IBM System Storage N6000 series, Filer and Gateway

Easily respond to storage demands with advanced capabilities in a midrange storage system

Highlights

- Increase NAS storage flexibility and expansion capabilities by consolidating block and file data sets onto a single multiprotocol storage platform

- Improve application performance with high-bandwidth, 64-bit architecture and the latest I/O technologies

- Maximize storage efficiency and growth and preserve investments in staff expertise and capital equipment with data-in-place upgrades to more powerful IBM® System Storage® N series

- Improve business efficiency with IBM System Storage N6000 series, also available with a Gateway feature, to reduce data management complexity in heterogeneous storage environments for data protection and retention

Today's business environment demands innovation and flawless execution. You have to manage and protect valuable data to support business growth and success. Your IT operations have to evolve with the business while meeting budget, staffing and infrastructure limits. Virtualized computing requires networked storage systems supporting diverse data sets to unlock the full potential of virtualized servers.

With IBM System Storage N6000 series systems, you can meet your network-attached storage (NAS) needs and provide high levels of application availability for everything from critical business operations to technical applications. You can also address NAS and storage area network (SAN) as primary and secondary storage requirements. In addition, you get outstanding value—flexible IBM systems offer excellent performance and impressive expandability at a low total cost of ownership.

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 N series systems use the Data ONTAP operating system and the same suite of application-aware management software. Also, OnCommand enables the consolidation and simplification of shared IT storage management.

Provide versatility for your diverse business needs

The 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 varied data sets simultaneously—whether block- or file-based—onto a single storage platform.

With 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 Microsoft Windows, UNIX and Linux servers) and clients to one storage system by using standard storage protocols and interfaces.

Increase data and application availability

N6000 series systems can help you spend less time on backup and recovery so you can focus on growing your business. A full range of enterprise-class, high-availability and disaster-recovery products provides affordable support for data protection to safeguard your business-critical application data. N series Snapshot technology reduces backup times to minutes. SnapRestore software also enables recovery of point-in-time data in minutes.

N series SnapManager software quickly returns applications to the same point in time as recovered data. All of this capability is built on the solid foundation of low-overhead, dual-parity RAID-DP—the N series implementation of high-performance RAID 6 for data protection and capacity use.

Have performance when your applications and users need it

N6000 series offers extraordinary performance to help you meet demanding service levels and get your products and services to market faster. The high bandwidth, 64-bit controller architecture with large memory cache and the latest I/O technologies provides 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 FlexShare quality of service software. The Flash Cache, an intelligent read cache, improves throughput and reduces latency to optimize the performance of your storage system.

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 N6000 series systems, you can combine high-performance Fibre Channel and large-capacity SATA disk drives in storage tiers to optimize performance and cost. In addition, you can seamlessly consolidate block and file storage on the same system. N series makes this possible by providing native support of the Network File System (NFS) and Common Internet File System (CIFS), Fibre Channel over Ethernet (FCoE), Fibre Channel Protocol (FCP) and Internet Small Computer System Interface (iSCSI) storage protocols through both Fibre Channel and Ethernet interfaces.

An innovative thin provisioning capability eliminates stranded storage by expanding or contracting logical unit numbers (LUNs) and volumes through a common pool of spare capacity, without IT staff intervention. When more performance or expandability is required, you can preserve your investment 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

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

Improve your business efficiency

You can take advantage of the N6000 series capabilities, ordered with a Gateway feature, in heterogeneous storage environments to help improve business efficiency and reduce data management complexity. N6000 series systems ordered with a Gateway feature can support attachment to IBM Enterprise Storage Server® series, IBM XIV® Storage System, IBM System Storage DS8000®, IBM System Storage DS5000 series and a broad range of IBM, EMC, Hitachi, Fujitsu and HP storage subsystems.

Enable automation, consolidation and simplification

N6000 systems are empowered with OnCommand, a multiprotocol manager that delivers a single code experience to manage physical and virtual storage environments using integrated workflows and policy-driven automation. From a single interface, OnCommand enables the consolidation and simplification of shared IT storage management, delivering greater flexibility and efficiency.

Also, the capabilities of expandability, connectivity, data protection and retention, and copy recover availability integrate with leading IT management frameworks. The software provides common management services, integration, security and role-based access controls. OnCommand offers data and storage management tools that increase productivity, storage efficiency and agility for organizations of all sizes. It supports and integrates with higher-level IT orchestration and management frameworks, which helps you manage data from a business perspective, enabling administrators to manage data across applications, databases, servers and storage.

Software

Operating system	Data ONTAP
Operating systems supported	Microsoft Windows, Windows Server, Solaris, IBM AIX®, HP-UX, Mac OS and Linux host operating systems, as well as Windows Server 2008, Microsoft Hyper-V, Citrix XenServer and VMware ESX for server virtualization
Software features	See **ibm.com**/systems/storage/network/software for a full list of software features

Specifications

	N6220	N6220	N6220	N6220	N6250	N6250
Machine type model	**2858-C15**	**2658-C25**	**2858-E15**	**2858-E25**	**2858-E16**	**2858-E26**
Gateway machine type model	**2858-C15** (with feature code 9551)	**2658-C25** (with feature code 9551)	**2858-E15** (with feature code 9551)	**2858-E25** (with feature code 9551)	**2858-E16** (with feature code 9551)	**2858-E26** (with feature code 9551)
Controller configuration	Single (C)	Dual (active/active) (CC)	Single + IO Exp (CI)	Dual (active/active) (CI-HA)	Single + IO Exp (CI)	Dual (active/active) (CI-HA)
Processors speed and type	2.3 GHz Intel (Quad Core)					
Number of processors (cores)	1	2	1	2	2	4
Random access memory	12 GB	24 GB	12 GB	24 GB	20 GB	40 GB
Nonvolatile memory	1.6 GB	3.2 GB	1.6 GB	3.2 GB	2 GB*	4 GB*
Integrated I/O ports						
Fibre Channel ports (speed)	2 (4 Gbps)	4 (4 Gbps)	2 (4 Gbps)	4 (4 Gbps)	2 (4 Gbps)	4 (4 Gbps)
Ethernet ports (speed)	2 (1 Gbps)	4 (1 Gbps)	2 (1 Gbps)	4 (1 Gbps)	2 (1 Gbps)	4 (1 Gbps)
SAS ports (speed)	2 (6 Gbps)	4 (6 Gbps)	2 (6 Gbps)	4 (6 Gbps)	2 (6 Gbps)	4 (6 Gbps)
Storage scalability						
Maximum number of Fibre Channel loops	5	5	13	13	13	13
Maximum raw capacity	1,920 TB	1,920 TB	1,920 TB	1,920 TB	2,880 TB	2,880 TB
Maximum number of disk drives	480	480	480	480	720	720
Maximum volume size	16 TB (32-bit) 60 TB (64-bit)	16 TB (32-bit) 60 TB (64-bit)	16 TB (32-bit) 60 TB (64-bit)	16 TB (32-bit) 60 TB (64-bit)	16 TB (32-bit) 70 TB (64-bit)	16 TB (32-bit) 70 TB (64-bit)
Maximum number of volumes/ LUNs	4,096	4,096	4,096	4,096	4,096	4,096

Specifications

Maximum number of Fibre Channel or iSCSI SAN connected servers	Up to 512 hosts per high-availability (HA) pair Up to 24 directly connected servers per HA pair					
Disk expansion units supported	EXN1000 - SATA Disk Storage Expansion					
	EXN3000 - SAS/SATA Disk Storage Expansion					
	EXN3200 - SATA Disk Storage Expansion (HDD)					
	EXN3500 - SAS Disk Storage Expansion (SFF)					
	EXN4000 - 4 Gbps Fibre Channel Disk Storage Expansion Unit					

I/O scalability

PCIe expansion slots	2	4	6	12	6	12
Maximum number Fibre Channel ports	10	20	26	52	26	52
Maximum number of Ethernet ports	10	20	26	52	26	52
Maximum number of SAS ports	10	20	26	52	26	52
Maximum number of optional adapters	2	4	6	12	6	12

Why IBM?

Designed to help you meet increasing storage demands in a changing business environment, IBM System Storage N6000 series systems offer excellent performance and impressive expandability at a low total cost of ownership. IBM N6000 series systems are a part of a broad portfolio of proven IBM storage software, hardware, and solutions offerings—all backed by IBM with its recognized e-business leadership.

For more information

To learn more about the IBM System Storage N6000 series systems, please 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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