



Modular storage

The Dell PowerVault MD
storage family



The affordable choice

The Dell™ PowerVault™ MD family is an affordable choice for reliable storage. The new MD3 models improve connectivity and performance while scaling capacity with the MD expansion enclosures. Software features provide data protection, improved performance and ease of management. This frees up valuable resources to help reduce costs and make innovation a daily practice.

The Dell Difference

Simplification is in our DNA

We can help you more simply automate management, optimize resource utilization and achieve seamless scalability across your IT infrastructure.

Affordable innovations

Unencumbered by legacy technologies, we are focused on providing open, capable and affordable storage solutions designed to preserve your investments over the long term. Harness state-of-the-art technologies to deliver innovative, simple and affordable solutions.

Scale capacity as your needs grow

Our modular, scalable design supports growth in capacity and performance with a variety of options including the new MD3060e enclosure supporting Dell PowerEdge™ servers.¹

The affordable choice for reliable storage

IT organizations are being challenged by the need to store and manage rapidly increasing amounts of data with limited resources and budgets. The Dell PowerVault MD family addresses these challenges with versatile solutions that are optimized for smaller-scale storage consolidation and virtualization projects. PowerVault MD products include a series of high-performance SANs, direct-attached storage arrays and high-capacity dense arrays, all with expansion enclosures. Robust and easy to manage software delivers an affordable, reliable, and versatile storage solution.

Versatile options

The PowerVault MD series is available in a variety of models built to suit your environment or storage needs. The product family includes DAS (direct-attach) or SAN arrays with SAS, iSCSI or Fibre Channel connectivity options. It is available in a 2U or 4U form factor, and you can mix and match drives as needed, in the solution you need. The MD expansion enclosures offer 12-drive, 24-drive and 60-drive options to ensure you can add capacity as your business grows.

Superior performance, functionality and versatility

The PowerVault MD3 series is introducing the next generation of affordable storage supporting 12Gb SAS, 10GBASE-T Ethernet iSCSI, and 16Gb Fibre Channel connectivity, ensuring you have the right technology needed to grow your business. The new MD3 models also offer 8GB cache per controller doubling the controller memory available on existing MD3 models.

The premium features available on the MD3 are now bundled into two options, to make it easier to align features to priorities. One option is designed to support the high demand for performance, and includes the High-Performance Tiering (HPT) feature. If protecting data is a priority, then the Data Protection option ensures the full suite of premium data protection features are available. The MD3 next generation models continue to follow the same high standards of reliability as the current MD3 series provides, without sacrificing quality and performance. This latest generation of arrays maintains the ability to scale up to 192 hard drives² with the 2U models, and up to 180 hard drives² on the dense 4U array using the same PowerVault MD expansion enclosures.

Storage consolidation and virtualization

The PowerVault MD3 10GbE iSCSI SAN is ideal for network storage consolidation and virtualization deployments with up to 64 host servers. This 10GbE iSCSI array series can deliver high capacity and excellent performance while offering versatile options including a 2U 12- or 24-drive chassis, or the dense chassis that supports up to 60 drives in a small 4U footprint.

Proven Fibre Channel-based network storage

The PowerVault MD3 Fibre Channel array series is ideal for data intensive applications. Now with 16Gb Fibre Channel, existing investments in Fibre Channel are protected with a solution that is scaleable and reliable.

The MD3 Fibre Channel arrays provide high throughput and high efficiency with improved performance³ that is expected when bandwidth is doubled.

High availability storage

The PowerVault MD3 SAS array series incorporates the latest 12Gb/s SAS technology into the PowerVault MD3 storage portfolio. The MD3 12Gb SAS series is ideal for shared storage and virtualized environments that are hosted on PowerEdge servers. These arrays offer exceptional flexibility, scalability and performance. Similar to the other MD3 models, the SAS series has a 12- or 24-drive chassis option, and the 60-drive, 4U dense array option. The newest 8GB cache dual-controller models can connect up to four high-availability servers or eight non-redundant servers for balanced performance in mixed virtualized environments.

Simplified expansion

For performance

The PowerVault MD1200, MD1220 and the MD3060e dense enclosure are direct-attach 6Gb/s SAS expansion enclosures that can be connected to the 12-, 24- or 60-drive MD3 array models and Dell PowerEdge servers to provide additional capacity for high-performance and data-intensive applications.

The PowerVault MD1200 Series delivers the speed, flexibility and reliability to satisfy data-hungry, performance-intensive applications that store active and frequently changing information. These high-performance 2U arrays scale up to 96TB or 192TB of storage when using 4TB hard drives.

Optimized for
smaller-scale storage
consolidation and
virtualization projects.



For capacity

The PowerVault MD3060e dense enclosure has been designed to scale to meet the expansion needs of the MD3 dense arrays and the PowerEdge R620, R720 and R720xd servers (to support the PowerEdge servers, a two-port LSI 9207-8E 6Gb SAS host bus adapter [HBA] is required). Its small footprint takes up less space and saves on power and cooling. Using just 4U, MD3060e can scale to 180 hard drives when used with the MD3 dense array, or it can scale to 240 hard drives when attached to a server, using 3.5" or 2.5" SAS, near-line SAS, or SSDs.

Modular flexibility

The modularity of the PowerVault MD family enables you to easily upgrade an existing system and evolve current storage infrastructures to meet changing business needs. For example, migrating from a standard, single-controller to a highly available, dual-controller solution simply requires you to slide in a second controller module — no data migration or extended downtime required. Plus, this modularity offers easy and economical expansion for Dell PowerEdge servers and PowerVault MD storage array.

Powerful storage management

The PowerVault MD family is supported by a robust suite of easy-to-use, intelligent storage management software. For the MD3 array series the Modular Disk Storage Manager combines an intuitive interface, wizard-guided tools and a task-based management structure to significantly reduce the complexity of installation, configuration and diagnostic task.

For MD1200 and MD1220 systems deployed behind a PowerEdge RAID Controller, Dell OpenManage™ Storage Management provides a comprehensive set of standards-based tools for the proactive management information and control functions needed to optimize deployment, health status monitoring, fault recovery and change management.

Match drive and performance to your needs

The PowerVault MD family is designed to provide the versatility to match storage drives to different tiers of application data performance and space requirements in order to maximize capacity at the lowest cost per gigabyte. To satisfy the near-line speed, performance and reliability requirements of mainstream and server applications, 10K and 15K RPM near-line SAS, self-encrypting drive (SED), and SSDs can be used in all MD family arrays. If data protection is priority, any of the MD3 array series can be equipped with SEDs for additional security.

PowerVault storage and PowerEdge server commonalities

The PowerVault MD family uses the same disk drives as PowerEdge servers, so you only need to stock a single type of spare drive, fan or power supply. PowerVault storage arrays are designed and engineered to pair perfectly with PowerEdge servers, offering a complete solution that enhances usability and can make support and service easier.

Supporting your unique environment

Dell ProSupport⁴ for IT provides tech-to-tech support for IT professionals, database administrators, and internal service desks or help desks. Features such as Fast-Track Dispatch, direct access to Dell Expert Centers and customer-controlled severity levels were designed with your specific challenges in mind. Dell Infrastructure Consulting helps organizations — from small-to-medium-size companies to large corporations — select the right storage infrastructure to ensure data availability and optimize it with a variety of service options to meet their requirements for backup, recovery and archiving. Dell Global Services incorporates operational excellence, accountability and value to deliver end-to-end service and support solutions designed to maximize your IT investment by simplifying your IT environment.

PowerVault MD3 storage arrays technical specifications

PowerVault MD3 storage arrays technical specifications

Feature	MD3200	MD3220	MD3260	MD3200i	MD3220i	MD3260i	MD3600i
Drives	12	24	60	12	24	60	12
Drive type	3.5" SAS, NL-SAS, SSD	2.5" SAS, NL-SAS, SSD	Mix and match 3.5" and 2.5" SAS, NL-SAS, SSD	3.5" SAS, NL-SAS, SSD	2.5" SAS, NL-SAS, SSD	Mix and match 3.5" and 2.5" SAS, NL-SAS, SSD	3.5" SAS, NL-SAS, SSD
Drive capacity	<ul style="list-style-type: none"> • 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) 	<ul style="list-style-type: none"> • 15K RPM SAS: 146GB, 300GB, 500GB, 1TB, 2TB, 3TB, 4TB • 10K RPM SAS: 300GB, 600GB, 900GB, 1.2TB • 7.2K RPM NL-SAS: 500GB, 1TB, 2.5" 10K RPM SAS: 300GB, 600GB, 900GB, 1.2TB • SSD: 200GB, 400GB, 800GB; read-intensive SSD: 800GB, 1.6TB (available with 3.5" HDD carriers) 	<ul style="list-style-type: none"> • 3.5" 7.2K RPM NL-SAS: 500GB, 1TB, 2TB, 3TB, 4TB • 2.5" 10K RPM SAS: 146GB, 300GB, 600GB, 900GB, 1.2TB • 2.5" 10K RPM NL-SAS: 500GB, 1TB, 2.5" 7.2K RPM NL-SAS: 300GB, 600GB, 900GB, 1.2TB • SSD: 200GB, 400GB, 800GB; read-intensive SSD: 800GB, 1.6TB (available with 3.5" HDD carriers) 	<ul style="list-style-type: none"> • 15K RPM SAS: 300GB, 600GB, 1TB, 2TB, 3TB, 4TB • 10K RPM SAS: 300GB, 600GB, 900GB, 1.2TB • 7.2K RPM NL-SAS: 500GB, 1TB, 2.5" 10K RPM SAS: 300GB, 600GB, 900GB, 1.2TB • SSD: 200GB, 400GB, 800GB; read-intensive SSD: 800GB, 1.6TB (available with 3.5" HDD carriers) 	<ul style="list-style-type: none"> • 3.5" 7.2K RPM NL-SAS: 500GB, 1TB, 2TB, 3TB, 4TB • 2.5" 10K RPM NL-SAS: 146GB, 300GB, 600GB, 900GB, 1.2TB • 2.5" 10K RPM SAS: 300GB, 600GB, 900GB, 1.2TB • SSD: 200GB, 400GB, 800GB; read-intensive SSD: 800GB, 1.6TB (available with 3.5" HDD carriers) 	<ul style="list-style-type: none"> • 15K RPM SAS: 300GB, 600GB, 1TB, 2TB, 3TB, 4TB • 2.5" 10K RPM NL-SAS: 500GB, 1TB, 2.5" 7.2K RPM NL-SAS: 300GB, 600GB, 900GB, 1.2TB • SSD: 200GB, 400GB, 800GB; read-intensive SSD: 800GB, 1.6TB (available with 3.5" HDD carriers) 	<ul style="list-style-type: none"> • 15K RPM SAS: 300GB, 600GB, 1TB, 2TB, 3TB, 4TB • 2.5" 10K RPM NL-SAS: 500GB, 1TB, 2.5" 7.2K RPM NL-SAS: 300GB, 600GB, 900GB, 1.2TB • SSD: 200GB, 400GB, 800GB; read-intensive SSD: 800GB, 1.6TB (available with 3.5" HDD carriers)
Expansion capabilities²	Up to 192 drives using the MD1200 or MD1220	Up to 180 drives using the MD3050e	Up to 180 drives using the MD1200 or MD1220	Up to 192 drives using the MD3050e	Up to 180 drives using the MD1200 or MD1220	Up to 192 drives using the MD1200 or MD1220	Up to 192 drives using the MD1200 or MD1220
Connection	6Gb SAS	6Gb SAS	Single or dual 2Gb or 4Gb cache	Dual 2Gb or 4Gb cache	Single or dual 2Gb or 4Gb cache	Dual 2Gb or 4Gb cache	10GBASE-T iSCSI
Controllers⁵	Single or dual 2Gb or 4Gb cache	Dual 2Gb or 4Gb cache	Single or dual 2Gb or 4Gb cache	Single or dual 2Gb or 4Gb cache	Single or dual 2Gb or 4Gb cache	Single or dual 2Gb or 4Gb cache	Single or dual 2Gb or 4Gb cache
Maximum cache			8Gb (4Gb per controller)				
Maximum host	8			32			64
Maximum HA host	4			32			64
Form factor	2U rack enclosure	4U rack enclosure	2U rack enclosure	2U rack enclosure	4U rack enclosure	2U rack enclosure	2U rack enclosure
Management software			MD Storage Manager				
Standard features⁵	Dynamic Disk Pools, Thin Provisioning, VAAI, vCenter Plug-in, VASA, SRA, SEDs	Dynamic Disk Pools, Thin Provisioning, VAAI, vCenter Plug-in, VASA, SRA, HPT, SSD Cache, SEDs	Dynamic Disk Pools, Thin Provisioning, VAAI, vCenter Plug-in, VASA, SRA, SEDs	Dynamic Disk Pools, Thin Provisioning, VAAI, vCenter Plug-in, VASA, SRA, SEDs	Dynamic Disk Pools, Thin Provisioning, VAAI, vCenter Plug-in, VASA, SRA, SEDs	Dynamic Disk Pools, Thin Provisioning, VAAI, vCenter Plug-in, VASA, SRA, SEDs	Dynamic Disk Pools, Thin Provisioning, VAAI, vCenter Plug-in, VASA, SRA, SEDs
Optional features	Snapshot, Virtual Disk Copy, HPT	Snapshot, Virtual Disk Copy	Snapshot, Virtual Disk Copy, Remote Replication, HPT	Snapshot, Virtual Disk Copy, Remote Replication, HPT	Snapshot, Virtual Disk Copy, Remote Replication	Snapshot, Virtual Disk Copy, Remote Replication, HPT	Snapshot, Virtual Disk Copy, Remote Replication, HPT
Server support	Dell PowerEdge servers				Industry-standard 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; Dynamic Disk Pooling ⁶						
Physical dimensions (height x width x depth)	8.68 cm (3.42") x 44.63 cm (17.57") x 54.90 cm (21.61") 60.20 cm (23.70")	8.68 cm (3.42") x 44.63 cm (17.57") x 54.90 cm (21.61") 60.20 cm (23.70")	17.78 cm (7") x 48.26 cm (19.0") x 82.55 cm (32.5") 56.1 cm (22.09")	8.68 cm (3.42") x 44.63 cm (17.57") x 54.90 cm (21.61") 60.8 cm (20")	17.78 cm (7") x 48.26 cm (19.0") x 82.55 cm (32.5") 50.8 cm (20")	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 56.1 cm (22.09")
Maximum weight	29.3 kg (64.59 lb)	24.2 kg (53.35 lb)	105.24 kg (232 lb)	29.3 kg (64.59 lb)	24.2 kg (53.35 lb)	105.24 kg (232 lb)	29.3 kg (64.59 lb)

Exceptional flexibility, scalability and balanced performance for mixed virtualized workloads.

PowerVault MD3 storage arrays technical specifications

Feature	MD3620i	MD3660i	MD3600f	MD3620f	MD3660f	MD3600e	MD1200	MD1220
Drives	24	60	Mix and match 3.5" and 2.5" SAS, NL-SAS, SSD	3.5" SAS, NL-SAS, SSD	2.5" SAS, NL-SAS, SSD	Mix and match 3.5" and 2.5" SAS, NL-SAS, SSD	3.5" SAS, NL-SAS, SSD	2.5" SAS, NL-SAS, SSD
Drive type	2.5" SAS, NL-SAS, SSD	• 15K RPM SAS: 146GB, 300GB, 600GB, 900GB, 1.2TB, 1.6TB	• 3.5" 72K RPM NL-SAS: 500GB, 1TB, 2TB, 3TB, 4TB, 7.2K RPM NL-SAS: 146GB, 300GB, 600GB, 900GB, 1.2TB, 1.6TB	• 15K RPM SAS: 300GB, 600GB, 900GB, 1.2TB, 1.6TB, 4TB, 7.2K RPM NL-SAS: 146GB, 300GB, 600GB, 900GB, 1.2TB, 1.6TB, 4TB, 500GB, 1TB, 800GB, 1.6TB (available with 3.5" HDD carriers)	• 15K RPM SAS: 300GB, 600GB, 900GB, 1.2TB, 1.6TB, 4TB, 7.2K RPM NL-SAS: 146GB, 300GB, 600GB, 900GB, 1.2TB, 1.6TB, 4TB, 500GB, 1TB, 800GB, 1.6TB (available with 3.5" HDD carriers)	• 3.5" 72K RPM NL-SAS: 500GB, 1TB, 2TB, 3TB, 4TB, 7.2K RPM NL-SAS: 146GB, 300GB, 600GB, 900GB, 1.2TB, 1.6TB, 4TB, 500GB, 1TB, 800GB, 1.6TB (available with 3.5" HDD carriers)	• 15K RPM SAS: 300GB, 600GB, 900GB, 1.2TB, 1.6TB, 4TB, 7.2K RPM NL-SAS: 146GB, 300GB, 600GB, 900GB, 1.2TB, 1.6TB, 4TB, 500GB, 1TB, 800GB, 1.6TB (available with 3.5" HDD carriers)	• 15K RPM SAS: 146GB, 300GB, 600GB, 900GB, 1.2TB, 1.6TB, 4TB, 7.2K RPM NL-SAS: 146GB, 300GB, 600GB, 900GB, 1.2TB, 1.6TB, 4TB, 500GB, 1TB, 800GB, 1.6TB (available with 3.5" HDD carriers)
Drive capacity	• SSD: 200GB, 400GB, 800GB, 160GB, read-intensive SSD: 800GB, 16TB	• SSD: 200GB, 400GB, 800GB, 16TB (available with 3.5" HDD carriers)	Up to 192 drives using the MD1200 or MD1220	Up to 180 drives using the MD1200 or MD1220	Up to 192 drives using the MD1200 or MD1220	Up to 180 drives using the MD360e	Up to 2 expansion units per MD3 dense array	Up to 192 drives behind a single PowerEdge server ¹
Expansion capabilities²	Up to 192 drives using the MD1200 or MD1220	Up to 180 drives using the MD360e	Up to 192 drives using the MD1200 or MD1220	Up to 180 drives using the MD360e	Up to 180 drives using the MD360e	Up to 180 drives using the MD360e	Up to 2 expansion units per MD3 dense array	Up to 192 drives behind a single PowerEdge server ¹
Connection	10GBASE-T iSCSI	10GBASE-T iSCSI	8Gb Fibre Channel	8Gb Fibre Channel	8Gb Fibre Channel	6Gb SAS	6Gb SAS	6Gb SAS
Controllers³	Single or dual 2GB or 4GB cache	Dual 2GB or 4GB cache	Single or dual 2GB or 4GB cache	Single or dual 2GB or 4GB cache	Dual 2GB or 4GB cache	Dual Expansion Management Module (EMM)	Single or Dual Expansion Management	Single or Dual Expansion Management
Maximum cache		8GB (4GB per controller)						
Maximum host		64						
Maximum HA host								
Form factor	2U rack enclosure	4U rack enclosure	2U rack enclosure	2U rack enclosure	4U rack enclosure			
Management software		MD Storage Manager				Controller dependent	OpenManage Storage Management	
Standard features⁵	Dynamic Disk Pools, Thin Provisioning, VAAI, vCenter Plug-in, VASA, SRA, SEDs	Dynamic Disk Pools, Thin Provisioning, VAAI, vCenter Plug-in, VASA, SRA, SEDs	Dynamic Disk Pools, Thin Provisioning, VAAI, vCenter Plug-in, VASA, SRA, SEDs	Dynamic Disk Pools, Thin Provisioning, VAAI, vCenter Plug-in, VASA, SRA, SEDs	Dynamic Disk Pools, Thin Provisioning, VAAI, vCenter Plug-in, VASA, SRA, HPT, SSD Cache, SEDs		MD3 dense array series or PowerEdge servers	Dell PowerEdge only
Optional features	Snapshot, Virtual Disk Copy, Remote Replication, HPT	Snapshot, Virtual Disk Copy, Remote Replication	Snapshot, Virtual Disk Copy, Remote Replication	Snapshot, Virtual Disk Copy, Remote Replication	Snapshot, Virtual Disk Copy, Remote Replication			
Server support		Industry-standard 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 physical disks per group in RAID 0, 10; Up to 30 physical disks per group in RAID 5, 6; Up to 512 virtual disks; Dynamic Disk Pooling ⁶						MD3 dense expansion: controller dependent	
Physical dimensions (height x width x depth)	8.68 cm (34.2") x 44.63 cm (17.57") x 50.8 cm (20")	17.78 cm (7") x 48.26 cm (19.0") x 82.55 cm (32.5")	8.68 cm (34.2") x 44.63 cm (17.57") x 56.1 cm (22.09")	8.68 cm (34.2") x 44.63 cm (19.0") x 50.8 cm (20")	17.78 cm (7") x 48.26 cm (19.0") x 82.55 cm (32.5")	48.26 cm (19.0") x 59.4 cm (23.39")	8.7 cm (34.3") x 48.2 cm (18.98") x 54.1 cm (21.30")	8.7 cm (34.3") x 48.2 cm (18.98") x 54.1 cm (21.30")
Maximum weight	24.2 kg (53.35 lb)	105.24 kg (232 lb)	29.3 kg (64.59 lb)	24.2 kg (53.35 lb)	105.24 kg (232 lb)	105.24 kg (232 lb)	28.39 kg (62.6 lb)	23.31 kg (51 lb)

Global services and support

Reduce IT complexity, lower costs and eliminate inefficiencies by making IT and business solutions work harder for you. You can count on Dell for end-to-end solutions to maximize your performance and uptime. A proven leader in Servers, Storage and Networking, Dell Enterprise Solutions and Services deliver innovation at any scale. And if you're looking to preserve cash or increase operational efficiency, Dell Financial Services has a wide range of options to make technology acquisition easy and affordable. Contact your Dell Sales Representative for more information.

OEM-ready version available

From bezel to BIOS to packaging, your storage arrays can look and feel as if they were designed and built by you.⁷ For more information, visit Dell.com/OEM.

¹ Supported servers include the PowerEdge R620, R720 and the R720xd.

² The standard configuration supports up to 120 HDDs, 121-180 HDDs or 121-180 SSDs is a Premium Feature option.

³ Based on previous Dell 3600f models.

⁴ Availability and terms of Dell Services vary by region. For more information, visit Dell.com/ServiceDescriptions.

⁵ 2GB available as single or dual controller option; 4GB and 8GB only available as dual controller option.

⁶ MD32x0 and MD36x0f arrays are limited to a maximum of 10 DDPs up to 1024TB. MD32x0i and MD36x0f arrays are limited to a maximum of 20 DDPs per array up to 1024TB.

⁷ OEM-ready available on certain models.

