Dell PowerVault
MD3600f/MD3620f Series

The Dell™ PowerVault™ MD3600f/MD3620f arrays is the introduction of 8Gb/s Fibre Channel in the MD series of arrays. The SAN solution is ideal for entry-level storage consolidation that require high availability, high performance and business continuity without sacrificing ease of use and reliability. Designed for flexibility, the MD3600f/MD3620f arrays support a range of drive types, enclosures, and RAID levels all within a single array.

Proven Fibre Channel-based network storage
PowerVault MD3600f/MD3620f arrays offer exceptional performance, flexibility and scalability 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, management complexities are minimized.

Consolidation = efficiency
Reduce the effort required to store and manage your data. MD3600f/MD3620f Series arrays can support up to 64 hosts when connected to one or more 4Gb/s or 8Gb/s Fibre Channel switches. Storage capacity, with a base of 120 hard disk drives, can be expanded by attaching additional PowerVault MD1200 and/or MD1220 expansion enclosures. For additional scalability there is a Premium Feature Key allowing up to 192 hard drives.

Fibre Channel storage, ideal for data intensive applications
Implement your high performance network storage solution for less with MD3600f/MD3620f Series arrays while protecting your existing Fibre Channel investment. Now your can effectively consolidate storage to support the value of your existing Fibre Channel environment with performance to meet both IOP-intensive, high bandwidth applications. MD3600f/MD3620f 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
MD3600f/MD3620f arrays deliver an excellent performance/price ratio. Take advantage of a next-generation array with two four (4) 8Gb/s Fibre Channel 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 (HPT) feature is available to increase array I/O and throughput performance.

Gain a new level of management efficiency
MD3600f/MD3620f 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, including previous generation MD3000i, MD3200i, MD3200, and MD3600i Series 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 or MD3620f storage system. Storage capacity can be expanded up to 192 hard drives. Scaling capacity is as simple as plugging in additional PowerVault MD1200 and/or PowerVault MD1220 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 Series arrays. This flexibility enables the ability to tier within the array for optimizing system performance.

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

Optional features
Snapshots — Each virtual disk supports up to sixteen snapshots, with a total of 256 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.
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.

Business Continuity
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.
Site Recovery Manager
A Storage Replication Adapters (SRA) allows VMware Site Recovery Manager (SRM) to integrate with 3rd party storage array technology.

Additional Hard Drives Premium Feature Key
Ability to add up to 192 hard drives providing additional capacity to the MD Series of arrays.
<table>
<thead>
<tr>
<th>Feature</th>
<th>Dell™ PowerVault™ MD3600f Series</th>
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<tbody>
<tr>
<td><strong>Hard Disk Drives</strong></td>
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<tr>
<td>MD3600f – Up to twelve (12) 3.5 inch SAS, Near-line SAS and SSD drives</td>
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<tr>
<td>MD3620f – Up to twenty-four (24) 2.5 inch SAS, Near-line SAS and SSD drives</td>
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<tr>
<td><strong>3.5” Drive Performance and Capacities</strong></td>
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<tr>
<td>15,000 RPM SAS drives available in 300 GB, 450 GB and 600 GB</td>
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<tr>
<td>7,200 RPM Near-line SAS drives available in 500 GB, 1TB, 2TB and 3TB</td>
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<tr>
<td><strong>2.5” Drive Performance and Capacities</strong></td>
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<tr>
<td>15,000 RPM SAS drives available in 73 GB and 146 GB</td>
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<tr>
<td>10,000 RPM SAS drives available in 600 GB and 900 GB</td>
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<tr>
<td>7,200 RPM Near-line SAS drives available in 1TB</td>
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<tr>
<td>Solid State Drive (SSD) available in 149 GB (available in 3.5” HDD carriers)</td>
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<tr>
<td><strong>Expansion Capabilities</strong></td>
<td>Expand up to a base of 120 hard drives with an optional Premium Feature key to scale up to 192 total drives using MD1200 and/or MD2220 expansion enclosures</td>
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<td><strong>Host Connectivity</strong></td>
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<td>Single Controller Models</td>
<td>Supports up to 4 servers directly connected or up to 64 servers when configured with an Fibre Channel switch</td>
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<tr>
<td>Dual Controller Models</td>
<td>Supports up to 8 servers directly connected or up to 64 servers when configured with Fibre Channel switches</td>
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<td><strong>Storage Controllers and RAID Levels</strong></td>
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<tr>
<td>Storage Controllers</td>
<td>Each controller contains 2GB of battery-backed cache</td>
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<td>Dual controllers operate in an active-active environment mirroring each other’s cache</td>
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<td>Cache protection is provided via flash memory for permanent data protection</td>
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<tr>
<td>RAID Levels</td>
<td>Support for RAID levels 0, 1, 10, 5, 6</td>
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<td>Up to 192 physical disks per group in RAID 0, 1, 10</td>
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<tr>
<td>Up to 30 physical disks per group in RAID 5, 6</td>
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<td>Up to 512 virtual disks</td>
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**Array Management and Optional Premium Features**

**Array Management**
- 2nd generation multi-protocol Modular Disk Storage Manager, Java based user interface
- Multi-path graphical software provides failover management of redundant data paths between the server and storage array

**Optional Premium Features**
- Snapshots: Up to 16 snapshots per virtual disk and 256 per system
- Snapshots Plus Virtual Disk Copy: Up to 16 simultaneous virtual disk copies
- High Performance Tier firmware upgrade increases array I/O performance
- Additional Hard Drives - capacity up to 192 hard drives
- Remote Replication - providing business continuity and disaster recovery

**Back-Panel Connectors (per controller)**
- Host Connectivity: Four 8Gb/s SFP ports per controller, compliant with FC-PS2, FC-PH-2, FC-AL-2, FCP, FC-LS2, FC-PH-3
- Expansion Connectivity: One x4 6Gb SAS (8088 mini connector)
- Remote Management: One RJ-45 1Gb 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: 65 A for 10ms or less, 25 A for 10-150ms

**Available Hard Drive Power (per slot)**
- Supported Continuous Consumption: 3.5” drive: 25 Watts; 2.5” drive: 12 Watts

**Physical**
- Height x Width x Depth: MD3600f: 86.86cm (34.2”) x 44.65cm (17.5”) x 56.1cm (22.09”); MD3620f: 8.68cm (34.2”) x 44.63cm (17.5”) x 50.8 (20”)
- Weight: MD3600f: 29.3kg (64.59 lbs.) (maximum configuration); MD3620f: 24.2kg (53.35 lbs.) (maximum configuration)

**Environmental**
- Expanded Temperature Operating Range: Continuous Operation: 10C to 35C, 10% to 80% relative humidity (RH) with a 26C max dew point. De-rate maximum allowable dry bulb temperature at 1°C/500 meters above 900 meters (1 degree F per 550 feet) 10% of annual operating hours: 5C to 40C, 5% to 85%RH with a 26C max dew point. For temperatures between 35 and 40C, de-rate maximum allowable dry bulb temperature 1°C/175 meters above 950 meters (1 degree F per 319 feet)
- Relative Humidity: 1% of annual operating hours: 5C to 45C, 5% to 90%RH, with a 26C max dew point. For temperatures between 40 and 45C, de-rate maximum allowable dry bulb temperature 1°C/125 meters above 950 meters (1 degree F per 228 feet)
- 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/1550 ft.

Simplify your storage at Dell.com/PowerVault