

# EMC Symmetrix DMX1000

The EMC® Symmetrix® DMX1000 is a single-bay storage system that can be configured with up to 144 2Gb/s high-performance Fibre Channel disk drives providing a maximum raw capacity of over 59TB. The 12-slot Direct Matrix backplane accommodates configurations of up to four global memory directors, up to six channel I/O directors, and either two or four dedicated disk I/O directors.

## System Throughput

The Symmetrix Direct Matrix Architecture® provides dedicated, non-blocking interconnects between I/O directors and global memory regions. With up to 64 dedicated data paths operating at 500 MB/s, the Direct Matrix delivers virtually unrestricted concurrent I/O throughput. A separate low-latency message matrix supports inter-processor communications between processors for maximum efficiency.

DMX data paths	32–64	8 per I/O Director, 16 per Global Memory Director
DMX data bandwidth	16–32 GB/s	
DMX message bandwidth	1.6–3.2 GB/s	
PowerPC CPUs	20–60	1GHz
Global Memory	4–128 GB	Available in 2, 4, 8, 16 and 32 GB increments
Concurrent Memory transfers	8–16	4 per Global Memory Director

## Connectivity

The Symmetrix DMX1000 supports up to six (6) high-speed Channel I/O Directors with four SMP-driven pipeline slices each. Optimized hardware logic and data protection encoding ensures end-to-end data integrity with automated channel failover for maximum availability and load balancing.

Symmetrix DMX systems support all popular hardware and operating system platforms, storage area networks (SANs), and high-availability cluster environments.

2Gb/s Fibre Channel host/SAN ports	16–48	8 per Fibre Channel Director
2Gb/s Fibre Channel remote replication ports	2–8	1–4 per Fibre Channel Director
1Gb/s Ethernet iSCSI ports	2–24	1–4 per Multi-protocol Channel Director
1Gb/s Ethernet remote replication ports	2–8	1–4 per Multi-protocol Channel Director
2Gb/s FICON host ports	2–24	1–4 per Multi-protocol Channel Director
ESCON host ports	16–48	8 per ESCON Channel Director
ESCON remote replication ports	2–8	1–4 per ESCON Channel Director

Mixed combinations of the above port types depend upon configuration. Refer to the EMC Support Matrix on EMC.com or contact your local EMC sales representative for specific configuration support.

## Disk Drives & Drive Connectivity

The Symmetrix DMX1000 disk drive infrastructure is architected with the latest 2Gb/s dual-ported Fibre Channel disk drives, each supported by two independent disk I/O directors with automatic failover and fault isolation.

	Min Capacity	Max Capacity	
Disk Directors	2	4	8 ports per Director
Disk Channels	16	32	Each drive supported by 2 channels
2Gb/s FC Disk Drives	64	144	
Drives per Channel Pair	9	18	

### Available Drives:

	73 GB	73 GB	146 GB	146 GB	300 GB	300 GB	500 GB
Capacity	73 GB	73 GB	146 GB	146 GB	300 GB	300 GB	500 GB
Rotational Speed	10,000 rpm	15,000 rpm	10,000 rpm	15,000 rpm	10,000 rpm	15,000 rpm	7,200 rpm
Interface	2Gb/s FC	2Gb/s FC	2Gb/s FC	2Gb/s FC	2Gb/s FC	2 Gb/s FC	2Gb/s FC
Internal data rate	470–944 Mb/s	685–1,142 Mb/s	470–944 Mb/s	685–1,142 Mb/s	470–944 Mb/s	685–1,142 Mb/s	470–944 Mb/s
Average access time (read/write)	4.9/5.5 ms	3.8/4.1 ms	4.9/5.5 ms	3.8/4.1 ms	4.9/5.5 ms	3.5/4.0 ms	8.5/9.5 ms
Raw Capacity	73.3 GB	73.3 GB	146.8 GB	146.8 GB	300.0 GB	300.00 GB	500.00 GB
Formatted capacity—open systems	73.10 GB	73.10 GB	146.00 GB	146.00 GB	299.32 GB	299.76 GB	499.00 GB
Formatted capacity—mainframe	72.17 GB	72.17 GB	144.60 GB	144.60 GB	295.71 GB	295.91 GB	492.98 GB
Formatted capacity—iSeries	68.71 GB	68.71 GB	137.42 GB	137.42 GB	n/a	292.46 GB	n/a

## Data Protection Options

- RAID 0\*: Data striped across two to eight hypervolumes
- RAID 1: Mirrored pair of two hypervolumes
- RAID 1/0: Data striped across four mirrored pairs of hypervolumes
- RAID 5: Data striped on four or eight hypervolumes (with rotating parity)
- Configurable global hot-spare pool

\* Not recommended as a drive failure in a RAID 0 group will result in data unavailability and data loss.

Symmetrix DMX systems 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.



## System Capacities

	73 GB Drives		146 GB Drives		300 GB Drives		500 GB Drives*	
	Min. Capacity	Max. Capacity	Min. Capacity	Max. Capacity	Min. Capacity	Max. Capacity	Min. Capacity	Max. Capacity
Number of Disks	64	144	64	144	64	144	64	144
Raw Capacity								
Open	4.68	10.53	9.344	21.02	19.16	43.10	19.16	59.12
Mainframe	4.62	10.40	9.254	20.82	18.93	42.58	18.93	58.38
Mirrored Capacity								
Open	2.34	5.26	4.672	10.51	9.58	21.55	9.58	29.56
Mainframe	2.31	5.20	4.627	10.41	9.46	21.29	9.46	29.19
Parity 3+1 Capacity								
Open	3.51	7.89	7.008	15.77	14.37	32.33	14.37	44.34
Mainframe	3.47	7.794	6.940	15.62	14.19	31.94	14.19	43.79
Parity 7+1 Capacity								
Open	4.09	9.21	8.18	18.40	16.76	37.71	16.76	51.73
Mainframe	4.04	9.09	8.10	18.22	16.56	37.26	16.56	51.08

Configurations with mixed drive capacities and speeds are allowed depending upon configuration.

12 GB of total capacity will be reserved for internal Symmetrix file system use.

All capacities are based on 1 GB = 1,000,000,000 bytes.

Actual usable capacity may vary depending upon operating system.

\* Actual capacity, using 300 GB drives for minimum drive count.

## Disk Emulation

DMX1000	Open Systems	3380K	3390-1	3390-2	3390-3	3390-9	3390-27	3390-54
MB/Volume	30,720	1,891	946	1,892	2,838	8,514	27,845	55,688
Bytes/Track	32,768	4,476	56,664	56,664	56,664	56,664	56,664	56,664
Bytes/Cylinder	491,520	712,140	849,960	849,960	849,960	849,960	849,960	849,960
Cylinders/Volume	65,536	2,655	1,113	2,226	3,339	10,017	32,760	65,520

## Available Software\*

The Enginuity™ operating environment delivers the highest levels of performance and systems and data integrity, while providing a foundation for storage applications such as the TimeFinder™ and SRDF® families of local and remote replication.

### Platform Software

AutoSwap  
 Catalog Solution  
 Double Checksum  
 InfoMover  
 Enterprise Storage Platform (ESP)  
 Performance Essential  
 ResourcePak for TPF  
 ResourcePak for Windows  
 SRDF/Synchronous  
 SRDF/Asynchronous  
 SRDF/Star  
 SRDF/Data Mobility  
 SRDF/Automated Replication  
 SRDF/Consistency Groups  
 SRDF/Cluster Enabler for MSCS  
 SRDF/Cluster Enabler for VCS  
 SRDF/Automated Availability Manager  
 SRDF/Host Component  
 SRDF/Mode Change  
 SRDF/Adaptive Copy  
 COMPAV/MA  
 Open Replicator for Symmetrix  
 ResourcePak Base for OS/390 and z/OS  
 ResourcePak Extended for OS/390 and z/OS  
 Data Relocation Utility

TimeFinder/Clones  
 TimeFinder/Mirror  
 TimeFinder/Snap  
 TimeFinder/Consistency Groups  
 TimeFinder/Exchange Integration Module  
 TimeFinder/SQL Integration Module  
 VSAM Assist  
 TPF Controls for SRDF  
 TPF Controls for TimeFinder  
 CopyPoint for OS/400  
 CopyCross  
 EMC Compatible Peer (providing IBM PPRC function)  
 EMC Compatible Extended (providing IBM XRC function)

### Information Management Software

Replication Manager/Remote (SDMM)  
 Replication Manager/Local (ERM)  
 EMC Data Manger (EDM)  
 EMC Automated Availability Manager

### ControlCenter Storage Management Software

Storage Device Management  
 Symmetrix Manager  
 Symmetrix Optimizer  
 SRDF/TimeFinder Manager for OS/400

### SRM Monitoring and Reporting

StorageScope  
 StorageScope File Level Reporter  
 Workload Analyzer

### SRM Planning and Provisioning

SAN Manager  
 SAN Advisor  
 Automated Resource Manager

### Infrastructure Software

PowerPath

\* Contact your EMC sales representative for software license model numbers, prerequisites, and additional information.

## Physical & Cooling Specifications

Height**	Width	Depth	Front Service Area	Rear Service Area	Weight	Power	Cooling
(in/cm)	(in/cm)	(in/cm)	(in/cm)	(in/cm)	(lb/kg)	(kVA)	(Btu/hr)
75.4/191.5	24.1/61.2	375/95.3	36.0/91.4	36.0/91.4	1,533/697	4.8	16,565

All dimensions are cabinet/enclosure size without shipping brackets, stabilizers, or sound mufflers. Weight, power, and cooling are maximum for a full configuration.

\*\*An additional 18 in. (45.7 cm) is required for ceiling/top clearance.

## Power Specifications

Main and auxiliary power connections

N+1 power supply redundancy

Modular power zone with two, three, or four power modules

	North America	International
Input Voltage (VAC)	200–240, single phase	200–240, single phase
Frequency (Hz)	47–63	47–63
Circuit Breaker (Amps), recommended	32 to 60	32 to 60
Power Drops	2	2
Power Connector	(2) 9P63U2T	Country Specific
User Connector	(2) 9C63U2T	Country Specific

## Environmental Specifications (operating)

Temperature (F/C)	50–90°F/10–32°C
Altitude (ft/m), max.	8,000/2,500
Humidity (%), non-condensing	20–80
Raised Floor	Recommended



### EMC Corporation

Hopkinton  
 Massachusetts  
 01748-9103  
 1-508-435-1000  
 In North America 1-866-464-7381

EMC<sup>2</sup>, EMC, EMC ControlCenter, Direct Matrix Architecture, PowerPath, ResourcePak, SRDF, Symmetrix, TimeFinder, and where information lives are registered trademarks and Automated Resource Manager, CopyCross, EDM, SAN Advisor, SAN Manager, StorageScope, InfoMover, SDMS, and Symmetrix DMX are trademarks of EMC Corporation. Other trademarks are the property of their respective owners. All specifications are subject to change without prior notice.

© Copyright 2002, 2007 EMC Corporation.  
 All rights reserved. Published in the USA. 07/07

Specification Sheet  
 C999.15