Dell PowerVault MD3 SAS array series

The Dell™ PowerVault™ MD3 serial-attached SCSI (SAS) arrays introduce the high-performance 12Gb shared storage solution providing high availability data access. This series offers exceptional flexibility and scalability and is ideal for consolidating up to four servers in a high-availability (HA) clustered or virtualized environment. The PowerVault MD3 SAS array series is well suited for deployments where cost per GB is a key requirement and is an optimal solution when cost per performance (IOPS) is a primary consideration.

A dedicated, high-availability shared storage solution

The PowerVault MD3 SAS array series 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. MD3 SAS arrays are ideal for Microsoft® Hyper-V® and VMware® ESX™ virtual environments.

Support even the most performance-hungry applications

MD3 SAS array series deliver an exceptional price-per-performance ratio. 12Gb/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 (HPT) firmware upgrade to boost performance
- 2GB, 4GB or the newest 8GB[1] cache controllers

MD3 SAS array series also support solid-state drives (SSD) for the most demanding I/O applications.

Gain a new level of management efficiency

MD3 SAS 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, MD Storage Manager 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 trouble-shoot and resolve issues. It's simple — the expertise is built into the software.

The PowerVault vCenter Plug-in and vSphere Storage APIs, Storage Awareness (VASA), provides VMware administrators with powerful capabilities designed to increase productivity and simplify their jobs.

Scalability and flexibility

Scale easily: Up to 8 servers in a non-HA configuration or four servers in a HA configuration can be directly connected to an MD3 SAS storage system. Storage capacity can be expanded up to a base of 120 hard drives[2] on all models. If additional capacity is needed, 2U models can scale by simply hot-plugging additional PowerVault MD1200 or MD1220 expansion enclosures to grow capacity up to 192 hard drives.[2] 4U dense arrays can scale up to 180 hard drives[2] in just 12U using two MD3060e expansion enclosures.

Mix and match drives: 2U arrays hold up to 12 x 3.5" or 24 x 2.5" drives. MD3 dense arrays hold up to 60 x 3.5" or 2.5" hard drives. Dense arrays can expand up to 180 hard drives using the expansion enclosure MD3060e. This flexibility enables data tiering for optimizing system performance.

Optional premium features

Premium features are bundled into two options. One option is designed to support the high demand for performance, and includes the HPT feature. If protecting data is a priority, then the pre-packaged Data Protection features ensure the full suite of premium data protection options are available.

Snapshots: Take point-in-time snapshots of data for backup and other operations. MD3 SAS arrays supports up to 128 snapshots per virtual disk and a total of 512 snapshots per system. Snapshot scheduler and Snapshot Rollback are features included in the Premium Feature Key providing additional data availability.

Virtual disk copy (VDC): Makes exact, point-in-time full copy of existing virtual disks for decision support and software development testing. Reads and writes are supported while doing a virtual copy.

Self-encrypting drive (SED): Encrypts everything written to the drive and decrypts 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.

Try and buy: Try the MD3 premium features with a 90-day trial license, then buy the features that meet the needs of your environment.

SSD cache: Helps improve performance when combined with the HPT option, supporting up to 5TB data with the 8GB cache controller.

Standard features

Reliable storage is enhanced with software features that provide added data protection, improved virtualization and ease of management. The integration of VMware VAAI helps improve performance where you need it, freeing your server from storage related tasks. Data management is simplified with Dynamic Disk Pools (DDP). DDP was designed to improve your storage efficiencies with self-healing dynamic disk rebalancing, without the worries of traditional RAID configurations. Other software feature enhancements include thin provisioning, vCenter Plug-in, VASA and SRA — all standard features on the MD3 SAS models. The MD3 high-density model has standard features to ensure high performance for either general purpose computing or applications with high-bandwidth requirements including HPT and SSD cache.

Introducing the new MD3, the next generation of affordable storage.

Dell PowerVault MD3 SAS array series technical specifications

Feature	MD3400/MD3200	MD3420/MD3220	MD3460/MD3260	MD3060e
Drives	12 x 3.5" SAS, NL-SAS, SSD	24 x 2.5" SAS, NL-SAS, SSD	Mix and match up to 60 x 3.5" and 2.5" SAS, NL-SAS, SSD	
Drive capacity	• 15K RPM SAS: 300GB, 600GB • 7.2K RPM NL-SAS: 500GB, 1TB, 2TB, 3TB, 4TB • SSD: 200GB, 400GB, 800GB; read-intensive SSD: 800GB, 1.6TB (available with 3.5" HDD carriers)	• 15K RPM SAS: 146GB, 300GB • 10K RPM SAS: 300GB, 600GB, 900GB, 1.2TB • 7.2K RPM NL-SAS: 500GB, 1TB • SSD: 200GB, 400GB, 800GB; read-intensive SSD: 800GB, 1.6TB	• 3.5" 7.2K RPM NL-SAS: 500GB, 1TB, 2TB, 3TB, 4TB • 2.5" 15K RPM SAS: 146GB, 300GB • 2.5" 10K RPM SAS: 300GB, 600GB, 900GB, 1.2TB • 2.5" 7.2K RPM NL-SAS: 500GB, 1TB • SSD: 200GB, 400GB, 800GB; read-intensive SSD: 800GB, 1.6TB (available with 3.5" HDD carriers; 3.5" 10K and 15K HDDs are not supported on the dense model)	
Expansion capabilities[2]	Up to 192 drives using the MD1200 or MD1220		Up to 180 drives using the MD3060e	Up to 2 dense expansion enclosures per MD3460 or MD3260 array
Connection	MD32x0: 6Gb SAS — MD34x0: 12Gb SAS			6Gb SAS
Controllers[1]	MD3200/MD3220: Single or dual — MD3400/MD3420: Dual		Dual	Dual Expansion Management
Cache	MD3200/MD3220: Single 2GB cache or dual 2GB or 4GB cache MD3400/MD3420: Dual 4GB or 8GB cache		MD3260: Dual 2GB or 4GB MD3460: Dual 4GB or 8GB	Controller dependent
Maximum cache	MD32x0: 8GB (4GB per controller) — MD34x0: 16GB (8GB per controller)			
Maximum host	8			
Maximum HA host	4			
Form factor	2U rack enclosure; Dell ReadyRails™ II static rails for tool-less mounting in 4-post racks with square or unthreaded round holes or tooled mounting in 4-post threaded-hole racks		4U rack enclosure	
Management software	MD Storage Manager			Managed with controller
Standard features[3]	DDP, thin provisioning, VAAI, vCenter Plug-in, VASA, SRA, SEDs		DDP, thin provisioning, VAAI, vCenter Plug-in, VASA, SRA, HPT, SSD cache, SEDs	Controller dependent
Optional features	Snapshot, VDC, HPT, HDD expansion option[2]		Snapshot, VDC, HDD expansion option[2]	
Server support	Dell PowerEdge™ Servers			
OS support	Microsoft® Windows®, VMware®, Microsoft Hyper-V®, Citrix® XenServer®, Red Hat® and SUSE®			
RAID levels	Support for RAID levels 0, 1, 10, 5, 6; Up to 180/192[2] physical disks per group in RAID 0, 10; Up to 30 physical disks per group in RAID 5, 6; Up to 512 virtual disks; DDP[3]			Managed with controller
Physical dimensions (height x width x depth)	8.68 cm (3.42") x 44.63 cm (17.57") x 56.1 cm (22.09")	8.68 cm (3.42") x 44.63 cm (17.57") x 50.8 cm (20")	17.78 cm (7.0") x 48.26 cm (19") x 82.55 cm (19")	17.78 cm (7.0") x 48.26 cm (19") x 82.55 cm (19")
Maximum weight	29.30 kg (64.6 lb)	24.2 kg (53.35 lb)	105.24 kg (232 lb)	105.24 kg (232 lb)
Environment				
Power	AC: 600W peak output — DC: 700W 2U arrays (MD3420/MD3400/MD3220/MD3200) support DC power		AC: 1755W	
Heat dissipation (max)	2047 BTU/hr		5988 BTU/hr	
Voltage	100V to 240V AC — 48V DC		220V AC, auto ranging	
Frequency	50/60Hz			
Temperature	Operating: 10° to 35°C (50° to 95°F) with a maximum temperature gradation of 10°C per hour 2U arrays (MD3420/MD3400/MD3220/MD3200) support Fresh Air cooling, up to 35°C			
Relative humidity	Operating: 20% to 80% (non-condensing) with a maximum humidity gradation of 10% per hour			
Altitude	Operating: -16 m to 3048 m (-50 ft to 10,000 ft) NOTE: For altitudes above 2950 feet, the maximum operating temperature is derated 1°F/550 ft.		Operating: -30.5 m to 3000 m (-100 ft to 9,840 ft) NOTE: For altitudes above 2950 ft, the maximum operating temperature is derated 1.8°F/1000 ft.	

[1] 4GB and 8GB cache options require dual controllers.
[2] Expansion beyond 120 drives is based on the purchase of a premium feature for additional drives.
[3] MD32x0 arrays are limited to a maximum of 10 DDPs up to 1024TB. MD34x0 arrays are limited to a maximum of 20 DDPs per array up to 1024TB.
[4] OEM-ready available on certain models.

Simplify Your Storage at Dell.com/PowerVaultMD3.

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