



EMC CLARiiON CX300

Networked storage with room to grow

The Big Picture

- Proven architecture that scales from 365 GB to 27 TB in a modular, pay-as-you grow fashion
- Built-in high availability—no single point of failure, multi-path data access, mirrored cache, automated system diagnostics, non-disruptive upgrades, global hot-spare technology, AC or DC power
- Flexible storage operating environment that spans the CLARiiON product line and supports different host connectivity, network, and drive technologies
- Advanced information protection capabilities—local snapshots or clones, and cross-platform data mobility
- Powerful storage management with EMC Navisphere software—manage, discover, monitor, and configure the CX300 from a Web browser—that can be enhanced with other EMC storage software that provides SAN, storage resource, and replication management
- Choice of drive technology (FC and SATA) and deployment model (DAS, SAN, NAS)
- Backed by the storage industry's number-one-ranked services and support organization
- Continuous system monitoring, call-home notification, and advanced remote diagnostics

EMC CLARiiON CX300—small in size, big on capability

The entry point into the EMC® CLARiiON® CX series, the CLARiiON CX300 networked storage system is optimized for cost-effective workgroup solutions. With the choice of DAS, SAN, or NAS deployment, the CX300 offers easy management and high performance for file/print, e-mail, small database, and Web services applications. Flexible and easy to deploy, the CX300 delivers the same modularity and Web-based management as the CX3 series. Available in a rack-mount chassis, the CLARiiON CX300 offers an entry point of 365 GB capacity and has the ability to scale up to 60 drives for a maximum system capacity of 27 TB. The CX300 design fully exploits 2 Gb Fibre Channel technology, supporting up to 64 dual-attached hosts. Additionally, it can benefit from EMC's data-in-place upgrades and can run a broad complement of storage software for exceptional functionality. CLARiiON CX300 Fibre Channel systems are available as NEBS Level 3 certified with built-in DC power options.



CLARiiON architecture—built to last, built for value

The CLARiiON architecture, based on a common high-availability design, enables the CX series to address a broad range of application environments. All CX series systems are built on the same redundant modular architecture and run the FLARE® storage operating environment, offering customers a consistent modular growth path starting with the CX300 and scaling up to the CX3 model 80, and supporting capacities from 365 GB to 237 TB in a single system. This is achieved through CLARiiON's unique data-in-place upgrade capability that enables customers to scale performance and functionality while upgrading from one model to another by simply swapping storage processing enclosures.

For increased reliability, the CLARiiON architecture includes dual active storage processors, each able to independently access every drive in the array. This design ensures continuous operations via automated failover in the event one storage processor becomes unavailable. In addition, the FLARE storage operating environment provides the CLARiiON architecture with the flexibility to support multiple generations of hardware and different types of interconnects with consistent functionality, thereby ensuring investment protection. The FLARE storage operating environment also delivers the advanced functionality needed to increase the cost effectiveness and application availability of CLARiiON through a variety of features such as:

- **CLARiiON metaLUN technology:** Groups of LUNs that, through striping or concatenation, give a user flexibility and control of data layout in the array. MetaLUNs increase performance capability by allowing a volume to span a large number of drives and enable better capacity utilization by non-disruptively expanding capacity anywhere in the array.
- **CLARiiON Virtual LUN technology:** Enables movement of volumes within a CLARiiON array without disrupting the application. This capability enables the dynamic movement of data from FC to SATA drives and provides ILM-type capabilities within a single CLARiiON array. Data can also be moved from a volume of one RAID type to a volume of a different RAID type to meet the performance requirements of a particular application. Virtual LUN technology can also improve capacity utilization by moving data to underutilized spindles.

Continuous availability and data integrity to keep your business running

CLARiiON delivers superior levels of protection through advanced capabilities of the system, including:

- Mirrored write cache, where each storage processor contains both primary cached data for its LUNs and a secondary copy of the cache for its peer storage processor.
 - Battery backup for controllers and cache vault disks which allows for an orderly shutdown to ensure data protection in the event of a power failure.
 - RAID protection levels 1/0, 0, 1, 3, and 5, all of which can co-exist in the same array simultaneously to match the different protection requirements of your data.
 - Redundant data paths, power supplies, drive connections, storage processors—all with non-disruptive field replacement capabilities.
 - EMC PowerPath® software, included with the CX300, offers multi-path access between CLARiiON and attached servers and storage, automatically shifting the I/O load to surviving paths if one or more fails, and resumes use of failed paths upon their repair. PowerPath also dynamically balances the I/O load over all channels for improved performance.
 - Continuous cache and data-integrity detection/correction, automatic diagnosis, and advanced call-home capabilities for enhanced availability.
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- UltraPoint™ technology combines a point-to-point Fibre Channel disk array enclosure (DAE) design with fault-detection and isolation capabilities in the FLARE operating environment to complement the existing patented RAID algorithms, end-to-end parity checking, SNiFER data integrity utility, and global hot spares to enhance system robustness and deliver maximum reliability and availability.

EMC CLARiiON CX300 Specifications

RAID Levels

RAID 0: Data striped across three to 16 drives

RAID 1: Mirrored pairs of two drives

RAID 1/0: Data mirrored, then striped across four to 16 drives

RAID 3: Independent data access on five or nine drives (with dedicated parity disk)

RAID 5: Independent data access on three to 16 drives (with striped parity)

Any combination of these RAID levels can exist on a single CX300.

RAID stripe depth configurable to 4, 16, 64, 128, or 256 sectors per disk

MetaLUNs: Storage virtualization via online LUN expansion through either striping or concatenation

Configurable global hot spares

Rebuild priority tuning: adjustment of minimum I/O reserved for server use during rebuild

Front-End (Host) Connectivity

Two storage processors per CX300

Each storage processor has two 2 Gb Fibre Channel optical ports.

FC SCSI-3 protocol

Command tag queuing up to 256 tags

FC-AL and FC-SW support

Maximum Cable Length

- Shortwave Optical: 300 meters (2 Gb), 500 meters (1 Gb)

Multi-path support: PowerPath path failover for continuous data access and load balancing for optimal channel performance

Back-End (Disk) Connectivity

Each storage processor has one 2 Gb Fibre Channel Arbitrated Loop. CX300 supports a maximum of 60 disk drives.

Drive Interface

Failover from each storage processor to both Fibre Channel loops is possible.

Nominal Capacity	73 GB (10,000)	146 GB (10,000)	300 GB (10,000)	73 GB (15,000)	146 GB (15,000)	500 GB SATA (7,200)
Formatted Capacity						
(520 bytes/sector, 1 MB = 1,048,576 bytes)	67.7 GB	135 GB	272 GB	67.7 GB	135 GB	465 GB
Form Factor	3.5"	3.5"	3.5"	3.5"	3.5"	3.5"
Height	1.0"	1.0"	1.0"	1.0"	1.0"	1.0"
Rotational Speed	10,000 rpm	10,000 rpm	10,000 rpm	15,000 rpm	15,000 rpm	7,200 rpm
Interface	Fibre Channel	Fibre Channel	Fibre Channel	Fibre Channel	Fibre Channel	Serial ATA
Data Buffer	16 MB	32 MB	32 MB	16 MB	32 MB	16 MB
Transfer Rates						
Buffer to/from Media MB/s	26.7-40.2 MB/s	43-78 MB/s	59-118 MB/s	57-86 MB/s	58-96 MB/s	29-64 MB/s
SP to/from Buffer	200 MB/s (max.)	200 MB/s (max.)	200 MB/s (max.)	200 MB/s (max.)	200 MB/s (max.)	150 MB/s (max.)
Access Time						
Average Seek	5.2 ms Read 6.2 ms Write	4.7 ms Read 5.3 ms Write	4.7 ms Read 5.4 ms Write	3.6 ms Read 4.0 ms Write	3.5 ms Read 4.0 ms Write	8.2 ms Read 9.2 ms Write
Rotational Latency	2.99 ms	2.99 ms	3.00 ms	2 ms	2 ms	4.17 ms

Available Software

Navisphere® Manager: comprehensive configuration, management, and event notification for single or multiple CLARiiON systems

Navisphere Analyzer: comprehensive performance, management, and trend analysis

SnapView™: point-in-time view of information for non-disruptive backup and BCVs

Nondisruptive Upgrade (NDU): online upgrades of storage software and FLARE operating system

CLARAlert®: constant system monitoring, call-home notification, and remote diagnostics

*Consult your EMC account manager for availability, software configuration, and compatibility information.

System Memory

Two Storage Processors per CX300

1 GB of Memory per Storage Processor

Dimensions (approximate)

Rackmount Processor Chassis with Standby Power Supplies (standard NEMA 19-inch rack)

Height	Width	Depth	Weight
6.83 in. (1736 cm), 4 EIA units	17.72 in. (45.0 cm)	23.75 in. (60.38 cm)	164.1 lb. (74.6 kg) max.

Rackmount 2 Gb Fibre Channel Disk Expansion Chassis with Dual Power Supplies

Height	Width	Depth	Weight
5.25 in. (13.33 cm), 3 EIA units	17.72 in (45.0 cm)	23.75 in. (60.38 cm)	88 lb. (40 kg) max. configuration

Rackmount 2 Gb Fibre Channel Point-to-Point Disk Expansion Chassis with Dual Power Supplies

Height	Width	Depth	Weight
5.25 in. (13.33 cm), 3 EIA units	17.72 in (45.0 cm)	14.00 in. (35.56 cm)	68 lb. (30.9 kg) max. configuration

Rackmount ATA Disk Expansion Chassis with Dual Power Supplies

Height	Width	Depth	Weight
5.25 in. (13.33 cm), 3 EIA units	17.72 in (45.0 cm)	23.75 in. (60.38 cm)	84 lb. (38 kg) max. configuration

40U Rack Enclosure

Height	Width	Depth	Weight
75.0 in. (190.8 cm)	24.0 in. (61.1 cm)	36.0 in. (91.6 cm)	Empty: 300 lb. (136 kg)

Power

	Processor Chassis	2 Gb Fibre Channel Disk Expansion Chassis	2 Gb Fibre Channel Point-to-Point Chassis	ATA Disk Expansion Disk Expansion Chassis
AC Voltage	90–264 Vrms, single phase	90–264 Vrms, single phase	90–264 Vrms, single phase	90–264 Vrms, single phase
Frequency	47–63 Hz	47–63 Hz	47–63 Hz	47–63 Hz
Power Factor	.98 (min)	.98 (min)	.98 (min)	.98 (min)
DC Voltage	–36 V to –72 V dc	–36 V to –72 V dc	–36 V to –72 V dc N/A	
Power Consumption (maximum)	650 VA, 618W	400 VA, 392W	440 VA, 425W	300 VA, 294W
Heat Dissipation (maximum)	2,000 Btu/hour	1,340 Btu/hour	1,450 Btu/hour	1,017 Btu/hour
Protection	Rackmount: 10 amps, fused	Rackmount: 10 amps, fused	Rackmount: 10 amps, fused	Rackmount: 10 amps, fused
AC Circuits	Redundant, external AC circuits	Redundant, external AC circuits	Redundant, external AC circuits	Redundant, external AC circuits
Inlet Type	Dual Inlet Rackmount: IE320-C14 appliance coupler	Dual Inlet Rackmount: IE320-C14 appliance coupler	Dual Inlet Rackmount: IE320-C14 appliance coupler	Dual Inlet Rackmount: IE320-C14 appliance coupler

40U Cabinet (optional) AC Power Capability

Dual Inlets

NEMA L6-30P or IEC309-332 P6 or IP-57 (Australia)

200–240 VAC +/- 10%, Single Phase

47–63 Hz

4800 VA @ 200 V, 5760 VA @ 240 V

30A, 2-pole circuit breaker



Operating Environment

Temperature: 50-104 degrees F (10-40 degrees C)

Temperature Gradient: 10 degrees C/hr

Relative Humidity: 20% to 80% (non-condensing)

Altitude

8,000 ft. (2438.4 m) @ 104 degrees F (40 degrees C) max.

10,000 ft. (3048 m) @ 98.6 degrees F (37 degrees C) max.

Electromagnetic Emissions and Immunity

FCC Class A

EN55022 Class A

CE Mark

VCCI Class A (for Japan)

ICES-003 Class A (for Canada) AS/NZS 3548 Class A (for Australia/New Zealand)

EN55024 Immunity, ITE BSMI Class A (for Taiwan)

Quality and Safety Standards

UL 1950; CSAC22.2-950; EN60950

NEBS Level 3 Certification

ETSI EN 300 386

Manufactured under an ISO 9000-registered quality system

Take the Next Step

For more information on the superior performance, functionality, and economics offered by the EMC CLARiiON CX series of mid-tier networked storage systems, contact your EMC sales representative or authorized EMC value-added systems integrator. You can also visit our website at www.EMC.com or, in North America, call EMC directly at 1-866-464-7381.

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