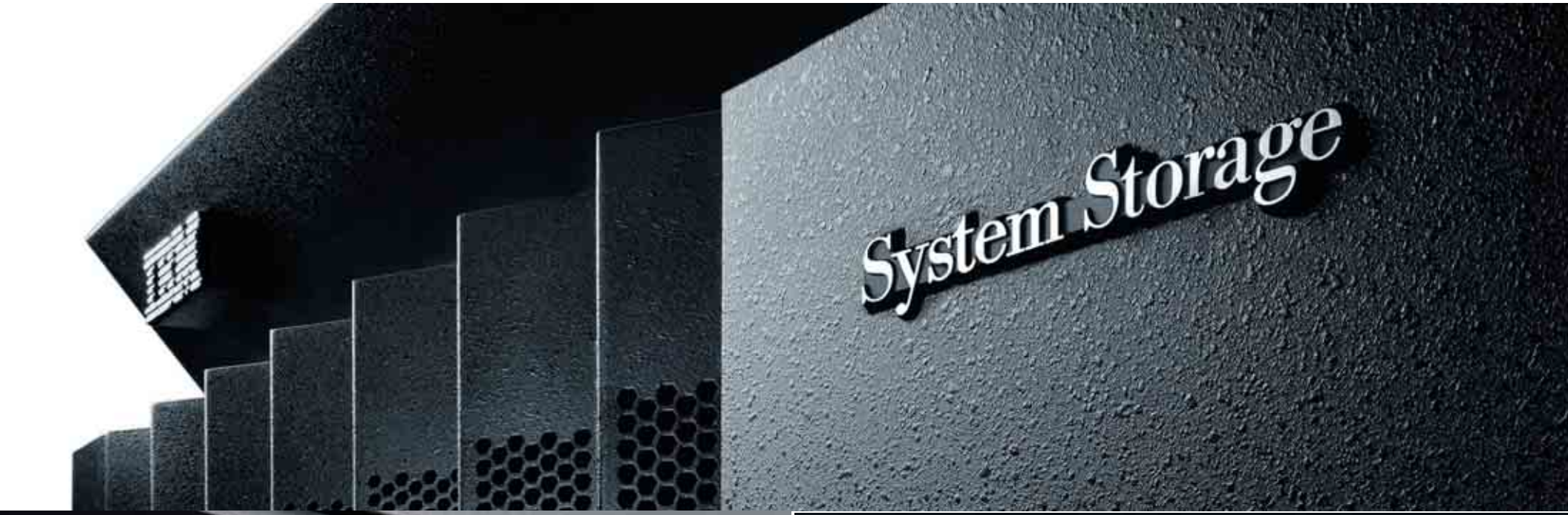
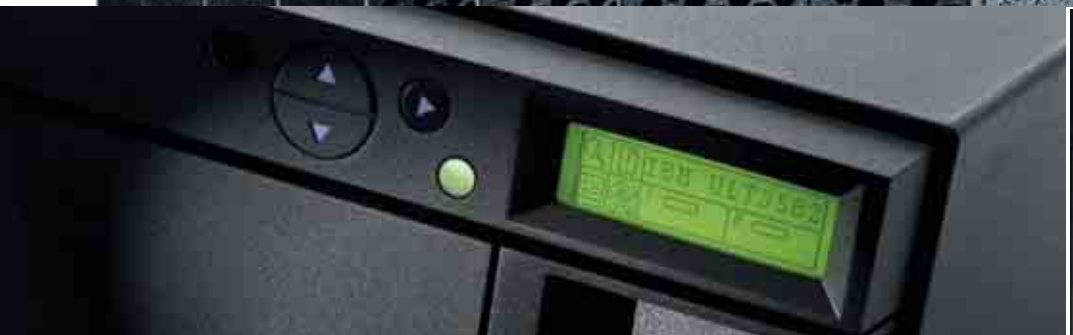
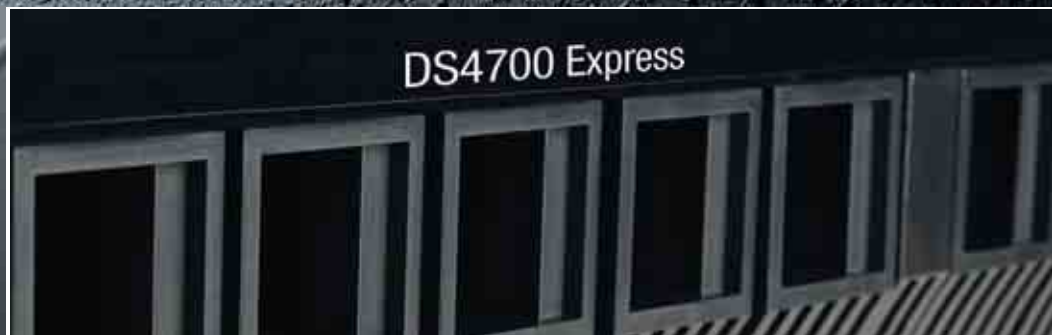
IBM Systems and Technology Group

IBM System Storage Product Guide







Cost effective and reliable access to your information

People need access to information so they can make knowledgeable decisions that lead to growth and increased profitability. Your challenge is making sure that information is always available, when and where it is needed, to fuel the cycle of creative thinking that leads to innovation.

IBM System Storage™ solutions help you more successfully support your business by creating IT environments that:

- Protect information assets and enable data sharing and collaboration across your enterprise in real time
- More easily handle changing business requirements
- Manage information effectively by matching the value of your information to how it is stored and accessed at each point in its life cycle

Only IBM delivers the depth and breadth of intelligent storage solutions and expertise to help you reliably bring information to people in a cost-effective way.

Empower your people to innovate and make more informed business decisions

Innovate faster and help ensure that the information that fuels creative thinking and decision making is available in real time with IBM System Storage solutions.

- Automate and simplify IT operations with revolutionary IBM System Storage solutions—so you can focus on your business and spend less time managing your infrastructure
- Increase your return on people and create an environment for competitive advantage by capitalizing on data sharing and collaboration across the enterprise in real time with IBM System Storage offerings
- Fuel your innovation engine with complete solutions that leverage IBM's unmatched expertise, strong synergy between servers and storage, award-winning storage software and extensive partner network

Get the most value from your information

Protect and fully leverage your information assets by using intelligent management solutions from IBM—solutions that enable your IT staff to implement the most cost-effective storage options based on the value and service level of the information at each point in its lifecycle.

- Align your storage investment with the value of your information using comprehensive tiered storage, policy-based automation and intelligent information management solutions from IBM
- Confidently protect your strategic information assets and efficiently comply with regulatory and security requirements with the unrivaled breadth of storage solutions from IBM

Make your business more responsive with an information-centric IT environment

Manage and adapt to growing and changing business needs with an IT environment that makes critical information always available—without disruption.

- Keep your business running with continuous access to information through industry-leading business continuity solutions from IBM System Storage
- Rapidly adapt to evolving business needs by creating an open, flexible, on demand infrastructure that scales as you grow—without disrupting ongoing operations—using proven IBM System Storage solutions
- Optimize and protect your IT investment with marketplace-leading virtualization capabilities, superior multivendor interoperability and cost-effective storage solutions from IBM

Entry-level Disk Systems

	System x and BladeCenter Direct Attach or SAN Solutions			System p Only Direct Attach Solutions
	EXP3000	**DS3200**	**DS3400**	**EXP24**
Product	EXP3000	DS3200	DS3400	EXP24
Machine/model	1727-01X, 1727-02T Telco DC Power Model	1726-21X, 1726-22X 1726-21E Express 1726-22E Express, 1726-22T Telco DC Power Model	1726-41X, 1726-42X 1726-41E Express 1726-42E Express, 1726-42T Telco DC Power Model	7031-D24—Rack version 7021-T24—Tower version
Platform support[1]	Windows 2003, RedHat 3, RedHat 4, SUSE 9	Windows 2003, RedHat 3, RedHat 4, SUSE 9, SUSE 10, NetWare	Windows 2003, RedHat 3, RedHat 4, SUSE 9, SUSE 10, NetWare, VMware 2.5.4, VMware 3.0.1	AIX 5L 5.2 AIX 5L 5.3 RedHat 3 RedHat 4 RedHat 5 SUSE 9 SUSE 10
Host connectivity	SAS	SAS	4 Gbps Fibre Channel	SCSI
SAN support	N/A	N/A	Direct, Switched Fabric	N/A
Copy services	N/A	IBM FlashCopy®, IBM VolumeCopy	IBM FlashCopy, IBM VolumeCopy	N/A
Availability features	Fault Tolerant RAID, Redundant Hotswap Power, Hotswap drives, Dual pathing drives	Fault Tolerant, RAID, Redundant Hotswap Power, Hotswap drives, Dual controller, dual pathing drivers	Fault Tolerant, RAID, Redundant Hotswap Power, Hotswap drives, Dual controller, dual pathing drivers	Fault Tolerant RAID, Redundant Hotswap Power, Hotswap drives
Controller	MegaRAID 8480	Dual active 3 Gbps SAS RAID Controllers	Dual Active 4 GB FC RAID Controllers	System p FC 5741 & 5742 SCSI Repeaters
Cache (min, max)	256 MB Battery Back-up	512 MB, 2 GB Battery Back-up	512 MB, 2 GB Battery Back-up	N/A
RAID support	0, 1, 5, 10, 50	0, 1, 3, 5, 10	0, 1, 3, 5, 10	0, 1, 3, 5, 10
Capacity (min, max)	114 GB, 14.4 TB with 4 EXP3000 Expansion Units behind single MegaRAID 8480	144 GB, 14.4 TB with 4 EXP3000 Expansion Units	144 GB, 14.4 TB with 4 EXP3000 Expansion Units	73 GB, 7.2 TB
Drive interface	3-Gbps SAS, 3-Gbps SATA II	3-Gbps SAS	3-Gbps SAS	Ultra320 SCSI
Drive support	73 GB, 146 GB, 300 GB 10,000 rpm disk drives; 36 GB, 73 GB, 146 GB, 300 GB 15,000 rpm disk drives; 500 GB, 750 GB SATA II	73 GB, 146 GB, 300 GB 10,000 rpm disk drives; 36 GB, 73 GB, 146 GB, 300 GB 15,000 rpm disk drives	73 GB, 146 GB, 300 GB 10,000 rpm disk drives; 36 GB, 73 GB, 146 GB, 300 GB 15,000 rpm disk drives	73 GB, 146 GB, 300 GB 10,000 rpm disk drives; 36 GB, 73 GB, 146 GB, 300 GB 15,000 rpm disk drives
Clustering Support	N/A	Microsoft Windows MSCS	Microsoft Windows MSCS	HACMP

Midrange Disk Systems

	DS4200 Express	DS4700 Express	DS4800
Product	DS4200 Express Disk System	DS4700 Express Disk System	DS4800 Disk System
Machine/model	1814-7VA/7VH	1814-72A/70A	1815-80A/82A/84A/88A
Platform support[1]	Windows Server 2003 w/SP1, R2, and x64, Windows 2000 Server & Adv.Server w/SP4, Novell NetWare 6.5 w/SP5 Red Hat Enterprise Linux 3.8 Red Hat Enterprise Linux 4.4 SUSE Linux Enterprise Server 8 SP4 SUSE Linux Enterprise Server 9 SP3 VMWare ESX 2.5.3 and 3.0 AIX 5.1, 5.2, 5.3 HP-UX 11.0, 11i and 11.23 with PVLinks Solaris 8, 9, 10	System p, System x, Windows Server 2003 w/SP1, Windows 2000 Server & Adv.Server w/SP4, Novell NetWare 6.0 w/SP5 & 6.5 w/SP5, Red Hat Enterprise Linux 3.0 U7, Red Hat Enterprise Linux 4.0 U3 SUSE Linux Enterprise Server 8 SP4, SUSE Linux Enterprise Server 9 SP3, VMWare ESX 2.5.2 AIX 5.1, 5.2, 5.3, HP-UX 11i and 11.23, Solaris 8, 9, 10	System p, System x, Windows Server 2003 w/SP1, Windows 2000 Server & Adv.Server w/SP4, Novell NetWare 6.0 w/SP5 & 6.5 w/SP5, Red Hat Enterprise Linux 3.0 U7, Red Hat Enterprise Linux 4.0 U3 SUSE Linux Enterprise Server 8 SP4, SUSE Linux Enterprise Server 9 SP3, VMWare ESX 2.5.2 AIX 5.1, 5.2, 5.3, HP-UX 11i and 11.23, Solaris 8, 9, 10
Host connectivity	Fibre Channel	Fibre Channel	Fibre Channel
SAN support	Direct, FC-AL, Switched Fabric	Direct, FC-AL, Switched Fabric	Direct, FC-AL, Switched Fabric
Copy services	FlashCopy option, Enhanced Remote Mirroring, VolumeCopy	Enhanced Remote Mirroring, FlashCopy, VolumeCopy	Enhanced Remote Mirroring, FlashCopy, VolumeCopy
Availability features	Fault-tolerant, RAID, redundant power/cooling, hot-swap drives, dual controllers, concurrent microcode update capability, dual-pathing driver	Fault-tolerant, RAID, redundant power/cooling, hot-swap drives, dual controllers, concurrent microcode update capability, dual-pathing driver	Fault-tolerant, RAID, redundant power/cooling, hot-swap drives, dual controllers, concurrent microcode update capability, dual-pathing driver
Controller	Dual 4 GB RAID controller	Dual active 4 Gbps RAID controllers	Dual active 4 Gbps RAID controllers
Cache (min, max)	2 GB	2 GB, 4 GB (70A/72A)	4 GB, 4 GB (80A/82A) 8 GB, 8 GB (84A) 16 GB, 16 GB (88A)
RAID support	0, 1, 3, 5, 10	0, 1, 3, 5, 10	0, 1, 3, 5, 10
Capacity (min, max)	500 GB, supports 84 TB with six Expansion Units	36.4 GB, 33.6 TB via EXP810, EXP710 (FC), 84 TB via EXP810 (SATA), 44.8 TB via EXP100	36.4 GB, 67.2 TB via EXP810/EXP700/EXP710 (FC) 400 GB, 89.6 TB via EXP100 (SI ATA), 168 TB via EXP810 (SATA)
Drive interface	4 GB FC-AL	4 Gbps Switched	4 Gbps Switched
Drive support	500 GB EV-DDM, 750 GB EV-DDM 7,200 rpm SATA disk drives	2 Gbps 73.4 GB, 146.8 GB and 300 GB 10,000 rpm; (FC) 36.4 GB, 73.4 GB, 146.8 GB 15,000 rpm; 4 Gbps 36.4 GB, 73.4 GB, 146.8 and 300 GB 15,000 rpm (FC) (Serial ATA) 250 GB, 400 GB, 500 GB and 750 GG 7200 rpm (SATA)	2 Gbps 73.4 GB, 146.8 GB and 300 GB 10,000 rpm; (FC) 36.4 GB, 73.4 GB, 146.8 GB 15,000 rpm; 4 Gbps 36.4 GB, 73.4 GB, 146.8 and 300 GB 15,000 rpm (FC) (Serial ATA) 250 GB, 400 GB, 500 GB and 750 GG 7200 rpm (SATA)
Certifications	Microsoft Clustering Services, IBM SAN Volume Controller 3.1.0 and 4.1.0	Microsoft RAID, Cluster, NetWare Cluster, HACMP, VERITAS Clustering4	Microsoft RAID, Cluster, NetWare Cluster, HACMP, VERITAS Clustering[4]

Enterprise Disk Systems

	DS6800	DS8100	DS8300	ESS 800
Product	IBM System Storage DS6800	IBM System Storage DS8000™ Turbo	IBM System Storage DS8000 Turbo	ESS Model 800 Refurbished with Warranty
Machine/model	1750/522	2421, 2422, 2423, 2424/931	2421, 2422, 2423, 2424/932/9B2	2105/800
Platform support[1]	System x, System i, System p, System z, IBM i5/OS®, OS/400, AIX, Solaris, HP-UX, Windows 2000, Windows Server 2003, Linux for IBM System z, z/OS, IBM z/VM®, IBM VSE/ESA™, TPF, Linux for System i, Linux for System p, Linux for Intel systems, OpenVMS, TRU64, NetWare, VMWare, Apple Macintosh OS X, Fujitsu Primepower, SGI IRIX	System x, System i, System p, System z, i5/OS, OS/400, AIX, Solaris, HP-UX, Windows 2000, Windows Server 2003, Linux for System z, z/OS, z/VM, VSE/ESA, TPF, Linux for System i, Linux for System p, Linux for Intel systems, OpenVMS, TRU64, NetWare, VMWare, Apple Macintosh OS X, Fujitsu Primepower, SGI IRIX	System x, System i, System p, System z, i5/OS, OS/400, AIX, Solaris, HP-UX, Windows 2000, Windows Server 2003, Linux for System z, z/OS, z/VM, VSE/ESA, TPF, Linux for System i, Linux for System p, Linux for Intel systems, OpenVMS, TRU64, NetWare, VMWare, Apple Macintosh OS X, Fujitsu Primepower, SGI IRIX	System x, System i, System p, System z, i5/OS, OS/400, AIX, Solaris, HP-UX, Windows NT, Windows 2000, Windows Server 2003, NetWare, Linux for System z, z/OS, z/VM, OS/390, VM/ESA, VSE/ESA, TPF, Linux for Intel systems, Dynix, OpenVMS, Tru64, VMWare, Fujitsu Primepower, SGI Origin IRIX
Host connectivity	1 Gb and 2 Gb Fibre Channel/FICON	2 Gb and 4 Gb Fibre Channel, FICON, ESCON®	2 Gb and 4 Gb Fibre Channel, FICON, ESCON	1 Gb and 2 Gb Fibre Channel/FICON, ESCON, SCSI
SAN support	Direct, FC-AL, Switched Fabric	Direct, FC-AL, Switched Fabric	Direct, FC-AL, Switched Fabric	Direct, FC-AL, Switched Fabric
Copy services	FlashCopy, Metro Mirror, Global Mirror, Global Copy, as target for z/OS Global Mirror	FlashCopy, Metro Mirror, Global Mirror, Global Copy, z/OS Global Mirror, Metro/Global Mirror	FlashCopy, Metro Mirror, Global Mirror, Global Copy, z/OS Global Mirror, Metro/Global Mirror	FlashCopy, Metro Mirror, Global Mirror, Global Copy, z/OS Global Mirror, Metro/Global Mirror(RPQ)
Availability features	Fault Tolerant, dual redundant and hot-swap RAID Controller Cards, Battery Backup Units, Fibre Channel switch controllers, power supplies, non-disruptive hardware and software code load updates, multi-pathing device driver	Fault Tolerant, dual redundant and hot-swap RAID Controller Cards, Battery Backup Units, Fibre Channel switch controllers, power supplies, non-disruptive hardware and software code load updates, multi-pathing device driver	Fault Tolerant, dual redundant and hot-swap RAID Controller Cards, Battery Backup Units, Fibre Channel switch controllers, power supplies, non-disruptive hardware and software code load updates, multi-pathing device driver	Fault-tolerant, RAID, redundant power/cooling, hot-swap drives, dual controllers, concurrent microcode update capability, dual-pathing driver
Controller	Dual active/active	Dual active/active	Dual active/active	SMB dual active; optional turbo feature
Cache (min, max)	4 GB	16/128 GB	32/256 GB	8 GB, 64 GB
RAID support	5, 10	5, 10	5, 10	5, 10
Capacity (min, max)	292 GB, 64 TB	1.1 TB, 192 TB	1.1 TB, 512 TB	582 GB, 55.9 TB
Drive interface	2 Gb Fibre Channel	2 Gb Fibre Channel	2 Gb Fibre Channel	SSA
Drive support	73 GB 15K, 146 GB 10K, 146 GB 15K, 300 GB 10K, 500 GB FATA, 7.2K	73 GB 15K, 146 GB 10K, 146 GB 15K, 300 GB 15K, 500 GB 7.2 FATA	73 GB 15K, 146 GB 10K, 146 GB 15K, 300 GB 15K, 500 GB 7.5K FATA	36.4 GB, 72.8 GB and 145.6 GB 10,000 rpm disk drives 36.4 GB and 72.8 GB 15,000 rpm disk drives
Certifications	Oracle OSCP Validation of Compatibility, HACMP, Solaris Ready, Veritas Cluster	Oracle OSCP Validation of Compatibility, HACMP, GDPS, Solaris Ready, Veritas Cluster	Oracle OSCP Validation of Compatibility, HACMP, GDPS, Solaris Ready, Veritas Cluster	Microsoft RAID, Cluster and Data Center, GDPS, HACMP, Solaris Ready

1: Consult product information for details. **2:** RedHat, SUSE Linux and TurboLinux. Please verify specific product information for details. **3:** Via IBM TotalStorage SAN Controller 160; no cluster or HACMP support. **4:** Also, verification will be completed for HP Service Guard. **5:** Metro Mirror is synchronous replication; Global Mirror is asynchronous replication; Metro/Global Mirror is three-site cascading asynchronous replication; Global Copy is extended distance copying.

Selecting a solution

	DS4700 Express	DS4800	DS6800	DS8100 Turbo	DS8300 Turbo	ESS
Local copy within controller	Yes	Yes	Yes	Yes	Yes	Yes
Remote Copy (>10 km)	Yes	Yes	Yes	Yes	Yes	Yes
Centralized management	Yes	Yes	Yes	Yes	Yes	Yes
Storage area network	Yes	Yes	Yes	Yes	Yes	Yes
Concurrent heterogeneous servers (UNIX and Intel)	Yes	Yes	Yes	Yes	Yes	Yes
Concurrent microcode install	Yes	Yes	Yes	Yes	Yes	Yes
Intermix disk capacities	Yes	Yes	Yes	Yes	Yes	Yes
Multiple RAID options	Yes	Yes	Yes	Yes	Yes	Yes
Controller-based call-home	Yes	No	Through DS Storage Manager Server	Through DS Storage Manager Server	Through DS Storage Manager Server	No
Rack mount	Yes	Yes	Yes	No	No	No
Virtualization	No	No	No	No	Yes	No
Virtualization through SAN Volume Controller	Yes	Yes	Yes	Yes	Yes	Yes

* Remote Copy (>10 km) is via System Storage Proven vendors (CNT, Legato, NSI)

Yes No

Selecting a solution (continued)

	EXP3000	DS3200	DS3400	DS4200 Express	EXP24
Local copy within controller	No	Yes	Yes	Yes	No
Remote Copy (>10 km)	No	No	No	Yes	No
Centralized management	No	Yes	Yes	Yes	No
Storage area network	No	No	Yes	Yes	No
Concurrent heterogeneous servers (UNIX and Intel)	Intel/AMD only	Intel/AMD only	Intel/AMD only	Yes	No
Concurrent microcode install	No	Yes	Yes	Yes	No
Intermix disk capacities	Yes	Yes	Yes	Yes	Yes
Multiple RAID options	Yes	Yes	Yes	Yes	Yes
Controller-based call-home	No	No	No	Yes	No
Rack mount	Yes	Yes	Yes	Yes	Yes
Virtualization	No	No	No	No	No
Virtualization through SAN Volume Controller	No	No	No	Yes	No

* Remote Copy (>10 km) is via System Storage Proven vendors (Legato, CNT, NSI)

Yes No

Product	Highlights
DS8300 Turbo	• A new standard in enterprise class functionality with extraordinary performance and up to 512 TB of physical capacity • Host connectivity via 4 Gb FC/FICON or ESCON interfaces to a wide variety of UNIX, Windows, System i and System z servers • Top notch storage consolidation system with Storage System LPAR capability • Offers FlashCopy, Global and Metro Mirroring functions (2-site and 3-site) • Call home and remote support as well as an Enterprise Choice 1-year, 2-year, 3-year or 4-year warranty
DS8100 Turbo	• A new standard in enterprise class functionality and performance with up to 192 TB of physical capacity • Host connectivity via 4 Gb FC/FICON or ESCON interfaces to wide variety of UNIX, Windows, System p, System x, System i and System z servers • Offers FlashCopy, Global and Metro Mirroring functions (2-site and 3-site) • Call home and remote support as well as an Enterprise Choice 1-year, 2-year, 3-year or 4-year warranty
DS6800	• Provides enterprise-class disk offering in a modular package at an affordable price • Designed to provide host connectivity via FC/FICON to a wide variety of UNIX, Windows, System p, System x, System i and System z servers • Features FlashCopy as well as Global and Metro Mirroring functions • Enterprise-class warranty, 24x7, same day IBM on-site response
Enterprise Storage Server® Model 800 Refurbished with Warranty	• Affordable enterprise strength reliability and function • Great second tier storage option for backup, remote mirroring, test or archive needs • Host connectivity via SCSI, FC/FICON, or ESCON interfaces to a wide variety of UNIX, Windows, System i and System z servers • Features state-of-the-art copy services for rapid backup and disaster recovery • Full 3 year warranty on Refurbished with Warranty systems available worldwide
DS4800	• Provides SAN-ready flexible disk storage system for UNIX and Intel processor-based environments • Offers high-performance, full fibre solution with 4 Gbps Fibre Channel Connectivity • Supports business continuance with its optional high-availability software and advanced Enhanced Remote Mirroring function • Helps protect customer data with its multi-RAID capability and hot-swappable redundant components
DS4700 Express	• Provides SAN-ready flexible disk storage system for UNIX and Intel processor-based environments • Offers high-performance, full fibre solution with 4 Gbps Fibre Channel Connectivity • Supports business continuance with its optional high-availability software and advanced Enhanced Remote Mirroring function • Helps protect customer data with its multi-RAID capability and hot-swappable redundant components
DS4200 Express	• An SATA only solution designed to provide an economical alternative storage solution that supports data archiving, reference data and near-line storage applications • Offers high-performance, full fibre solution with 4 Gbps Fibre Channel Connectivity • Supports business continuance with its optional high-availability software and advanced Enhanced Remote-Mirroring function • Helps protect customer data with its multi-RAID capability and hot-swappable redundant components
DS3400	• 4 Gbps Fibre Channel (FC) interface technology • Easy to deploy and manage with the DS3000 Storage Manager • Scalable to 3.6 Terabytes (TB) of storage capacity with 300 GB hot-swappable Serial Attached SCSI (SAS) disks • Expandable by attaching up to three EXP3000s, a total of 14.4 TB of storage capacity • Flexible for use with IBM System x and BladeCenter servers • Affordable for the SMB budgets.
DS3200	• 3 Gbps Serial Attached SCSI (SAS) interface technology • Easy to deploy and manage with the DS3000 Storage Manager • Scalable to 3.6 TB of storage capacity with 300 GB hot-swappable Serial Attached SCSI (SAS) disks • Expandable by attaching up to three EXP3000s, a total of 14.4 TB of storage capacity • Affordable for the small and medium business budgets
EXP3000	• 3-Gbps SAS interface technology • Support for up to 3.6 TB of storage in a single enclosure • Support for up to 14.4 TB in a cascaded configuration with MegaRAID 8480 adapter • 3.5" SAS hard disk drives supported • Powerful and comprehensive management and configuration tools included
EXP24	• Supports up to 7.2 TB of data • Supports up to 24 U320 SCSI drives in four groups of six drives or two groups of 12 drives

Additional information on these IBM Disk Storage products is available on the Web at **ibm.com**/storage/disk

Operating Systems and Copy Services Platform Coverage

	DS4800	DS6800	DS8100 Turbo	DS8300 Turbo	ESS 800 RwW
Windows NT	FlashCopy, VolumeCopy, Metro Mirror, Global Copy and Global Mirror				FlashCopy, Metro Mirror, Global Mirror, Global Copy, Metro/ Global Mirror (RPQ)
Windows 2000	FlashCopy, VolumeCopy, Metro Mirror, Global Copy and Global Mirror	FlashCopy, Metro Mirror, Global Mirror, Global Copy	FlashCopy, Metro Mirror, Global Mirror, Global Copy, Metro/Global Mirror	FlashCopy, Metro Mirror, Global Mirror, Global Copy, Metro/Global Mirror	FlashCopy, Metro Mirror, Global Mirror, Global Copy, Metro/ Global Mirror (RPQ)
Windows Server 2003	FlashCopy, VolumeCopy, Metro Mirror, Global Copy and Global Mirror	FlashCopy, Metro Mirror, Global Mirror, Global Copy	FlashCopy, Metro Mirror, Global Mirror, Global Copy, Metro/Global Mirror	FlashCopy, Metro Mirror, Global Mirror, Global Copy, Metro/Global Mirror	FlashCopy, Metro Mirror, Global Mirror, Global Copy, Metro/ Global Mirror (RPQ)
NetWare	FlashCopy, VolumeCopy, Metro Mirror, Global Copy and Global Mirror	FlashCopy, Metro Mirror, Global Mirror, Global Copy	FlashCopy, Metro Mirror, Global Mirror, Global Copy, Metro/Global Mirror	FlashCopy, Metro Mirror, Global Mirror, Global Copy, Metro/Global Mirror	FlashCopy, Metro Mirror, Global Mirror, Global Copy, Metro/ Global Mirror (RPQ)
Linux[1]	FlashCopy, VolumeCopy, Metro Mirror, Global Copy and Global Mirror	FlashCopy, Metro Mirror, Global Mirror, Global Copy	FlashCopy, Metro Mirror, Global Mirror, Global Copy, Metro/Global Mirror	FlashCopy, Metro Mirror, Global Mirror, Global Copy, Metro/Global Mirror	FlashCopy, Metro Mirror, Global Mirror, Global Copy, Metro/ Global Mirror (RPQ)
AIX	FlashCopy, VolumeCopy, Metro Mirror, Global Copy and Global Mirror	FlashCopy, Metro Mirror, Global Mirror, Global Copy	FlashCopy, Metro Mirror, Global Mirror, Global Copy, Metro/Global Mirror	FlashCopy, Metro Mirror, Global Mirror, Global Copy, Metro/Global Mirror	FlashCopy, Metro Mirror, Global Mirror, Global Copy, Metro/ Global Mirror (RPQ)
VMWare	FlashCopy, VolumeCopy, Metro Mirror, Global Copy and Global Mirror	FlashCopy, Metro Mirror, Global Mirror, Global Copy	FlashCopy, Metro Mirror, Global Mirror, Global Copy, Metro/Global Mirror	FlashCopy, Metro Mirror, Global Mirror, Global Copy, Metro/Global Mirror	FlashCopy, Metro Mirror, Global Mirror, Global Copy, Metro/ Global Mirror (RPQ)
Dynix					FlashCopy, Metro Mirror, Global Mirror, Global Copy, Metro/ Global Mirror (RPQ)
HP-UX	FlashCopy, VolumeCopy, Metro Mirror, Global Copy and Global Mirror	FlashCopy, Metro Mirror, Global Mirror, Global Copy	FlashCopy, Metro Mirror, Global Mirror, Global Copy, Metro/Global Mirror	FlashCopy, Metro Mirror, Global Mirror, Global Copy, Metro/Global Mirror	FlashCopy, Metro Mirror, Global Mirror, Global Copy, Metro/ Global Mirror (RPQ)
Solaris	FlashCopy, VolumeCopy, Metro Mirror, Global Copy and Global Mirror	FlashCopy, Metro Mirror, Global Mirror, Global Copy	FlashCopy, Metro Mirror, Global Mirror, Global Copy, Metro/Global Mirror	FlashCopy, Metro Mirror, Global Mirror, Global Copy, Metro/Global Mirror	FlashCopy, Metro Mirror, Global Mirror, Global Copy, Metro/ Global Mirror (RPQ)
IRIX	*	FlashCopy, Metro Mirror, Global Mirror, Global Copy	FlashCopy, Metro Mirror, Global Mirror, Global Copy, Metro/Global Mirror	FlashCopy, Metro Mirror, Global Mirror, Global Copy, Metro/Global Mirror	FlashCopy, Metro Mirror, Global Mirror, Global Copy, Metro/ Global Mirror (RPQ)
Tru64 UNIX	*	FlashCopy, Metro Mirror, Global Mirror, Global Copy	FlashCopy, Metro Mirror, Global Mirror, Global Copy, Metro/Global Mirror	FlashCopy, Metro Mirror, Global Mirror, Global Copy, Metro/Global Mirror	FlashCopy, Metro Mirror, Global Mirror, Global Copy, Metro/ Global Mirror (RPQ)
OpenVMS		FlashCopy, Metro Mirror, Global Mirror, Global Copy	FlashCopy, Metro Mirror, Global Mirror, Global Copy, Metro/Global Mirror	FlashCopy, Metro Mirror, Global Mirror, Global Copy, Metro/Global Mirror	FlashCopy, Metro Mirror, Global Mirror, Global Copy, Metro/ Global Mirror (RPQ)
z/OS, OS/390, TPF		FlashCopy, Metro Mirror, Global Mirror, Global Copy, as target for z/OS Global Mirror	FlashCopy, Metro Mirror, Global Mirror, Global Copy, z/OS Global Mirror, Metro/Global Mirror	FlashCopy, Metro Mirror, Global Mirror, Global Copy, z/OS Global Mirror, Metro/Global Mirror	FlashCopy, Metro Mirror, Global Mirror, Global Copy, Metro/ Global Mirror (RPQ), z/OS Global Mirror (XRC)
i5/OS		FlashCopy, Metro Mirror, Global Mirror, Global Copy	FlashCopy, Metro Mirror, Global Mirror, Global Copy	FlashCopy, Metro Mirror, Global Mirror, Global Copy	FlashCopy, Metro Mirror, Global Mirror, Global Copy, Metro/ Global Mirror (RPQ)
Apple MacIntosh OSX		FlashCopy, Metro Mirror, Global Mirror, Global Copy	FlashCopy, Metro Mirror, Global Mirror, Global Copy, Metro/Global Mirror	FlashCopy, Metro Mirror, Global Mirror, Global Copy, Metro/Global Mirror	

* Request via RPQ process

1: Linux distribution support varies per product. Refer to product-specific information for current support. This chart reflects IBM's current intentions. Changes may occur without notice. Consult the appropriate Web pages for support details.

Yes **No**

Operating Systems and Copy Services Platform Coverage (continued)

	EXP3000/MegaRAID	DS3200/DS3400	DS4200 Express	DS4700 Express
Windows NT			FlashCopy, VolumeCopy, Metro Mirror, Global Copy and Global Mirror	FlashCopy, VolumeCopy, Metro Mirror, Global Copy and Global Mirror
Windows 2000			FlashCopy, VolumeCopy, Metro Mirror, Global Copy and Global Mirror	FlashCopy, VolumeCopy, Metro Mirror, Global Copy and Global Mirror
Windows Server 2003		FlashCopy, VolumeCopy	FlashCopy, VolumeCopy, Metro Mirror, Global Copy and Global Mirror	FlashCopy, VolumeCopy, Metro Mirror, Global Copy and Global Mirror
NetWare		FlashCopy, VolumeCopy	FlashCopy, VolumeCopy, Metro Mirror, Global Copy and Global Mirror	FlashCopy, VolumeCopy, Metro Mirror, Global Copy and Global Mirror
Linux[1]		FlashCopy, VolumeCopy	FlashCopy, VolumeCopy, Metro Mirror, Global Copy and Global Mirror	FlashCopy, VolumeCopy, Metro Mirror, Global Copy and Global Mirror
AIX			FlashCopy, VolumeCopy, Metro Mirror, Global Copy and Global Mirror	FlashCopy, VolumeCopy, Metro Mirror, Global Copy and Global Mirror
VMWare			FlashCopy, VolumeCopy, Metro Mirror, Global Copy and Global Mirror	FlashCopy, VolumeCopy, Metro Mirror, Global Copy and Global Mirror
Dynix				
HP-UX			FlashCopy, VolumeCopy, Metro Mirror, Global Copy and Global Mirror	FlashCopy, VolumeCopy, Metro Mirror, Global Copy and Global Mirror
Solaris			FlashCopy, VolumeCopy, Metro Mirror, Global Copy and Global Mirror	FlashCopy, VolumeCopy, Metro Mirror, Global Copy and Global Mirror
IRIX			*	*
Tru64 UNIX			*	*
OpenVMS				
z/OS, OS/390				
i5/OS				
DG/UX				

* Request via RPQ process

1: Linux distribution support varies per product. Refer to product-specific information for current support. This chart reflects IBM's current intentions. Changes may occur without notice. Consult the appropriate Web pages for support details.

2: Metro Mirror is synchronous replication; Global Mirror is asynchronous replication; Metro/Global Mirror is two- or three-site cascading asynchronous replication; Global Copy is extended distance copying.

3: VolumeCopy, Metro Mirror, Global Copy and Global Mirror requires turbo option

Yes No

IBM System Storage N series—Unified Storage Systems

		N5000 series			N7000 series	
	N3700	**N5200**	**N5300**	**N5600**	**N7600**	**N7800**
Model	2863-A10 (single) 2863-A20 (clustered)	2864-A10 (single) 2864-A20 (clustered)	2869-A10 (single) 2869-A20 (clustered)	2868-A10 (single) 2868-A20 (clustered)	2866-A10 (single) 2866-A20 (clustered)	2867-A10 (single) 2867-A20 (clustered)
Maximum raw capacity	16 TB	84 TB	126 TB	252 TB	420 TB	504 TB
Integrated Onboard I/O ports*	Two optical FC ports for tape attachment Four 1 Gbps Ethernet	Eight 2 Gbps FC Eight 1 Gbps Ethernet	Eight 4 Gbps FC Eight 1 Gbps Ethernet	Eight 4 Gbps FC Eight 1 Gbps Ethernet	Sixteen 2 Gbps FC Twelve 1 Gbps Ethernet	Sixteen 2 Gbps FC Twelve 1 Gbps Ethernet
PCI expansion slots for additional FC HBA's or Gbe NIC cards*	NA	6	6	6	16	16
Performance*	13,620 IO/sec	34,089 IO/sec	58,906 IO/sec	85,615 IO/sec	100,295 IO/sec	136,048 IO/sec
NVRAM *	256 MB	1 GB	1 GB	1 GB	1 GB	1 GB
Random Access Memory*	2 GB	4 GB	8 GB	16 GB	32 GB	64 GB

All N series systems provide the following features:

Storage controllers/filers	Active/Active with automatic failover to secondary system
Fibre channel (FC) disk drive support	2 Gbps FC: 144 GB 10K, 300 GB 10K, 144 GB 15K 4 Gbps FC: 144 GB 15K, 300 GB 15K
SATA disk drive support	250 GB 7.2K, 320 GB 7.2K, 500 GB 7.2K
Host connectivity & platform support	The N series systems support a multitude of host attachment capabilities via FCP, CIFS, NFS and iSCSI protocols. See product "N series Interoperability Matrix" for more information.
Network protocol support	NFS V2/V3/V4 over UDP or TCP,PCNFSD V1/V2 for (PC) NFS client authentication, Microsoft CIFS, iSCSI, FCP, VLD, HTTP 1.0, HTTP 1.1 Virtual Host
Other protocol support	SNMP, NDMP, LDAP, NIS, DNS
Operating system	Data ONTAP™
Data protection	Double Parity RAID, Snapshot™, SnapRestore™, SnapMirror®, SyncMirror®, SnapVault®, Open System Snap Vault
Redundancy/high availability	CompactFlash dual redundant hot plug integrated cooling fans, hot-swappable autoranging power supplies, clustered filers, hot-swappable disk days
Backup	External tape (SCSI or fibre channel)
RAID levels	RAID 4, RAID-DP (double parity)
System management/Storage management	FilerView®, SecureAdmin™, SNMP, Operations Manager /Industry standard NDMP protocols
Standard software features	Snapshot™, FlexVol™, FlexShare™, Integrated Automatic RAID Manager, Fast Boot, NIS, DNS, SNMP, FilerView, NDMP, LDAP, iSCSI, AutoSupport , SyncMirror®, SnapMover®, FTP protocol feature, SecureAdmin™, Disk Sanitization
Optional software features	CIFS Protocol, NFS Protocol, HTTP Protocol, FCP Protocol, Cluster Failover, FlexClone™, MultiStore®, SnapLock® Compliance, SnapLock Enterprise, SnapMirror®, SnapRestore®, SnapVault®, Open Systems SnapVault, LockVault™, SnapDrive® for Windows, SnapDrive for Unix: AIX, Solaris, HP-UX, Linux, SnapValidator™, SnapDrive for Windows, SnapManager® for SQL, SnapManager for Exchange, SnapManager for Oracle®, Single Mailbox Recovery for Exchange, Operations Manager, NearStore® feature, MetroCluster, Advanced Single Instance Storage

	N5000 Gateway series				N7000 Gateway series	
	N5200	**N5300**	**N5500**	**N5600**	**N7600**	**N7800**
Model	2864-G10 (single) 2864-G20 (clustered)	2869-G10 (Single) 2869-G20 (clustered)	2865-G10 (single) 2865-G20 (clustered)	2868-G10 (single) 2868-G20 (clustered)	2866-G10 (single) 2866-G20 (clustered)	2867-G10 (single) 2867-G20 (clustered)
Maximum raw capacity	50 TB	126 TB	84 TB	252 TB	420 TB	504 TB
Onboard I/O ports*	Eight 2 Gbps FC Eight 1 Gbps Ethernet	Eight 4 Gbps FC Eight 1 Gbps Ethernet	Eight 2 Gbps FC Eight 1 Gbps Ethernet	Eight 4 Gbps FC Eight 1 Gbps Ethernet	Sixteen 2 Gbps FC Twelve 1 Gbps Ethernet	Sixteen 2 Gbps FC Twelve 1 Gbps Ethernet
PCI expansion slots for additional FC HBA's or Gbe NIC cards*	6	6	6	6	16	16
Performance*	34,089 IO/sec	58,906 IO/sec	47,927 IO/sec	85,615 IO/sec	100,295 IO/sec	136,048 IO/sec
NVRAM *	1 GB	1 GB	1 GB	1 GB	1 GB	1 GB
Random Access Memory*	4 GB	8 GB	8 GB	16 GB	32 GB	64 GB

All N series Gateway systems provide the following features:

Storage controllers/filers	Active/Active with automatic failover to secondary system
Host connectivity & platform support	The N series systems support a multitude of host attachment capabilities via FCP, CIFS, NFS and iSCSI protocols. See product "N series Interoperability Matrix" for more information.
Network protocol support	NFS V2/V3/V4 over UDP or TCP,PCNFSD V1/V2 for (PC) NFS client authentication, Microsoft CIFS, iSCSI, FCP, VLD, HTTP 1.0, HTTP 1.1 Virtual Host
Other protocol support	SNMP, NDMP, LDAP, NIS, DNS
Operating system	Data ONTAP
Data protection	Snapshot, SnapRestore, SnapMirror, SyncMirror, SnapVault, Open System Snap Vault
Redundancy/high availability	CompactFlash dual redundant hot plug integrated cooling fans, hot-swappable autoranging power supplies, clustered filers, hot-swappable disk days
Backup	External tape (SCSI or fibre channel)
RAID levels	RAID 4, RAID-DP (double parity)
System management/Storage management	FilerView®, SecureAdmin™, SNMP, Operations Manager /Industry standard NDMP protocols
Standard software features	Snapshot™, FlexVol™, FlexShare™, Integrated Automatic RAID Manager, Fast Boot, NIS, DNS, SNMP, FilerView, NDMP, LDAP, iSCSI, AutoSupport , SyncMirror®, SnapMover®, FTP protocol feature, SecureAdmin™
Optional software features	CIFS Protocol, NFS Protocol, HTTP Protocol, FCP Protocol, Cluster Failover, FlexClone™, MultiStore®, SnapLock® Enterprise, SnapMirror®, SnapRestore®, SnapVault®, Open Systems SnapVault, LockVault™, SnapDrive® for Windows, SnapDrive for Unix: AIX, Solaris, HP-UX, Linux, SnapValidator™, SnapDrive for Windows, SnapManager® for SQL, SnapManager for Exchange, SnapManager for Oracle®, Single Mailbox Recovery for Exchange, Operations Manager, NearStore® feature, MetroCluster

N series Highlights

- Unified Storage Architecture—provides a single storage platform to support heterogeneous, multiprotocol storage requirements with the capability of simultaneously handling both Block I/O (with FCP or iSCSI protocol) and File I/O (with CIFS, NFS, HTTP, FTP protocols) application needs
- Ease of installation—offers installation tools designed to help simplify installation and setup
- Increased Access—allows heterogeneous access to IP attached storage and fibre channel attached storage subsystems
- Operating System—optimized and finely tuned for storing and sharing data assets, designing to enable greater efficiency within your organization and help lower total cost of ownership through improved efficiency and productivity
- Flexibility—enables cross-platform data access for Microsoft Windows, UNIX and Linux environments that can help reduce network complexity and expense, and allow data to be shared across the organization
- Network Attached Storage (NAS)—Supports Network File System (NFS), Common Internet File System (CIFS) protocols for attachment to Microsoft Windows, UNIX and Linux systems
- IP SAN—supports Internet Small Computer System Interface (iSCSI) protocols for IP SAN attached to a multitude of host servers including Microsoft Windows, Linux, and UNIX systems
- FC SAN—supports fibre channel protocols (FCP) for accommodating attachment and participation in fibre channel SAN environments
- Scalability—supports non-disruptive capacity increases as well as thin-provisioning (dynamically allow the increase and decrease of user capacity assignments). Allows you to scale your storage infrastructure to keep pace with company growth
- Designed to maintain availability and productivity during upgrades
- Manageability—includes integrated system diagnostics and management tools, which are designed to help minimize downtime
- Redundancy—several redundancy and hot-swappable features provide the highest system availability characteristics
- Copy Services—provides extensive outboard services that help recover data in disaster recovery environments
- NearStore (near-line) Feature—SATA drive technology enables on-line and quick access to archived and non-intensive transactional data
- Advanced Single Instance Storage (A-SIS)—provides block level deduplication of data stored in NearStore volumes
- WORM data protection—software and hardware features that offer non-erasable and non-rewritable data protection to meet the industry's highest regulatory requirements for retaining company data assets

NOTES:

*Systems are based on dual clustered storage controllers. Divide all numbers by ½ if a single storage controller system is ordered.

A single controller can be easily upgraded to a dual controller system as your computing needs increase. The dual controller is a fully redundant system and is designed to provide failover and failback capabilities.

The N series Interoperability Matrix can be found at the following web site: **ibm.com**/storage/nas

IBM System Storage DR550 and DR550 Express

Model	
	An award-winning information archiving and retention solution designed to:
Highlights	• store, retrieve, manage, share and secure all types of data (e-mail, database, documents, images, files, etc.) • provide non-erasable, non-rewritable archival storage. Prevents deletion or alteration of data stored on the system. • support multiple storage tiers for long term archiving (disk, tape and optical) • provide the facilities to migrate archive data from aging disk or tape subsystems to new ones • offer automatic provisioning, migration, expiration and archiving capabilities • offer scalability up to 112 TB raw physical capacity and supports petabytes of storage with attached tape and optical • offer chronological and event-based data retention • offer high availability option to avoid single points of failure • provide security and protection through data encryption and data shredding options • support and integrate with broad set of IBM and non-IBM content management applications • provide file archiving through the new IBM System Storage DR550 File System Gateway • protect customer data against disasters through Synchronous or Asynchronous Replication • offer low TCO through the use of multiple storage devices for long period archiving • Carefree Services—for onsite software/firmware upgrades and three year warranty repair and maintenance (24x7, four hour response)
Scalability	DR550: Single engine: 8 TB and 16 TB, Dual engine: 8, 16, 32, 56, 112 TB of raw physical storage, up to petabytes with attached tape and optical storage. DR550 Express 1.1, 5.1 and 9.1 TB configurations.
Nodes	Single- or dual-server configurations Dual-server configuration offers failover protection
Processors	DR550: 2-way 2.1 GHz POWER5+™ Processor Card, 36 MB L3 Cache DR550 Express: 1-way 1.65 GHz POWER5+ Processor Card, no L3 Cache
Network protocol support	IBM System Storage Archive Manager (SSAM) application programming interface (API) v5.4
Operating system	IBM AIX, Version 5.3
Performance	Performance testing results: **ibm.com**/servers/storage/disk/dr/performance.html
PCI slots available	N/A
Network connectivity	2 port Gigabit Copper or Fibre Ethernet (upgrades available)
ECC SDRAM memory (max)	1 GB per node
Data protection	Mirrored OS, RAID-5, RAID-10 (opt.) for user data Data Encryption for enhanced security for disk and tape via 128-bit AES or 56-bit DES encryption technology. Encryption keys can be managed by the application or by the DR550. Maintains data as non-erasable and non-rewritable until deletion is permitted by retention policy.
Redundancy/high availability	IBM HACMP 5.3 (Dual-server configuration), redundant DS4700 controllers, RDAC driver to provide path failover, RAID
Backup	External tape (recommended IBM 3592 WORM tape)
RAID levels	RAID-5, RAID-10 (opt.)
Systems management	SMIT, DS4000 Storage Manager GUI, SNMP
Storage management	IBM Tivoli Storage Manager client and storage agent

* Please visit **ibm.com**/storage/nas for additional N3700 performance information.

** Please visit **ibm.com**/storage/dr550 for current DR550 performance results.

† For more information on third-party product support, please refer to "IBM NAS Interoperability" at **ibm.com**/storage/nas.

Disk Storage Virtualization

Create a tiered storage environment and help increase the flexibility and efficiency of your storage infrastructure by introducing solutions based on IBM System Storage virtualization software.

Product	Function and Value	Highlights
IBM System Storage SAN Volume Controller (SVC)	Based on virtualization technology, the IBM System Storage SAN Volume Controller is designed to increase the efficiency and flexibility of your storage infrastructure by pooling storage and centralizing management, and enabling changes to the physical storage while avoiding disruption to applications.	• **Manage storage volumes from a central point:** SVC is designed to enhance the flexibility of your storage environment. It can combine the storage capacity from multiple disk systems from different suppliers into a single pool of storage that can be managed from a central point. In this way, fewer skills are required and storage administrators can become more productive. • **Virtually eliminate downtime related to storage:** SVC enables data migrations, maintenance and upgrades to the SVC system itself, and changes to the physical storage without impacting host applications. • **Improve storage resource utilization:** By combining the storage capacity from multiple disk systems into a single pool, SVC uses existing storage capacity more efficiently, which can defer additional storage purchases to save costs. • **A single, cost-effective set of advanced copy services:** SVC can apply copy services across all the managed storage, regardless of the disk system supplier. This capability helps simplify the environment, reduce the costs of implementing disaster recovery solutions, increases flexibility in using storage and increases personnel productivity. • **Create a tiered storage environment:** Using virtualization technology, SVC enables customers to match the cost of the storage to the value of their data. For example, mission-critical data can be stored on high-performance, highly available Fibre-Channel disks while non-mission-critical data can be stored on serial-ATA disks. Data can easily be moved from one tier to another without application disruption.

IBM TotalStorage Expert Family

Adds value to the storage subsystem solution by providing information for better management.

Product	Function and Value
IBM TotalStorage ETL Expert	Provides a high-performance monitoring tool to help simplify the management of IBM tape subsystems that include the IBM TotalStorage Enterprise Tape Library, Virtual Tape Server and Peer-to-Peer Virtual Tape Server
IBM TotalStorage XRC Performance Monitor	Provides the ability to monitor and evaluate the performance of a running XRC configuration; the monitor function provides information at the real-time, historic and summary levels

DFSMS Family

Provides automated and central storage management in the z/OS environment

Product	Function and Value
DFSMSdfp™	Provides data access, program and device management functions that furnish effective management of active data
DFSMSdss™	Provides data movement, copy, backup and space management functions
DFSMShsm™	Provides backup, recovery, migration and space management functions that furnish effective management of inactive data
DFSMSrmm™	Provides a policy-driven solution for the management of removable media, such as tape cartridges and reels
DFSORT™	Provides a solution for faster and easier data sorting, reporting and analysis
DFSMStvs	Enables batch jobs and IBM CICS® (Customer Information Control Systems) online transactions to update shared VSAM data sets concurrently

IBM Tivoli Storage Manager

Function and Value	Highlights
IBM Tivoli Storage Manager is designed to provide protection of your 24x7 applications and key data in the event of hardware, software or network failures. It offers move-and-store techniques and policy-based automation, which are designed to work together to help increase data and application protection, decrease disaster recovery time and lower storage administration costs. It manages inactive data, helping you match the value of the data to the most cost-effective storage management practices. Tivoli Storage Manager is designed to scale easily to protect hundreds of computers running a dozen operating systems ranging from laptops to mainframes and connected together via the Internet, WANs, LANs or SANs. Tivoli Storage Manager also offers open, easy-to-use APIs designed to enable ISVs to more easily adapt their solutions to IBM software, helping to allow joint customers to customize, better secure and extend the functionality of their storage environment.	• Designed to protect valuable data in the most cost-effective manner • Designed to archive inactive data to help reduce costs • Designed to help ensure continuity and recovery

IBM Tivoli Storage Manager Extended Edition

IBM Tivoli Storage Manager Express

IBM TotalStorage Productivity Center

Product	Function and Value	Highlights
IBM TotalStorage Productivity Center for Disk	In a pooled or virtualized SAN environment, multiple devices work together to create a storage solution. IBM TotalStorage Productivity Center for Disk is designed to provide integrated administration, optimization and replication features for these environments.	• Designed to help reduce the complexity and cost of storage management while improving data availability • Offers centralized, open standards–based management of storage devices • Designed to help enhance storage administrator productivity • Offers proactive management of storage devices
IBM TotalStorage Productivity Center for Replication	TotalStorage Productivity Center For Replication is designed to simplify and automate the configuration of your replication environment allowing for more effective Metro Mirroring, Global Mirror and IBM FlashCopy management. It is also designed to monitor and automate copy operations across devices to support a replication environment.	• Automates the configuration of your IBM DS8000, DS6000™ and ESS advanced copy services features. • Monitors and manages the IBM DS8000 and SVC copy operations to ensure successful completion from your source volumes to your disaster recovery volumes

IBM TotalStorage Productivity Center

IBM TotalStorage Productivity Center for Replication Two Site Business Continuity	TPC for Replication Two Site and Three Site Business Continuity provides disaster recovery management through planned and unplanned failover and failback automation for the IBM ESS Model 800, IBM DS6000 and IBM DS8000.	• TPC for Replication Two Site and Three Site Business Continuity helps you manage replication to a remote backup site(s) through Metro Mirror or Global Mirror. The software is designed to allow you to monitor the progress of the copy services so you can verify the amount of replication that has been done as well as the amount of time needed to complete the replication. Automated failover is designed to keep your critical data online and available to your users even if your primary site fails. When the primary site comes back on, the software manages failback to the default configuration as well.
IBM TotalStorage Productivity Center for Data	IBM TotalStorage Productivity Center for Data is a Storage Resource Management (SRM) tool for storage environments that provide a set of policy-driven automated tools for managing storage capacity, availability, events, performance and assets, including DAS, NAS and SAN technologies.	• Designed to help leverage and optimize existing storage resources and perform storage management with a high level of control • Designed to help maximize storage utilization • Designed to be able to manage more storage with the same staff

IBM TotalStorage Productivity Center

IBM TotalStorage Productivity Center for Fabric	IBM TotalStorage Productivity Center for Fabric is designed to help automate the management of heterogeneous storage networks and works with a broad range of devices, so businesses can leverage and better use existing technology investments. It is designed to provide comprehensive management of physical and logical configurations for multi-vendor SANs with automatic resource discovery, event monitoring and alerting, zone control and SAN error-prediction capabilities.	• Designed to help predict storage network failures before they happen, enabling preventative maintenance • Designed to help accelerate problem isolation when failures occur • Designed to create a single point of control, administration and security for the management of heterogeneous storage networks
IBM TotalStorage Productivity Center Standard Edition	Combines Disk, Data and Fabric components together as one orderable product.	• Having Disk, Data and Fabric allows higher levels of value—i.e. combined SAN and Disk performance reports or automated workflows to do provisioning (under the control of Tivoli Provisioning Manager)

IBM Global Services for System Storage and Storage Networking

Data Storage Services from IBM can help companies achieve their business objectives by creating cost-effective data storage solutions that address the requirements of key business applications. These solutions can support multiple platforms and product vendors, helping to provide enhanced protection for critical business data, increased asset utilization, availability and reliability levels with reduced management costs.

IBM Global Services, as the leading data storage services provider, brings best practices from its thousands of customer engagements to work with your employees to integrate new solutions and technology with your business and IT needs. IBM offers a comprehensive portfolio of data storage services including:

Assess
- Analysis of enterprise information needs and environment
- Defined enterprise-wide storage strategies
- Quantified business benefits

Plan
- Backup/restore and business continuity planning
- Performance and capacity planning
- Enterprise security architecture
- Storage migration and consolidation

Des gn
- Networked storage architecture design
- SAN configuration and integration services
- Proof of concept, validation and certification

Implement
- Implementation, testing and migration services
- Education and training
- Installation, relocation, cabling and site preparation

Run
- Business and application recovery services
- Systems monitoring and management
- Managed Storage Services

IBM Global Services has a track record in offering services for open and mainframe storage, data migration, installation and support services for IBM and non-IBM environments. Some examples are:

- IBM Storage Strategy Assessment assists with the vision and strategy, assessment, architecture and conceptual designs to help customers optimize their storage infrastructure to new architectures.
- IBM Planning Services for 3494 Automated Tape Library and Virtual Tape Server can help improve tape storage management and gain control of an often expanding library of tapes.
- IBM Operational Support Services for Tivoli Storage Manager assists customers in the planning and implementation of storage management software.
- IBM Managed Storage Services offer scalable, cost-effective storage capacity, management and backup/restore services on a usage basis.

More information about IBM storage services can be found at **ibm.com**/services/storage.

IBM Global Financing

IBM Global Financing offers competitive financing to credit-qualified customers and IBM Business Partners to assist them in acquiring IT solutions. Our offerings include financing for IT acquisition—including hardware, software and services, both from IBM and other manufacturers or vendors—as well as commercial financing (revolving lines of credit, term loans, acquisition facilities and inventory-financing credit lines) for IBM Business Partners. Offerings (for all customer segments: small, medium and large enterprise), rates, terms and availability may vary by country. Contact your local IBM Global Financing organization or visit the Web at **ibm.com**/financing.

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MB, GB and TB equal 1,000,000, 1,000,000,000 and 1,000,000,000,000 bytes, respectively, where referring to storage capacity. Actual storage capacity will vary based upon many factors and may be less than stated. Some numbers given for storage capacities give capacity in native mode followed by capacity using data compression technology.

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