



## Dell PowerVault MD3200 Series

The PowerVault™ MD3200 series of storage arrays is a high-performance 6Gb shared storage solution providing high availability data access. As the next generation of our directly connected shared Serial Attached SCSI (SAS) arrays, this series offers exceptional flexibility and scalability and is ideal for consolidating up to four servers in clustered or virtualized environments. The PowerVault MD3200 array is well suited for deployments where cost per GB is a key requirement. The PowerVault MD3220 array is an optimal solution when cost/performance (IOPS) is a primary consideration.

### A dedicated, high availability shared storage solution

The PowerVault MD3200 series of arrays raises the bar for scalability and flexibility in the entry-level storage space. You can connect up to four high-availability servers or eight non-redundant servers for balanced performance in mixed virtualized workloads. MD3200 series arrays are ideal for Microsoft® Hyper-V™ and VMware® ESX virtual environments.

### Support even the most performance-hungry applications

MD3200 series arrays deliver an exceptional price/performance ratio. 6Gb/s SAS doubles the throughput capability of previous generation SAS arrays. These arrays meet the demands of large database applications with:

- Increased processing capability
- Four SAS ports per controller
- High Performance Tier firmware upgrade to boost performance

MD3200 series arrays also support solid state drives (SSD) for the most demanding I/O applications.

### Gain a new level of management efficiency

MD3200 series arrays are managed by the advanced MD Storage Manager software, an intuitive, easy to use client-based Java application. Designed for easy user interaction with the system no matter what your level of familiarity with storage systems, it offers two different management paths and features an enterprise window that monitors multiple systems through a single interface.

Wizard-based array management helps simplify the configuration process. MD Storage Manager detects and alerts you to problems, and launches an automatic Recovery Guru to help you troubleshoot and resolve the problem. It's simple—the expertise is built into the software.

### Deployment scalability and flexibility

Scale up. Mix and match drive types to create a tiered data environment.

Scale Easily: Up to 8 servers in a non-HA configuration or 4 servers in a HA configuration can be directly connected to a single MD3200 or MD3220 storage system. Storage capacity can be expanded up to 96 hard drives. Scaling capacity can be as simple as hot plugging in additional PowerVault MD1200 and/or PowerVault MD1220 expansion enclosures.

Mix and Match Drives: MD3200 arrays can hold up to twelve (12) 3.5 inch form factor hard drives and MD3220 arrays hold up to twenty-four (24) 2.5 inch drives. Both the MD1200 enclosure, which houses a total of twelve 3.5" hard drives, and the MD1220 enclosure, which houses a total of twenty-four 2.5" drives, can be added behind MD3200 series arrays, enabling you to mix 3.5" and 2.5" drives in the same array. This flexibility enables data tiering for optimizing system performance.

### Optional data protection

Snapshots: Take point-in-time snapshots of data for backup and other operations. The MD3200 series supports up to 8 snapshots per virtual disk and a total of 128 snapshots per system.

Virtual Disk Copy (VDC): Make exact, point-in-time full replications of existing virtual disks for decision support and software development testing.

Self-encrypting Drives (SEDs): SEDs encrypt everything written to the drive and de-crypt everything read from the drive. Once an SED is secured, it becomes "locked" and unreadable by unauthorized persons if the drive is ever removed from the array.

Feature	Dell™ PowerVault™ MD3200 Series
Hard Disk Drives	MD3200 – Up to twelve (12) 3.5 inch SAS, Near-line SAS and SSD drives MD3220 – Up to twenty-four (24) 2.5 inch SAS, Near-line SAS and SSD drives
3.5" Drive Performance and Capacities	15,000 RPM SAS drives available in 300GB, 450GB and 600GB 7,200 RPM Near-line SAS drives available in 500GB, 1TB and 2TB
2.5" Drive Performance and Capacities	15,000 RPM SAS drives available in 73GB and 146GB 10,000 RPM SAS drives available in 146GB and 300GB 7,200 RPM Near-line SAS drives available in 500GB Solid State Drive (SSD) available in 149GB (available in 3.5" HDD carriers)
Expansion Capabilities	Expand up to 96 total drives using MD1200 and/or MD1220 expansion enclosures
<b>Host Connectivity</b>	
Single Controller Models	Supports up to 4 servers directly connected
Dual Controller Models	Supports up to 8 servers directly connected in a non-HA configuration or 4 servers in a HA configuration
<b>Storage Controllers and RAID Levels</b>	
Storage Controllers	Each controller contains 2GB of battery-backed cache Dual controllers operate in an active-active environment mirroring each other's cache Cache protection is provided via flash memory for permanent data protection
RAID Levels	Support for RAID levels 0, 1, 10, 5, 6 Up to 96 physical disks per group in RAID 0, 1, 10 Up to 30 physical disks per group in RAID 5, 6 Up to 256 virtual disks
<b>Array Management and Optional Premium Features</b>	
Array Management	2 <sup>nd</sup> generation Modular Disk Storage Manager, Java based user interface Multi-path software provides failover management of redundant data paths between the server and storage array
Optional Premium Features	Snapshots: Up to 8 snap shots per virtual disk and 128 per system Snapshots Plus Virtual Disk Copy: Up to 8 simultaneous virtual disk copies High Performance Tier firmware upgrade increases array IO and throughput performance
<b>Back-Panel Connectors (per controller)</b>	
Host Connectivity	Four x4 6Gb SAS (SFF8088 mini connector)
Expansion Connectivity	One x4 6Gb SAS (SFF8088 mini connector)
Remote Management	One RJ-45 1Gb Ethernet
Service Management	One PS/2 Serial
<b>LED Indicators</b>	
Front Panel	1 two-color LED indicator for system status, 1 single-color LED indicator for power, 1 LED unused in this system
Hard Drive Carrier	1 single-color activity LED, 1 two-color LED status indicator per drive
Storage Controller	1 one-color LED power indicator, 1 one-color LED controller fault indicator, 1 one-color LED controller identifier, 1 one-color LED cache activity indicator, 1 one-color LED battery fault indicator
Power Supply/Cooling Fan Module	3 one-color LED status for AC status, DC status and power supply cooling fan fault
<b>Power Supplies (per supply)</b>	
Wattage	600 W peak output
Maximum Heat Dissipation	150 W
Input Voltage Range	90 to 264 VAC
Frequency Range	47 to 63 Hz
Maximum Input Current at Rated Power	55 A for 10ms or less, 25 A for 10-150ms
<b>Available Hard Drive Power (per slot)</b>	
Supported Continuous Consumption	3.5" drive: 25 Watts 2.5" drive: 12 Watts
<b>Physical</b>	
Height x Width x Depth	MD3200: 8.68cm (3.42") x 44.63cm (17.57") x 56.1cm (22.09") MD3220: 8.68cm (3.42") x 44.63cm (17.57") x 50.8 (20")
Weight	MD3200: 29.3kg (64.59 lbs.) (maximum configuration) MD3220: 24.2kg (53.35 lbs.) (maximum configuration)
<b>Environmental</b>	
Temperature	Operating: 10° to 35°C (50° to 95°F) with a maximum temperature gradation of 10°C per hour
Relative Humidity	Operating: 20% to 80% (non-condensing) with a maximum humidity gradation of 10% per hour
Altitude	Operating: -16 to 3048 m (-50 to 10,000 ft) Note: For altitudes above 2950 feet, the maximum operating temperature is de-rated 1°F/550 ft.

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