IBM

IBM System Storage N6000 series

Today's business environment demands innovation and increasingly flawless execution. You are asked to manage and protect valuable data to enable business growth and success. Change can be continuous and your IT operations have to evolve while adhering to hard limits on budget, staffing and infrastructure. Virtualized computing, the latest wave of change, is quickly becoming the norm. It calls for networked storage systems that you can use to consolidate diverse data sets and unlock the full potential of virtualized servers.

Now you can simultaneously meet your diverse needs—SAN and NAS, primary and secondary storage—and provide high levels of application availability for your critical business operations to technical applications. With IBM N6000 series systems, you get outstanding value: our flexible systems offer excellent performance and impressive scalability at a low total cost of ownership.

Highlights

■ *Meet diverse and changing needs. Consolidate diverse data sets onto a unified storage platform that provides simultaneous block and file services for business and technical applications.*

■ *Perform when your applications need it most. Outstanding file-based and transaction-based performance with high bandwidth, 64-bit architecture and the latest I/O technologies.*

■ *Respond to growth. Thin provisioning helps you eliminate stranded storage. Preserve investments in staff expertise and capital equipment with data-in-place upgrades to more powerful N series systems while running the same OS and using the same management tools.*

■ *Maximize your resources. Highly efficient storage utilization makes it possible for you to dramatically reduce your consumption of raw storage, power, cooling and space.*

■ *Improve your business efficiency. Clients with different storage subsystems in their SAN environments can now take advantage of the N6000 series capabilities to help improve business efficiency and reduce data management complexity.*

IBM N series systems enable easy provisioning, managing and upgrading so you can quickly adapt your storage infrastructure to meet your changing business and technical needs. To help you maximize staff productivity, all IBM N series systems use the Data ONTAP® operating system and the same suite of application-aware management software.

Versatility for your diverse business needs
The IBM N6000 series systems offer a versatile storage platform for handling the large amounts of diverse data moving through your business. With an N6000 series system you can consolidate these varied data sets onto a unified storage platform supporting simultaneous block and file services for business and technical applications.

With IBM N6000 series, you can unlock the full potential of your growing virtualized server environment by enabling virtual machine mobility and offloading the work of data protection. The N6000 systems enable you to connect your heterogeneous server environment (including Windows®, UNIX® and Linux® servers) and clients to one storage system by using standard storage protocols and interfaces.

Increase data and application availability
IBM N6000 series systems can help you spend less time on backup and recovery, so you can focus your energy and creativity on growing your business. Our full range of enterprise-class, high-availability and disaster-recovery products provide affordable software for data protection to help safeguard your business-critical application's data. IBM N series Snapshot™ technology helps reduce backup times to minutes; SnapRestore® software enables recovery of point-in-time data, also in minutes.

IBM N series SnapManager® software quickly returns applications to the same point in time as recovered data. All of this built on the solid foundation of our low-overhead, dual-parity RAID-DP™— the IBM N series implementation of high-performance RAID 6 for better data protection and capacity utilization than RAID 5 and RAID 1+0.

Performance when your applications and users need it
The IBM N6000 series offers compelling performance across a wide range of application workloads—file services,

OLTP, and messaging and collaboration, to name just a few. The high-bandwidth, 64-bit controller architecture with large memory cache and the latest I/O technologies help provide data at the rates you need to keep your demanding business and technical applications running smoothly. Your critical applications can take priority under peak load conditions with our FlexShare™ quality of service software. Features such as these can help you meet demanding service levels and achieve a faster time to market for your critical new products and services.

Respond to your data growth challenges
In today's business environment, it seems the data your systems collect grows relentlessly, regardless of your company's size. With versatile IBM N6000 series systems, you can combine high-performance Fibre Channel and large-capacity SATA disk drives in storage tiers for optimal performance and cost. And on the same system, you can seamlessly consolidate block and file storage. IBM N series makes this possible by providing native support of the FCP, iSCSI, NFS and CIFS storage protocols through both Fibre Channel and Ethernet interfaces.

IBM N series offers an innovative thin provisioning capability to help you eliminate stranded storage by expanding or contracting LUNs and volumes by using a common pool of spare capacity without IT staff intervention. When more performance or scalability is required, you can preserve investments in staff expertise and capital equipment by installing a more powerful N series controller that enables you to keep your data in place and use the same management tools.

Maximize your resources

IBM N6000 series systems can help you reduce costs in many aspects of your storage environment by simplifying data management and maximizing storage utilization to conserve raw storage, power, cooling and data center space. N6000 systems can help you spend less time waiting and more time innovating, thanks to high system performance, fast backup and recovery, and rapid cloning of data sets.

Improve your business efficiency

Clients with different storage subsystems in their SAN environments can now take advantage of the N6000 series capabilities to help improve business efficiency and reduce data management complexity. IBM N6000 series ordered under gateway structure is able to support the attachment to a broad range of IBM, EMC, Hitachi, Fujitsu, 3PAR and HP storage subsystems, including the IBM Enterprise Storage Server® (ESS) series, IBM System Storage DS8000™ and DS4000™ series.

Software

Operating system	Data ONTAP
Operating systems supported	Windows 2000, Windows Server® 2003, Windows XP, Linux, Sun Solaris, IBM AIX®, HP-UX, Mac OS, VMware ESX
Software features	**Standard** Integrated RAID manager, including RAID-DP*; Snapshot; Fast Boot; NIS; DNS; FilerView®; FlexVol; FlexShare™; Disk Sanitization*; SecureAdmin; Network Data Management Protocol (NDMP) **Licensed** CIFS; NFS; HTTP; FTP; iSCSI; FCP; FlexCache™; FlexClone; MultiStore®; Clustered Failover; SnapMirror; SyncMirror®; SnapRestore®; Single Mailbox Recovery; Open Systems Snap Vault; SnapVault*; SnapMover®; NearStore; Advanced Single Instance Storage; SnapValidator®; SnapLock; MetroCluster **Manageability software** Application Suite; SnapManager® for Microsoft® Exchange; SnapManager for Microsoft SQL Server®; SnapManager for Microsoft Office SharePoint® Server; SnapManager for Oracle; SnapManager for SAP; SnapManager for Virtual Infrastructure; Server Suite; SnapDrive®; Virtual File Manager™ – Enterprise Edition; Virtual File Manager – Migration Edition; Storage Suite; Protection Manager; Provisioning Manager; File Storage Resource Manager; Operations Manager

* Not available for gateway structure

Specifications				
	N6040	**N6040**	**N6070**	**N6070**
Machine Type Model	**2858-A10**	**2858-A20**	**2858-A11**	**2858-A21**
Controller Configuration	Single	Dual (active/active)	Single	Dual (active/active)
Processors Speed and Type	2.4 GHz AMD Dual-core 64-bit Opteron	2.4 GHz AMD Dual-core 64-bit Opteron	2.6 GHz AMD Dual-core 64-bit Opteron	2.6 GHz AMD Dual-core 64-bit Opteron
Number of Processors	1	2	2	4
Random Access Memory	4 GB	8 GB	16 GB	32 GB
Integrated I/O Ports				
Fibre Channel Ports (Speed)	4 (4-Gbps)	8 (4-Gbps)	4 (4-Gbps)	8 (4-Gbps)
Ethernet Ports (Speed)	2 (1-Gbps)	4 (1-Gbps)	2 (1-Gbps)	4 (1-Gbps)
Storage Scalability				
Maximum Raw Capacity	420 TB	420 TB	840 TB	840 TB
Maximum Number of Disk Drives	420	420	840	840
Maximum Volume Size	16 TB	16 TB	16 TB	16 TB
Maximum Number of Volumes/LUNs	2048	2048	2048	2048
Maximum Number of Storage Enclosures	30	30	60	60
Maximum Number of FC or iSCSI SAN connected servers (per controller and per active/active configuration)	256			
Disk Expansion Units Supported	EXN4000 – 4 Gbps Fibre Channel Disk Storage Expansion Unit EXN1000 – SATA Disk Storage Expansion			
Storage Subsystem Support Specifications				
Storage interface/data rate	PCI-Based Fibre Channel Fabric and Fibre Channel-Arbitrated Loop (FC-AL)/1 to 4 Gbps			
Storage arrays	Please refer to the interoperability matrix for the latest list of storage systems supported at: **ibm.com**/systems/storage/network/interophome.html			
I/O Scalability				
PCI-e Expansion Slots	4	8	4	8
Maximum Number FC Ports	20	40	20	40
Maximum Number of Ethernet Ports	18	36	18	36
Maximum Number of Optional Adapters	4	8	4	8
Storage Expansion Unit Disk Drive Support				
EXN4000 – 4-Gbps Fibre Channel Disk Storage Expansion Unit (MTM 2863-004)	4-Gbps Fibre Channel: 144 GB, 300 GB; 15,000 rpm 2-Gbps Fibre Channel: 300 GB; 10,000			
EXN1000 SATA disk storage expansion unit (MTM 2861-001)	SATA: 250 GB, 500 GB, 750 GB; 7,200 rpm, 1 TB			

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For more information

Contact your IBM representative or
IBM Business Partner or visit:

ibm.com/systems/storage/network

For N6000 series modular disk storage
system technical specifications and
optional adapter cards, visit:

ibm.com/systems/storage/network/
n6000/appliance

For N6000 series interoperability and
tape drive support visit:

ibm.com/systems/storage/network/
interophome.html

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* Not available for gateway structure

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