



## M-Series Storage Family Comparison

# Agenda

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- M100/M300 comparison
- M500/M700 comparison
- M-Series performance comparison



## M100/M300 Comparison

# M100/M300 Specification

			M100	M300
Host Interface	FC		8Gb x 4 or 8Gb x 8	8Gb x 8
	iSCSI		1Gb x 4 or 10Gb x 4	1Gb x 4 or 10Gb x 4
	SAS		6Gb x 8	6Gb x 8
	I/F mix		8Gb-FC X 4 + 1Gb-iSCSI x 4	8Gb-FC X 4 + 1Gb-iSCSI x 4
Cache Size			8GB	8GB or 16GB
Supported OS			Windows, Linux, VMware	FC: Windows, Linux, VMware, HP-UX, Solaris, AIX iSCSI: Windows, Linux, VMware
Max. Number of Drives	3.5"		3~96	3~96
	2.5"		3~96	3~144
Max. Capacity (SAS HDD / NL SAS HDD/ SSD / Encryption SAS HDD)	3.5"		44.5TB / 303.3TB / 6.6TB *1 / 44.5TB	44.5TB / 303.3TB / 53.0TB / 44.5TB
	2.5"		90.6TB / 76.1TB / 6.6TB *1 / 44.5TB	135.9TB / 114.2TB / 79.5TB / 66.7TB
Disk Drive Specifications	3.5"	SAS HDD (15K)	300GB, 450GB, 600GB, 600GB(Encryption)	300GB, 450GB, 600GB, 600GB(Encryption)
		NL SAS HDD (7.2K)	1TB, 2TB, 3TB, 4TB, 4TB(Encryption)	1TB, 2TB, 3TB, 4TB, 4TB(Encryption)
		SSD (SLC or eMLC)	SLC:100GB, 400GB eMLC: 200GB, 800GB	SLC:100GB, 400GB eMLC: 200GB, 800GB
	2.5"	SAS HDD (15K)	-	300GB
		SAS HDD (10K)	300GB, 450GB, 600GB, 900GB, 1.2TB, 600GB(Encryption)	300GB, 450GB, 600GB, 900GB, 1.2TB, 600GB(Encryption)
		NL SAS HDD (7.2K)	1TB	1TB
		SSD (SLC or eMLC)	SLC:100GB, 400GB eMLC: 200GB, 800GB	SLC:100GB, 400GB eMLC:200GB, 800GB
	RAID	SAS HDD		RAID-0,1,5,6,10,50,60,TM
NL SAS HDD		RAID-0,1,5,6,10,50,60,TM	RAID-0,1,5,6,10,50,60,TM	
SSD		RAID-1,5(4+P),6,10,50(4+P),60	RAID-1,5(4+P),6,10,50(4+P),60	
Power Consumption (W)	3.5"	SAS HDD (15K)	485	510
		NL SAS HDD (7.2K)	435	455
	2.5"	SAS HDD (10K)	485	505
		NL SAS HDD (7.2K)	450	470

\*1: M100 supports up to 12 SSDs. The M300 supports up to 144 SSDs (2.5") or 96 SSDs (3.5").

# M100/M300 Standard Software

Category	Functions	Product Name	M100	M300
Storage Management	Integrated management (Status monitoring and configuration display)	NEC Storage Manager	X	X
	Server-less management (Status monitoring and configuration display)	NEC Storage Manager Express	X	X
	Integrated monitoring and control platform	NEC Storage Manager Integration Base	X	X
Resource Control	Thin provisioning	NEC Storage ThinProvisioning	X	X
	Access control	NEC Storage AccessControl	X	X
	Power saving	NEC Storage StoragePowerConserver	X	X
High Availability	Path control	NEC Storage PathManager	X	X
Cooperative Management	Cooperation with VMware SRM	NEC Storage Replication Adapter	X	X
	Cooperation with VMware vCenter	NEC Storage VMware vSphere Web Client Plug-in	X	X
		NEC Storage VMware vCenter Plug-in	X	X
		NEC Storage VASA Provider	X	X
Replication Control	Copy and snapshot within an enclosure	NEC Storage DynamicDataReplication Express (including DynamicSnapVolume)	X	

# M100/M300 Optional Software 1/2

Category	Functions	Product Name	M100	M300
Replication Control	Copy and snapshot within an enclosure	NEC Storage DynamicDataReplication (including DynamicSnapVolume)	X	X
	Copy across the enclosures	NEC Storage RemoteDataReplication	X	X
		NEC Storage RemoteDataReplication Asynchronous	X	X
	Microsoft SQL Server link	NEC Storage ReplicationControl SQL Option	X	X
	FileSystem synchronization	NEC Storage ReplicationControl FileSystem Option	X	X
Resource Control	Data retention	NEC Storage VolumeProtect	X	X
	Data allocation optimization	NEC Storage PerforOptimizer	X	X
	SSD 2 <sup>nd</sup> Tier Cache	NEC Storage PerforCache	X	X
	Data migration	NEC Storage DataMigration	X	X
	Secure data erasing	NEC Storage SecureEraser	X	X
	Cache Partitioning	NEC Storage VirtualCachePartitioning		X

# M100/M300 Optional Software 2/2

Category	Functions	Product Name	M100	M300
Storage Control	Integrated operation commands	NEC Storage ControlCommand	X	X
Cooperative Management	System Integrated Management	NEC Storage Manager Connector for MCOperations	X	X
Performance Management	Performance monitoring and performance analysis combined	NEC Storage PerformanceMonitor Suite	X	X
	Performance monitoring	NEC Storage PerformanceMonitor	X	X
	Performance analysis	NEC Storage PerformanceNavigator	X	X



## M500/M700 Comparison



# M500/M700 Specification

		M500	M700	
Host Interface	FC	8Gb x 8 or 16	8Gb / 16Gb x 8 to 48	
	iSCSI	1Gb / 10Gb x 4 or 8	1Gb / 10Gb x 4 to 24	
	I/F mix	8Gb FC x 8 + 1Gb/10Gb iSCSI x 4	8Gb/16Gb FC x 8 to 40 + 1Gb/10Gb iSCSI x 4 to 20	
Cache Size		12GB or 24 GB or 48 GB	48GB or 96GB	
Supported OS		FC: Windows, Linux, VMware, HP-UX, Solaris, AIX iSCSI: Windows, Linux, VMware	FC: Windows, Linux, VMware, HP-UX, Solaris, AIX iSCSI: Windows, Linux, VMware	
Max. Number of Drives	3.5"	3 to 384	3 to 960	
	2.5"	3 to 384	3 to 960	
Max. Capacity (SAS HDD / NL SAS HDD/ SSD)	3.5"	178.0TB / 1213.2TB / 212.1TB	445.1TB / 3033.0TB / 530.4TB	
	2.5"	362.5TB / 304.6TB / 212.1TB	906.3TB / - / 530.4TB	
Disk Drive Specifications	3.5"	SAS HDD (15K)	300GB, 450GB, 600GB, 600GB(Encryption)	300GB, 600GB, 600GB(Encryption)
		NL SAS HDD (7.2K)	1TB, 2TB, 3TB, 4TB, 4TB(Encryption)	2TB, 3TB, 4TB, 4TB(Encryption)
		SSD (SLC or eMLC)	SLC:100GB, 400GB eMLC: 200GB, 800GB	SLC:100GB, 400GB eMLC: 200GB, 800GB
	2.5"	SAS HDD (15K)	-	300GB
		SAS HDD (10K)	300GB, 450GB, 600GB, 900GB, 1.2TB, 600GB(Encryption)	300GB, 600GB, 900GB, 1.2TB, 600GB(Encryption)
		NL SAS HDD (7.2K)	1TB	-
		SSD (SLC or eMLC)	SLC:100GB, 400GB eMLC: 200GB, 800GB	SLC:100GB, 400GB eMLC:200GB, 800GB
	RAID	SAS HDD		RAID-0,1,5,6,10,50,60,TM
NL SAS HDD		RAID-0,1,5,6,10,50,60,TM	RAID-0,1,5,6,10,50,60,TM	
SSD		RAID-1,5(4+P),6,10,50(4+P),60	RAID-1,5(4+P),6,10,50(4+P),60	
Power Consumption (W)	DAC	3.5"	455	1130
		2.5"	455	1130

# M500/M700 Standard Software

Category	Functions	Product Name	M500	M700
Storage Management	Integrated management (Status monitoring and configuration display)	NEC Storage Manager	X	X
	Server-less management (Status monitoring and configuration display)	NEC Storage Manager Express	X	X
	Integrated monitoring and control platform	NEC Storage Manager Integration Base	X	X
Resource Control	Thin provisioning	NEC Storage ThinProvisioning	X	X
	Access control	NEC Storage AccessControl	X	X
	Power saving	NEC Storage StoragePowerConserver	X	X
High Availability	Path control	NEC Storage PathManager	X	X
Cooperative Management	Cooperation with VMware SRM	NEC Storage Replication Adapter	X	X
	Cooperation with VMware vCenter	NEC Storage VMware vSphere Web Client Plug-in	X	X
		NEC Storage VMware vCenter Plug-in	X	X
		NEC Storage VASA Provider	X	X

# M500/M700 Optional Software 1/2

Category	Functions	Product Name	M500	M700
Replication Control	Copy and snapshot within an enclosure	NEC Storage DynamicDataReplication (including DynamicSnapVolume)	X	X
	Copy across the enclosures	NEC Storage RemoteDataReplication	X	X
		NEC Storage RemoteDataReplication Asynchronous	X	X
	Microsoft SQL Server link	NEC Storage ReplicationControl SQL Option	X	X
	FileSystem synchronization	NEC Storage ReplicationControl FileSystem Option	X	X
Disaster Recovery	Disaster Recovery	NEC Storage RemoteDataReplication/DisasterRecovery	X	X
Resource Control	Data retention	NEC Storage VolumeProtect	X	X
	Data allocation optimization	NEC Storage PerforOptimizer	X	X
	SSD 2 <sup>nd</sup> Tier Cache	NEC Storage PerforCache	X	X
	Data migration	NEC Storage DataMigration	X	X
	Secure data erasing	NEC Storage SecureEraser	X	X
	Cache Partitioning	NEC Storage VirtualCachePartitioning	X	X

# M500/M700 Optional Software 2/2

Category	Functions	Product Name	M500	M700
Storage Control	Integrated operation commands	NEC Storage ControlCommand	X	X
Cooperative Management	System Integrated Management	NEC Storage Manager Connector for MCOperations	X	X
Performance Management	Performance monitoring and performance analysis combined	NEC Storage PerformanceMonitor Suite	X	X
	Performance monitoring	NEC Storage PerformanceMonitor	X	X
	Performance analysis	NEC Storage PerformanceNavigator	X	X



## M-Series Performance Comparison

# M100/M300/M500/M700 HDD/SSD Performance

		M100		M300		M500		M700	
Host		8Gbps FC		8Gbps FC		8Gbps FC		8Gbps FC	
RAID Type Num of Drives		RAID5 96 HDDs	RAID1 24 SSDs	RAID5 96 HDDs	RAID1 46 SSDs	RAID5 384 HDDs	RAID1 64 SSDs	RAID5 960 HDDs	RAID1 128 SSDs
IOPS (/Unit) [IOPS]	READ, Random 4KB Cache Hit	140K		250K		750K		2,100K	
	READ, Random 4KB Cache Miss	11K	40K	15K	55K	55K	200K	158K	310K
	WRITE, Random 4KB Cache Miss	5K	10K	7.6K	15K	26K	40K	75K	100K
Throughput (/Unit) [B/S]	READ, Sequential 512KB Cache Hit	5.6G		5.9G		5.9G		16.1G	
	READ, Sequential 512KB Cache Miss	4.2G	5.6G	4.2G	5.9G	5.9G	5.9G	10.8G	16.1G
	WRITE, Sequential 512KB Cache Miss	0.7G	1.0G	1.2G	1.2G	1.8G	1.8G	4.0G	6.3G

Performance Tool : iometer 2006.07.27

Setting : Ramp Up Time=4min. , Run Time=2min, IO Q=32

Access Area (Cache Miss) : Whole area of Logical Disk

Access Area (Cache Hit) : First 20MB (2048 Sectors)

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**NEC** NEC Corporation of America