

# M500 SAN Disk Array



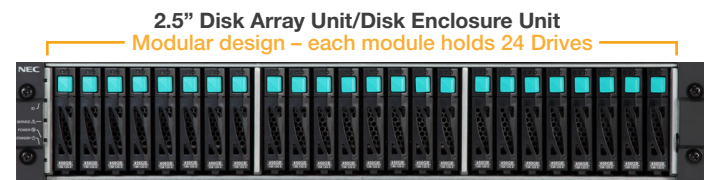
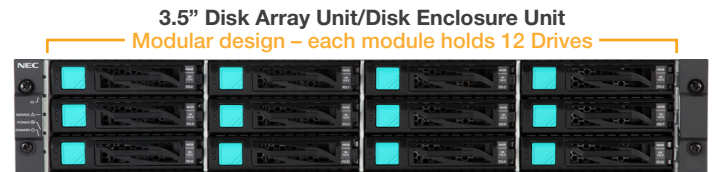
## At a Glance

- Superior Dependability
- High Efficiency
- Easy Operation
- Virtualization-compatible
- High Performance
- High Availability
- Flexible Tiering and Scalability

## Overview

NEC's M500 SAN Disk Array is a great choice for very scalable, mission-critical, high performance, primary or tiered storage. These SAN storage arrays are easy to operate, dependable and efficient. The M500 Disk Array is also well-suited for virtual environments with exceptional scalability, LUN locking, support for VMware APIs, and excellent cache and SSD options to protect performance.

NEC's M500 SAN Disk Arrays feature both iSCSI and FC host interfaces: 8 Gbps Fibre Channel, 10Gbps or 1Gbps iSCSI and a unified adapter which supports both FC and iSCSI on one controller. M500 offers 3.5" and 2.5" drives. 2.5" drives are attractive due to their lower power and space consumption. 3.5" drives offer the best storage density per spindle. M500 simultaneously supports SAS HDD, NearLine SAS HDD, and SSD in the same enclosures, enabling flexible tiered storage architecture.



## Solution

- **VirtualCachePartitioning** provides high stability in a virtual environment by setting limits to the Disk Array cache memory for each tenant to secure the I/O band width
- **ThinProvisioning** uses actual volume efficiently and reduces operational expense
- **DynamicDataReplication** replicates and snapshots within the array
- **RemoteDataReplication** replicates between arrays
- **StoragePowerConserver** spins down disk drives and reduces the system running cost
- **PathManager** makes redundant access paths and provides load balancing dynamically
- **Encrypted HDDs** aids in data security
- **Solid State Drives** enhance PerforCache and PerforOptimizer features

- **PerforCache** improves disk array response speeds by using SSDs as a secondary cache in the following manners:
  - Reduces access to spinning drives in the event of a cache miss
  - Frequent random read data is stored in the SSD L2 cache and provided for the next access
  - Moves data from cache memory to the L2 cache and improves response for a write request if there are many
  - When a controller is not available due to a failure, PerforCache uses the L2 cache in place of cache memory and prevents the response time of write requests from slowing down
- **PerforOptimizer** automatically reallocates stored data to an optimal location for using the disk array efficiently. Data can be moved either at the Logical Disk level or at the Block level.

## Hardware Specifications

<b>Host Ports</b>	<b>8 Gbps Fibre Channel</b>	8 or 16 ports	
	<b>10 Gbps or 1Gbps iSCSI</b>	4 or 8 ports	
	<b>Interface Mix Supported</b>	8 - 8Gbps FC and 4 - 1 or 10 Gbps iSCSI	
<b>Configuration</b>		12 drives per 3.5" Disk Array Unit/Disk Enclosure 24 drives per 2.5" Disk Array Unit/Disk Enclosure	
		Both 3.5" and 2.5" disk enclosures can be used within the same configuration	
		SAS disk drives, Nearline SAS disk drives and SSD can be intermixed within a Disk Array Unit or a Disk Enclosure	
<b>Cache Memory</b>	<b>Capacity</b>	12GB, 24GB or 48GB	
	<b>Backup</b>	Flash memory	
<b>Supported RAID Levels</b>		1, 5, 6, 10, 50, 60, Triple Mirror	
<b>Supported Operating Systems</b>		Windows, Linux, VMware, Hyper-V, HP-UX, AIX, Solaris	
<b>Maximum Usable Capacity</b>		1213TB	
<b>Disk Drives</b>	<b>Capacity</b>	<b>SAS HDD</b>	300GB (2.5" 10,000rpm/2.5" 15,000rpm/3.5" 15,000rpm) 450GB, 600GB (2.5" 10,000rpm/3.5" 15,000 rpm) 900GB, 1.2TB (2.5" 10,000rpm)
		<b>Nearline SAS HDD</b>	1TB (2.5"/ 3.5" 7,200rpm); 2TB, 3TB, 4TB (3.5" 7,200rpm)
		<b>SAS Encrypted</b>	600GB (3.5" 15,000rpm Encrypted/2.5" 10,000rpm Encrypted)
	<b>Interface Speed</b>	<b>Nearline SAS Encrypted</b>	4TB (3.5" 7,200rpm Encrypted)
		<b>SSD</b>	200GB, 800GB (2.5"/3.5")
		<b>SAS</b>	6 Gbps
<b>Number of Disk Drives</b>		3 to 384	
<b>Power Requirements</b>		AC 100 – 240V single phase 50/60Hz	

## M-series Standard Software Overview

Solution Pack	Contents	Function
<b>Base Software</b>	Storage Manager Express	Manage flexible and powerful functions on single array through embedded intuitive GUI
	Storage Manager	Extend storage management capability across multiple arrays using single pane of glass GUI
	Storage Manager Command	Control the M-series with CLI commands
	ThinProvisioning	Minimize cost and utilize storage efficiently with virtualized capacity
	StoragePowerConserver	Spin down the inactive disk drives for energy efficiency
	AccessControl	Define volume access rights for secure shared storage
	VMware Cooperation	Collaborate with VMware through vSphere Web Client Plug-in, vCenter Plug-in, VASA Provider, VAAI and Storage Replication Adapter
	PathManager	Manage multi path connection for high availability
	PerformanceMonitor	Monitor real time performance and load on storage through Storage Manager GUI
	PerformanceNavigator	Analyze monitored log data graphically for insightful diagnostics
	DynamicDataReplication Express (M100 only)	Replicate / Snapshot volumes within same system using GUI / CLI (Non-disruptive copy is available with Local Replication Pack)

## M-series Optional Software Overview

Solution Pack	Contents	Function
<b>Advanced Performance Pack</b> (also offered individually)	PerforOptimizer (Auto Data Tiering)	Move data to the most effective storage automatically based on access characteristics
	PerforCache (Write/Read SSD Cache)	Use SSD as secondary cache for performance improvement
	VirtualCachePartitioning (M300/M500/M700 only)	Allocate cache memory to applications to ensure maximum application performance with guaranteed cache availability
<b>Local Replication Pack</b>	DynamicDataReplication	Replicate / Snapshot volumes within same system using non-disruptive command for host or storage manager GUI / CLI
	ReplicationControl SQL	Non-disruptive back up of Microsoft SQL server
	ReplicationControl File System	Non-disruptive back up of file system
<b>Remote Replication Pack</b>	RemoteDataReplication	Replicate volumes between systems
	DisasterRecovery (M500/M700 only)	Replicate atomic groups (application level) for application level recovery
<b>Data Security Pack</b>	SecureErasure	Delete data using DoD5220.22-M method to prevent unwanted recovery of classified data
	VolumeProtect	Prevent data modification by setting access rights and data retention period to satisfy compliance requirements (WORM)
<b>Data Migration</b>	DataMigration	Migrate data directly between NEC disk systems without affecting network

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