# Dell PowerVault MD3200i Series

The PowerVault™ MD3200i series is a next generation iSCSI SAN solution that is ideal for entry-level storage consolidation in virtualized environments that require high availability. PowerVault MD3200i arrays are designed for environments that need higher capacity solutions while PowerVault MD3220i arrays are ideal for deployments that require increased density and higher performance.

## Next-generation Ethernet-based network storage

PowerVault MD3200i arrays offer exceptional performance and flexibility for storage consolidation and scalability to meet unexpected business demands. Now it's simple to improve storage utilization by combining storage resources, increasing availability with redundant hardware, and streamlining the backup process. A single management interface and a single system to back up also reduce management complexity.

## Consolidation = efficiency

Reduce the effort required to store and manage your data. MD3200i series arrays can support up to 32 physical servers when connected to one or more 1Gb Ethernet switches. Storage capacity, up to a maximum of 96 hard disk drives, can be expanded by attaching a PowerVault MD1200 and/or MD1220 expansion enclosure.

## iSCSI storage, ideal for virtual server environments

Implement your network storage solution for less with MD3200i series arrays using low-cost, well understood 1Gb Ethernet technology rather than typically complicated and expensive Fibre Channel solutions. Along with significant savings in hardware, IP SANs can also lower training costs. Ethernet is a familiar technology, so there's usually no learning curve.

Now you can effectively consolidate storage to support the value of your virtual environment. MD3200i storage systems are fully qualified for use in virtualized application environments with VMware® ESX and Microsoft® Hyper-V™ software.

## Keep pace with ever-increasing storage demands

MD3200i arrays deliver an excellent performance/price ratio. Take advantage of a next-generation array with four (4) iSCSI ports per controller that offers a 2x performance improvement compared to earlier MD storage arrays.

They easily handle the application demands of large databases with increased processing capability. These arrays also support solid state drives (SSD) to meet the most demanding I/O requirements. An optional High Performance Tier firmware upgrade is available to increase array I/O performance.

## Gain a new level of management efficiency

MD3200i series arrays are managed by the advanced MD Storage Manager software, an intuitive 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, including previous generation MD3000i arrays, through a single interface.

Wizard-based array management helps simplify the configuration process. MD Storage Manager detects and alerts you to problems then 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 your optimum tiered data environment.

Scale Easily: Up to 32 servers can be connected to a single MD3200i or MD3220i storage system. Storage capacity can be expanded up to a total of 96 hard drives. Scaling capacity is as simple as plugging in additional PowerVault MD1200 and/or PowerVault MD1220 enclosures.

Mix and Match Drives: MD3200i arrays can hold up to twelve (12) 3.5 inch form factor hard drives and MD3220i arrays hold up to twenty-four (24) 2.5 inch drives. Both the MD1200 enclosure (twelve 3.5" hard drives) and the MD1220 enclosure (twenty-four 2.5" drives) can be added behind MD3200i 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 MD3200i 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 powered down or removed from the array.

| Feature | Dell™ PowerVault™ MD3200i Series | | |
|---|---|---|---|
| Hard Disk Drives | MD3200i – Up to twelve (12) 3.5 inch SAS, Near-line SAS and SSD drives<br>MD3220i – 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 300 GB, 450 GB and 600 GB<br>7,200 RPM Near-line SAS drives available in 500 GB, 1TB and 2TB | | |
| 2.5" Drive Performance and Capacities | 15,000 RPM SAS drives available in 73 GB and 146 GB<br>10,000 RPM SAS drives available in 146 GB and 300 GB<br>7,200 RPM Near-line SAS drives available in 500 GB<br>Solid State Drive (SSD) available in 149 GB (available in 3.5" HDD carriers) | | |
| Expansion Capabilities | Expand up to 96 total drives using MD1200 and/or MD1220 expansion enclosures | | |
| Host Connectivity | | | |
| Single Controller Models | Supports up to 4 servers directly connected or up to 32 servers when configured with an Ethernet switch | | |
| Dual Controller Models | Supports up to 8 servers directly connected or up to 32 servers when configured with Ethernet switches | | |
| Storage Controllers and RAID Levels | | | |
| Storage Controllers | Each controller contains 2GB of battery-backed cache<br>Dual controllers operate in an active-active environment mirroring each other's cache<br>Cache protection is provided via flash memory for permanent data protection | | |
| RAID Levels | Support for RAID levers 0, 1, 10, 5, 6<br>Up to 96 physical disks per group in RAID 0, 1, 10<br>Up to 30 physical disks per group in RAID 5, 6<br>Up to 256 virtual disks | | |
| Array Management and Optional Premium Features | | | |
| Array Management | 2$^{nd}$ generation Modular Disk Storage Manager, Java based user interface<br>Multi-path software provides failover management of redundant data paths between the server and storage array | | |
| Optional Premium Features | Snapshots:  Up to 8 snapshots per virtual disk and 128 per system<br>Snapshots Plus Virtual Disk Copy:  Up to 8 simultaneous virtual disk copies<br>High Performance Tier firmware upgrade increases array IO performance | | |
| Back-Panel Connectors (per controller) | | | |
| Host Connectivity | Four RJ-45 1Gb Ethernet | | |
| Expansion Connectivity | One x4 6Gb SAS (8088 mini connector) | | |
| Remote Management | One RJ-45 1Bb Ethernet | | |
| Service Management | One PS/2 Serial | | |
| LED Indicators | | | |
| 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 | | |
| Power Supplies (per supply) | | | |
| 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 | | |
| Available Hard Drive Power (per slot) | | | |
| Supported Continuous Consumption | 3.5" drive: 25 Watts<br>2.5" drive: 12 Watts | | |
| Physical | | | |
| Height x Width x Depth | MD3200i:  8.68cm (3.42") x 44.63cm (17.57") x 56.1cm (22.09")<br>MD3220i:  8.68cm (3.42") x 44.63cm (17.57") x 50.8 (20") | | |
| Weight | MD3200i:  29.3kg (64.59 lbs.) (maximum configuration)<br>MD3220i:  24.2kg (53.35 lbs.) (maximum configuration) | | |
| Environmental | | | |
| 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)<br>Note: For altitudes above 2950 feet, the maximum operating temperature is de-rated 1°F/550 ft. | | |

# Simplify your storage at Dell.com/PowerVault