) D standard 42U/19" rack cabinet
Cabinet Weight	1,739 lbs.

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