Dell PowerVault MD3 Fibre Channel Array Series

The Dell™ PowerVault™ MD3 Fibre Channel Array series is an 8Gb/s series of arrays. The SAN solution is ideal for entry-level storage consolidation that requires high availability, high performance and business continuity without sacrificing ease of use and reliability. Designed for flexibility, the MD3 Fibre Channel arrays support a range of drive types, enclosure sizes, and RAID levels all within a single array.

Fibre Channel-based network storage

PowerVault MD3 Fibre Channel arrays offer exceptional performance, reliability and versatility to meet your business demands. Now it's simple to improve storage utilization by combining storage resources while increasing availability with redundant hardware, and streamlining the backup process. By consolidating data and resources with a single array, using either the standard 2U configuration or the high density 4U model, management complexities are minimized.

Affordable versatility

The MD3 Fibre Channel array series is designed to deliver maximum performance and capacity at an affordable price. This series is available with 3.5", 2.5" or SSD hard drives, in a 2U or 4U standard rack enclosure. If space is a concern, the MD3660f is the high density model that can hold up to 60 hard drives in just 4U, improving both power and cooling expenses. The MD3620f model is designed to hold twenty-four 2.5" hard drives, while the MD3600f holds up to twelve 3.5" drives. Grow your capacity when you want to, how you want to with the expansion enclosures designed for the MD3 arrays. These versatile options offer you the ability to do more, your way.

Fibre Channel storage, ideal for data intensive applications

Implement your high performance network storage solution for less with MD3 Fibre Channel arrays while protecting your existing Fibre Channel investment. Now you can effectively consolidate storage to support the value of your existing Fibre Channel environment with performance to meet both IOP-intensive, high bandwidth applications. MD3 storage arrays are also fully qualified for use in virtualized application environments with VMware® ESX and Microsoft® Hyper-V™ software.

Keep pace with ever-increasing storage demands

MD3 Fibre Channel arrays deliver an excellent performance/price ratio. Take advantage of a next-generation array with four (4) 8Gb/s Fibre Channel ports per controller that offers a performance improvement. 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 (HPT) feature is available to increase array I/O and throughput performance and enables the SSD cache feature to improve your read performance by storing frequently read data, making it quickly accessible. A maximum of 8GB cache is available with the dual controller option, leveraging 4GB cache per controller.

Gain a new level of management efficiency

MD3 Series arrays are managed by the advanced MD Storage Manager software, an intuitive client-based application. Designed for easy user interaction with the array regardless of your level of familiarity with storage systems. An enterprise window that monitors multiple arrays, through a graphical interface simplifying management through one console.

With the multi-generational and multi-protocol MD Storage Manager, all administrative tasks, including configuration, re-configuration, expansion, maintenance and performance tuning, can be performed with no array downtime and no interruption to array performance. MD Storage Managers configuration flexibility includes the ability to mix RAID levels, segment sizes, array sizes, and cache policies all within a single storage array.

Deployment scalability and flexibility

Scale up: Mix and match drive types to create your optimum tiered data environment.

Scale Easily: Up to 64 servers in a SAN environment can be connected to a single MD3600f, MD3620f or MD3660f storage system. Storage capacity can be expanded up to a base of 120 hard drives on all three models. If additional capacity is needed on the 2U models, MD3600f and MD3620f can scale by simply hot plugging additional PowerVault MD1200 or MD1220 expansion enclosures, to grow capacity up to 192 hard drives. The MD3660f 4U dense array can grow up to 180 hard drives in just 12U, using two MD3060e expansion enclosures.

Mix and Match Drives: MD3600f arrays can hold up to twelve (12) 3.5 inch form factor hard drives and MD3620f 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 MD3600f and the MD3620f arrays. The MD3660f dense array and it's supporting expansion enclosure, the MD3060e can hold up to 60 hard drives, with 3.5", 2.5", SSD, and SED drives. This flexibility enables the ability to tier within the array for optimal system performance.

Optional features

You can try the MD3 premium features with a 90 day trial license, then buy the features that meet the needs of your environment.

Snapshots: Each virtual disk supports up to 128 snapshots, with a total of 512 snapshots per system. These are typically used when data needs to be "frozen" in time. Snapshot scheduler and Snapshot Rollback are features included in the Premium Feature Key, providing additional data availability.

Virtual Disk Copy (VDC): Virtual disk copy is full replication of an existing disk at any point in time, often used for decision support and application development testing. Reads and writes are supported while doing a virtual copy.

SSD Cache: Helps improve performance when combined with the High-Performance tiering option.

Self-Encrypting Drives (SEDs): With SEDs, if a drive is removed from the array or powered down, the data on that drive is encrypted and useless to anyone who attempts to access it without the appropriate security authorization.

High Performance Tier (HPT): Meet the most demanding performance requirements for your organization to remain productive and competitive.

Remote Replication: To protect data and processes from major regional disasters like earthquakes, fires or large-scale power outages, your organization needs remote replication of data to a secondary site. Also used for testing and deploying new databases without any downtime.

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 has been 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, enabling VASA and SRA. These are all standard features on the MD3 SAS models. The high density model, MD3660f, has standard features to ensure high performance for either general purpose computing or applications with high bandwidth requirements, that include High Performance Tiering and SSD Cache.

Feature	Dell™ PowerVault™ MD3 Fibre Channel Array Series			
	MD3600f	MD3620f	MD3660f	MD3060e
Drive Type	3.5" SAS, NL SAS and SSD	2.5" SAS, NL SAS and SSD	Mix and match 3.5" and 2.5" SAS, NL SAS and SSD	
Drive Capacity	3.5" -- 15,000 RPM SAS drives available in 300GB and 600GB 3.5" -- 7,200 RPM Near-line SAS drives available in 500GB, 1TB, 2TB, 3TB and 4TB Solid State Drive (SSD) available in 200GB and 400GB and Read Intensive SSD's in 800GB and 1.6TB (available with 3.5" HDD carriers)	2.5"--15,000 RPM SAS drives available in 146GB and 300GB 2.5"--10,000 RPM SAS drives available in 300GB, 600GB, 900GB and 1.2TB 2.5"--7200 RPM Near-line SAS drives available in 500GB and 1TB Solid State Drive (SSD) available in 200GB and 400GB and Read Intensive SSD's in 800GB and 1.6TB	3.5"--7,200 RPM Near-line SAS drives available in 500GB, 1TB, 2TB, 3TB and 4TB 2.5"--15,000 RPM SAS drives available in 146GB and 300GB 2.5"--10,000 RPM SAS drives available in 300GB, 600GB, 900GB and 1.2TB 2.5"--7,200 RPM Near-line SAS drives available in 500GB and 1TB Solid State Drive (SSD) available in 200GB and 400GB and Read Intensive SSD's in 800GB and 1.6TB (available with 3.5" HDD carriers) The 3.5" 10K and 15K HDDs are not supported on the dense model	
Expansion Capabilities	Up to 192 drives using the MD1200 or MD1220		Up to 180 drives using the MD3060e	Up to 2 dense expansion enclosures per MD3660f array
Connection	6GB SAS			
Controllers	Single or Dual		Dual	Dual Expansion Management
Cache	Single controller—2GB cache; Dual Controller—2GB or 4GB cache		2GB or 4GB cache per controller	Controller dependent
Maximum Host	64			Controller dependent
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	4U Rack Enclosure
Management Software	MD Storage Manager			Managed with controller
Standard Features	Dynamic Disk Pools, Thin Provisioning, VAAI, vCenter Plug-in, VASA, SRA, Self-Encrypting Drives		Dynamic Disk Pools, Thin Provisioning, VAAI, vCenter Plug-in, VASA, SRA, High Performance Tier, SSD Cache, Self-Encrypting Drives	Controller dependent
Optional Features	Snapshot, Virtual Disk Copy, Self-Encrypting Drives, High Performance Tier, Remote Replication		Snapshot, Virtual Disk Copy, Self-Encrypting Drives, Remote Replication	Controller dependent
OS Support	Microsoft® Windows®, VMware®, Microsoft Hyper-V™ Citrix XenServer®			Controller dependent
RAID Levels	Support for RAID levels 0, 1, 10, 5, 6 Up to 120 physical disks per group in RAID 0, 1, 10 Up to 30 physical disks per group in RAID 5, 6 Up to 512 virtual disks			Managed with controller
Physical Dimensions (Height x Width x Depth)	8.68cm (3.42") x 44.63cm (17.57") x 56.1cm (22.09")	8.68cm (3.42") x 44.63cm (17.57") x 50.8 (20")	177.80mm (7.0") x 482.60mm (19") x 825.5MM (32.5")	177.80mm (7.0") x 482.60mm (19") x 825.5MM (32.5")
Weight	29.3kg (64.59 lbs.) (maximum configuration)	24.2kg (53.35 lbs.) (maximum configuration)	105.24kg (232 lbs) (maximum configuration)	105.24kg (232 lbs) (maximum configuration)
Environment				
Power	AC - 600 W peak output; DC – 700 W Wattage - MD3600f and MD3620f support DC power supply		AC - 1755 W	
Heat Dissipation (max)	2047 BTU/hr		5988 BTU/hr	
Voltage	100 to 240 VAC ; 48V DC		220V AC, auto ranging	
Frequency range	50/60Hz			
Temperature	Operating: 10° to 35°C (50° to 95°F) with a maximum temperature gradation of 10°C per hour MD3600f/MD3620f: Supports 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 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.		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.	

Simplify your storage at Dell.com/PowerVaultMD3

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