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EMC CLARiiON CX4 Model 120 Networked Storage System

EMC® CLARiiON® CX4 systems, leveraging Intel® Xeon® processors, can be integral elements of a comprehensive information lifecycle management strategy—a strategy that helps your enterprise attain the maximum value from its information, at the lowest TCO, at every point in the information lifecycle. Information lifecycle management maps the right service level to the right application at the right cost—at the right time.

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)
RAID 6: Dual parity distributed across four to 16 drives
Any combination of these RAID levels can exist on a single CX4 model 120
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) I/O Connectivity

One pair of storage processors (SP), available in three base SP configurations:

- Two 4 Gb/s Fibre Channel* optical ports plus two 1 Gb/s Ethernet iSCSI* copper ports
- Two 8 Gb/s Fibre Channel* optical ports plus two 1 Gb/s Ethernet iSCSI* copper ports
- Two 8 Gb/s Fibre Channel* optical ports plus two 10 Gb/s Ethernet iSCSI* optical ports

EMC UltraFlex™ I/O modules for additional host connectivity, subject to slot and system limits:
- 4 Gb/s Fibre Channel* module pair: with four optical ports each (auto-negotiable to 1, 2, or 4 Gb/s)
- 8 Gb/s Fibre Channel* module pair: with four optical ports each (auto-negotiable to 2, 4, or 8 Gb/s)
- 1 Gb/s Ethernet iSCSI* module pair: with two copper ports each (auto-negotiable to 10, 100, or 1000 Mb/s)
- 10 Gb/s Ethernet iSCSI* module pair: with two optical ports each (fixed)

* FCP SCSI-3 protocol, FC-AL and FC-SW support with command tag queuing up to 256 tags

Maximum Cable Lengths: Shortwave Optical OM2: 50 meters (8 Gb), 100 meters (4 Gb), 300 meters (2 Gb), and 500 meters (1 Gb); Shortwave Optical OM3: 150 meters (8 Gb), 380 meters (4 Gb), 500 meters (2 Gb), and 860 meters (1 Gb)

Available Software*

CLARalert®: constant system monitoring, call-home notification, and remote diagnostics
MirrorView™: remote synchronous replication for disaster protection
Navisphere® Manager: complete configuration, management, and event notification in physical and virtual server environments
Navisphere Analyzer: comprehensive performance, management, and trends analysis
Navisphere Quality of Service Manager: application service-level monitoring and management
Online Upgrade: online upgrades of storage software and FLARE operating system
PowerPath®: path failover for continuous data access and dynamic load balancing in physical and virtual server environments
RecoverPoint/SE: remote asynchronous and synchronous replication for disaster protection in physical and virtual server environments
Replication Manager Family: manages the replication process (host and replication software) to integrate SnapView and MirrorView operations
SAN Copy™: enables local or long distance data movement between various arrays (e.g., CLARiiON, Symmetrix®, HP StorageWorks)
SnapView™: point-in-time view of information for nondisruptive backup and clones
Virtual Provisioning: eases administration of limited physical storage across multiple host applications
VMware® Product Family: enables server consolidation with CLARiiON storage
CLARiiON FAST: Fully Automated Storage Tiering for CLARiiON CX4

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

Back-End (Disk) Connectivity

Each storage processor connects to one of a redundant pair of 4 Gb/s Fibre Channel buses, providing continuous drive access to hosts in the event of a storage processor or bus fault.

CX4 model 120 requires a minimum of 5 drives (Fibre Channel or 7,200 rpm SATA) and supports a maximum of 120 disk drives in 8 Disk Expansion Chassis.

Supported Disk Drives

Nominal Capacity	73 GB 4 Gb/s Enterprise Flash Drive	400 GB 4 Gb/s Enterprise Flash Drive	146 GB 4 Gb/s	200 GB 4 Gb/s EFD	300 GB 4 Gb/s	450 GB 4 Gb/s	450 GB 4G FC	600 GB 4 Gb/s	600 GB 4G FC
Formatted Capacity* (520 bytes/sector, 1 MB = 1,048,576 bytes)	72.67 GB	372.5 GB	135 GB	186.31 GB	272 GB	408 GB	408.896 GB	545 GB	545.195 GB
Form Factor	3.5"	3.5"	3.5"	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"	1.0"	1.0"	1.0"
Rotational Speed	N/A—Solid State	N/A—Solid State	15,000 rpm	N/A—Solid State	15,000 rpm	10,000 rpm	15,000 rpm	10,000 rpm	15,000 rpm
Interface	Fibre Channel	Fibre Channel	Fibre Channel	Fibre Channel	Fibre Channel	Fibre Channel	Fibre Channel	Fibre Channel	Fibre Channel
Access Time									
Average Seek	0.020 ms Read 0.020 ms Write	0.020 ms Read 0.020 ms Write	3.7 ms Read 4.2 ms Write	.020 ms Read .020 ms Write	3.5 ms Read 4.0 ms Write	3.8 ms Read 4.4 ms Write	3.4 ms Read 3.9 ms Write	3.8 ms Read 4.4 ms Write	3.4 ms Read 3.9 ms Write
Rotational Latency	N/A—Solid State	N/A—Solid State	2 ms	N/A—Solid State	2 ms	3 ms	2.0 ms	3 ms	2.0 ms
Nominal Power Consumption									
Operating Mode	8.4 W	8.4 W	16.5 W	8.4 W	18.8 W	9.54 W	15.01 W	10.07 W	15.01 W
Idle Mode	5.4 W	5.4 W	10.7 W	5.4 W	13.7 W	5.96 W	10.38 W	6.49 W	11.82 W
Number of Drives per Disk Expansion Chassis	2–15	2–15	2–15	2–15	2–15	2–15	2-15	2–15	2-15

*Note: The FLARE® storage operating environment requires 62 GB of disk space on each of the first five drives.

Supported Disk Drives

Nominal Capacity	1 TB 4 Gb/s	1 TB 4 Gb/s Low Power	2 TB 4 Gb/s Low Power
Formatted Capacity* (520 bytes/sector, 1 MB = 1,048,576 bytes)	931.513 GB	931.513 GB	1,852.09 GB
Form Factor	3.5"	3.5"	3.5"
Height	1.0"	1.0"	1.0"
Rotational Speed	7,200 rpm	5,400 rpm	5,400 rpm
Interface	SATA	SATA	SATA
Access Time			
Average Seek	8.5 ms Read 9.5 ms Write	NA NA	NA NA
Rotational Latency	4.16 ms	4.2 ms	4.2 ms
Nominal Power Consumption			
Operating Mode	11.6 W	7.4 W	7.4 W
Idle Mode	8.0 W	4.0 W	4.0 W
Number of Drives per Disk Expansion Chassis	2–15	15	2–15

*Note: The FLARE® storage operating environment requires 62 GB of disk space on each of the first five drives.

System Memory

Two Storage Processors per CX4 model 120

3 GB of Memory per Storage Processor

Dimensions (approximate)

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

Height	Width	Depth	Weight
5.25 in. (13.34 cm), 3 EIA units	17.5 in. (44.45 cm)	24.25 in. (61.6 cm)	99.5 lb. (45.4 kg) max.

Rackmount 4 Gb Fibre Channel Point-to-Point Disk Expansion Chassis with Dual Power Supplies

Height	Width	Depth	Weight
5.25 in. (13.34 cm), 3 EIA units	17.72 in (45.0 cm)	14.00 in. (35.56 cm)	68 lb. (30.9 kg) max. configuration

40U Rack Enclosure

Height	Width	Depth	Weight
75.0 in. (190.8 cm)	24.0 in. (61.1 cm)	39.0 in. (99.2 cm)	Empty: 380 lb. (173 kg)

Power

	Processor Chassis	4 Gb Fibre Channel Point-to-Point Disk Expansion Chassis
AC Voltage	100–240 VAC ±10%, single phase	100–240 VAC ±10%, single phase
Frequency	47–63 Hz	47–63 Hz
Power Factor	0.76 (min)	0.98 (min)
Power Consumption	340 VA (260 W) max.	440 VA (425 W) max.
Heat Dissipation (maximum)	890 Btu/hour	1,450 Btu/hour
Protection	Rackmount: 7.8 amps, fused	Rackmount: 10 amps, fused
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

40U Cabinet (optional) AC Power Capability

AC Voltage	200–240 VAC +/– 10%, single phase
AC Frequency	47–63 Hz
Power Configuration	Two power domains (base and extended), each redundant
Power Inlet Count	Either two (for redundant base configuration), or four (for redundant extended configuration)
Plug Types	NEMA L6-30P or IEC309-332 P6 or IP57 (Australia)
Input Power Capacity	4,800 VA @ 200 VAC, 5,760 VA @ 240 VAC (each domain) 9,600 VA @ 200 VAC, 11,520 VA @ 240 VAC (total for both domains)
AC Protection	30A circuit breakers internally on each power branch

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
7,500 ft. (2,286 m) @ 104 degrees F (40 degrees C) max.
10,000 ft. (3,048 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 60950; CSAC 22.2-60950, FN 60950
Manufactured under an ISO 9000-registered quality system
NEBS level 3 certification
ETSI EN 300 386

Warranty and Support Options
Standard three-year Enhanced Warranty: 5x9 NBD, 7x24 remote support, customer installation of replacement disk drives, power supplies, fans, and small form-factor-pluggable optical transceivers.

Optional Premium Maintenance upgrade: 7x24 onsite support, 4-hour response time commitment, Critical Problem Escalation management, and EMC installation of replacement parts.

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