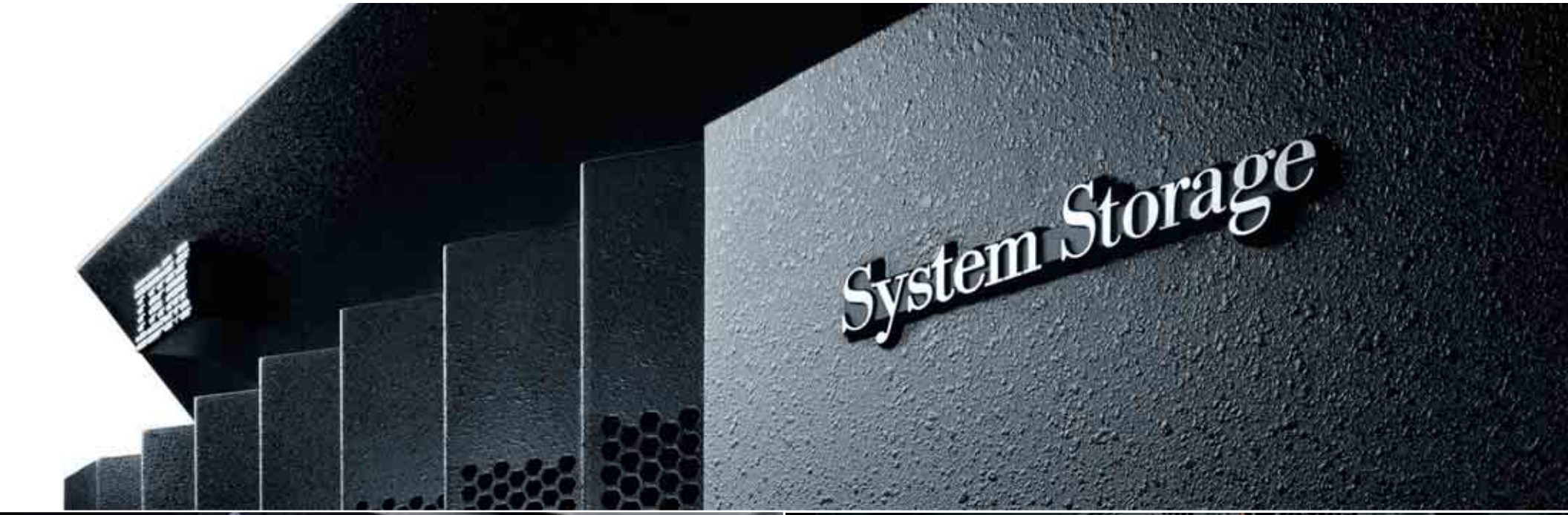
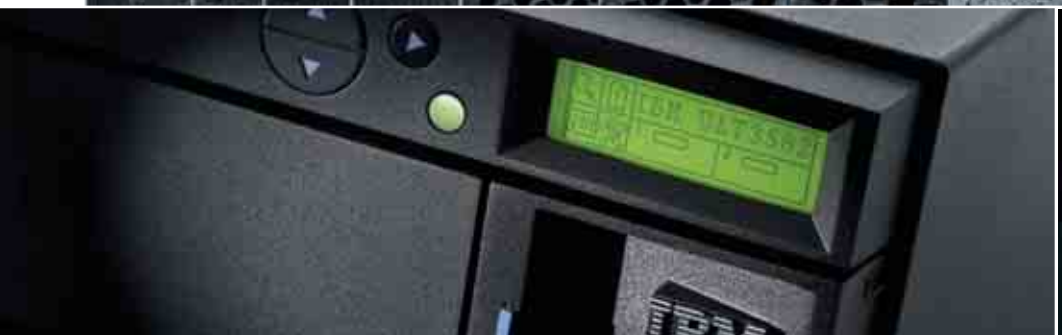
IBM Systems and Technology Group

IBM System Storage Product Guide





The future of your business is already here

IBM System Storage™ solutions are built with the success of your business in mind. End-to-end storage ingenuity and unmatched expertise from IBM help you reduce costs, risks and complexity while improving efficiencies and the responsiveness of your infrastructure and people.

Go green for the planet—and your bottom line

Saving energy means saving money. Get a green "thumbs up" when you implement IBM System Storage solutions to drive down runaway costs in power, cooling and space. Regardless of the size of your business, IBM offers energy-efficient strategies and savings for a sustainable enterprise.

Power up your savings by powering down storage inefficiencies

- Prepackaged storage kits and advanced systems virtualization from IBM facilitate easier ways for you to reduce costs, lower energy consumption and dramatically improve storage utilization—without affecting performance.
- Automated tiered storage management and exceptional data mobility let you better match applications and investments to the value of stored data—saving both time and money.

Easy come, easy grow with a nimble, responsive IT infrastructure

Being responsive to changing business needs is often easier said than done. IBM System Storage helps you unlock business resiliency and stay ahead of everyday challenges, with easy-to-use, affordable storage offerings that flexibly manage growth, complexity and risk.

Effectively manage your data with the strength and simplicity of IBM System Storage

- Simplified storage platforms from IBM use graphical interfaces and integrated systems to effortlessly manage both physical and virtual resources across a heterogeneous environment—for easier management of your growing business.
- IBM System Storage platforms allow you to dynamically and reliably scale storage with pervasive infrastructure flexibility to keep you in control of data growth and costs.
- Protecting data is vital to operating efficiently under normal business conditions—and rapidly recovering during emergencies. System Storage helps you reduce risk with rock-solid data protection tools and high availability across the enterprise, especially when you need it most.

Broaden your business horizons with innovation that matters

Imagine breakthrough innovations that allow you to run your organization not only faster, but better, helping to attract new customers and gain competitive advantages. System Storage solutions help you stay consistently out front so that you can make strategic decisions on how to use advancements in technology to broaden your business and gain a better return on investment.

Transform your business through innovation that matters

- Delineated along a clear technical roadmap to help ensure smooth upgrades and transitions, IBM storage platforms are designed to meet even the most stringent data storage requirements, regardless of changes in future technology.
- The long-term binary compatibilities of System Storage platforms foster longevity of the equipment, applications and skills that support your organization, even as new systems are introduced.

Entry SAN switches for easy-to-use SMB solutions

IBM System Storage SAN24B-4 Express (2498-B24, 249824E)	• Provides high-performance, scalable and simple-to-use fabric switching with 8, 16 or 24 ports operating at 8, 4, 2 or 1 Gigabits per second (depending on which optical transceiver is used) for servers running Microsoft® Windows®, AIX®, UNIX®, and Linux® operating systems, server clustering, infrastructure simplification and business continuity solutions. The SAN24B-4 Express includes EZSwitchSetup wizard, which is an embedded setup tool designed to guide novice users through switch setup, often in less than five minutes.
Cisco® MDS 9124 Express for IBM System Storage (2053-424, 241724C)	• Provides high-performance, scalable and simple-to-use fabric switching with 8, 16 or 24 ports operating at 1, 2 and 4 Gbps for servers running Microsoft Windows, UNIX, Linux, NetWare and OS/400® operating systems, server clustering, infrastructure simplification and business continuity solutions. The switch includes replaceable power supply, Virtual SAN, Cisco Fabric Manager and redundant power supply feature designed to simplify setup and ongoing maintenance for Cisco MDS 9000 users.

Midrange SAN switches for scalable SMB and enterprise solutions

IBM System Storage (SAN40B-4 2498-B40, 249840E)	• Provides high-performance, scalable and simple-to-use fabric switching with 24, 32 or 40 ports operating at 8, 4, 2 or 1 Gigabits per second (depending on which optical transceiver is used) for servers running Microsoft Windows, AIX, UNIX, Linux, OS/400 and z/OS® operating systems. Many advanced functions are available to facilitate operation in medium and large networks.
IBM System Storage SAN80B-4 (2498-B80)	• Provides high-performance, scalable and simple-to-use fabric switching with 48, 64 or 80 ports operating at 8, 4, 2 or 1 Gigabits per second (depending on which optical transceiver is used) for servers running Microsoft Windows, AIX, UNIX, Linux, OS/400 and z/OS operating systems. Many advanced functions are available to facilitate operation in medium and large networks.
Cisco MDS 9134 for IBM System Storage (2054-434, -S34)	• Designed to address the needs of medium-sized businesses and large enterprises. • Model 434 provides high-performance, scalable and simple-to-use fabric switching with 24 or 32 ports operating at 1, 2 and 4 Gbps for servers running Microsoft Windows, UNIX, Linux, NetWare, OS/400 and z/OS operating systems, server clustering, infrastructure simplification and business continuity solutions. • Model S34 provides stacked switch bundle with 48, 56 or 64 port switch fabric with two 10 Gbps Inter Switch Links (ISLs).

Enterprise SAN directors for high availability and scalability enterprise solutions

IBM System Storage SAN768B (2499-384)	• Premier fabric backbone for data network consolidation in large enterprise data centers. Provides high performance and high availability data networking with new industry-leading 8 Gbps Fibre Channel (FC) technology. It is also the first member of the IBM System Storage b-type family designed to exploit Brocade®'s new Data Center Fabric architecture. The SAN768B introduces Inter-Chassis Links (ICLs) to connect two systems to form a 768-port fabric. With 16 to 384 ports per system, it includes all capabilities of SAN256B (including the Fibre Channel Routing Blade and the 10 Gbps FC Blade) plus adds Adaptive Networking to enable Quality of Service (QoS) management and Integrated Routing to enable interconnect of heterogeneous SAN fabrics.
IBM TotalStorage SAN256B (2109-M48)	• High-performance, high-density and high-availability SAN director designed to be the foundation for large enterprise-class infrastructure simplification and business continuity solutions. The SAN256B director provides from 16 to 384 ports and contains two control processors for high-availability, supporting one to eight blades. Two different types of switch blades are available; one capable of supporting 4, 2 and 1 Gbps link speeds and the other type capable of supporting 8, 4 and 2 Gbps link speeds. Switch blades contain 16, 32 or 48 ports. Each port can support either Fibre Channel or FICON® links. A Fibre Channel Routing blade is available to enable routing between heterogeneous SAN fabrics and distance extension between sites using FCIP. The optional FICON Accelerator feature is available on the Fibre Channel Routing Blade to support mainframe Global Mirror (formerly XRC) and remote tape applications over extended distances. A 10 Gbps FC switch blade is available to support high-speed Inter-Switch Links (ISLs), and an iSCSI blade is available to enable low-cost connectivity to servers via Ethernet. Standard features including Advanced Inter-Switch Link (ISL) Trunking, Web Tools, Advanced Zoning, Fabric Watch, Performance Monitoring and Fabric Access Layer (API).

Enterprise SAN directors for high availability and scalability enterprise solutions

Cisco MDS 9506 for IBM System Storage (2054-E04)	• High-availability enterprise SAN director for Intel processor-based servers, System i systems, System p servers and System z mainframes. Scalable from 12 to 192 1, 2, 4, 8 and 10 Gbps ports with one to four 4-, 12-, 24- and 48-port Fibre Channel modules for Windows, Linux, UNIX and z/OS servers. • An 18/4 4 Gbps Fibre Channel/GbE port multiservice module enables high-performance, cost-effective SAN extension over IP for continuity solutions.
Cisco MDS 9509 for IBM System Storage (2054-E07)	• High-availability enterprise SAN director for Intel processor-based servers, System i systems, System p servers and System z mainframes. Scalable from 12 to 336 1, 2, 4, 8 and 10 Gbps ports with one to seven 4-, 12-, 24- and 48-port Fibre Channel modules for Windows, Linux, UNIX and z/OS servers. • An 18/4 4 Gbps Fibre Channel/GbE port multiservice module enables high-performance, cost-effective SAN extension over IP for continuity solutions.
Cisco MDS 9513 for IBM System Storage (2054-E11)	• High-availability enterprise SAN director for Intel processor-based servers, System i systems, System p servers and System z mainframes. Scalable from 12 to 528 1, 2, 4, 8 and 10 Gbps ports with one to eleven 4-, 12-, 24- and 48-port Fibre Channel modules for Windows, Linux, UNIX and z/OS servers. • An 18/4 4 Gbps Fibre Channel/GbE port multiservice module enables high-performance, cost-effective SAN extension over IP for continuity solutions.

SAN routers to connect heterogeneous SAN fabrics and enable distance extension using Fibre Channel over IP

IBM System Storage SAN04B-R router (2005-R04)	• Provides SAN distance extension using FCIP over the Internet for IBM System x servers, System i systems, and System p server environments. The SAN04B-R includes two 4, 2 and 1 Gbps Fibre Channel ports and two 50 Megabits per second Ethernet ports. A Performance Enhancement upgrade is available to activate all 16 Fibre Channel ports and increase the speed of the two Ethernet ports to 1 Gbps each. FCIP Tunnelling Service for SAN extension of IP WAN infrastructure features is included. The optional FICON Accelerator feature is available to support mainframe Global Mirror (formerly XRC) and remote tape applications over extended distances. Fibre Channel Routing is standard to support connection to multiple fabrics.
Cisco MDS 9222i for IBM System Storage (2054-E01)	• Designed to address the needs of medium-sized businesses and large enterprises, the modular 18/4 (4 Gbps Fibre Channel/GbE) port multiservice SAN router enables high-performance, cost-effective SAN extension over IP for continuity solutions. • Scalable from 18 to 66 1, 2, 4, 8 and 10 Gbps ports with one 4-, 12-, 24- and 48-port Fibre Channel module for Windows, Linux, UNIX and z/OS servers.

Entry-level Tape Products





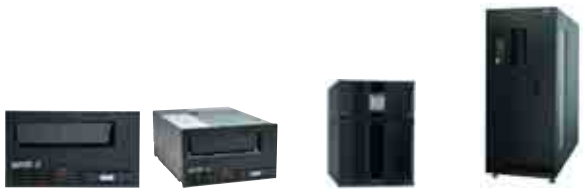


	Entry-level Tape Drives				Entry-level Tape Libraries				
	TS2230	**TS2240**	**3580**	**TS2340**	**TS2900**	**TS3100**	**TS3100**	**TS3200**	**TS3200**
Product	3580	3580	3580	3580	3572 featuring Ultrium Half-high drives	3573 L2U	3573 L2U featuring Ultrium Half-High drives	3573 L4U	3573 L4U featuring Ultrium Half-High drives
Machine Type model	**3580** H3L, H3S, PNs 3580L3E, 3580S3E	**3580** H4S, PNs 3580S4E, 3580E4S	**3580** L33	**3580** L43, S43, PNs, 3580L4X, 3580S4X	**3572** PNs 3572S3H, 3572S4H, 3572S4R, 3572S3R, 3572S4E, 3572S3E	**3573** L2U and PNs 3573L4S, 3573F4S, 3573S4S	**3573** PNs 3573L32, 3573S32, 3573 S42, 3573 E42	**3573** L4U and PNs 3573L4H, 3573F4H, 3573S4H	**3573** PNs 3573L34, 3573S34, 3573 S44, 3573 E44
Product strengths	Multiplatform support Half-high form factor Lower entry price	3 Gbps SAS attachment Encryption capable Multiplatform support High capacity Half-high form factor	Multiplatform support Backward read capable to LTO1 Max performance for LTO3	3 Gbps SAS attachment Encryption capable Multiplatform support High performance High capacity	Multiplatform support Half-high form factor Lower entry price High capacity	Multiplatform support High performance High capacity	Multiplatform support Same capacity as full high at a lower price Supports both LTO3 and LTO4 Half-high drives	Multiplatform support High performance High capacity	Multiplatform support, Same capacity as full high at a lower price Supports both LTO3 and LTO4 Half-high drives
Number of drives	1	1	1	1	1 LTO half-high	1	1–2 LTO half-high	1–2	1–4 LTO half-high
Max number of cartridges	1	1	1	1	9	24	24	48	48
WORM/Encryption	yes/no	yes/yes	yes/no	yes/yes	yes/yes	yes/yes	yes/yes	yes/yes	yes/yes
Native capacity	Gen 3: 400 GB	Gen 4: 800 GB	Gen 3: 400 GB	Gen 4: 800 GB	Gen 3: 3.6 TB Gen 4: 7.2 TB	Gen 3: 9.6 TB Gen 4: 19.2 TB	Gen 3: 9.6 TB Gen 4: 19.2 TB	Gen 3: 19.2 TB Gen 4: 38.4 TB	Gen 3: 19.2 TB Gen 4: 38.4 TB
Typical capacity[2]	Gen 3: 800 GB	Gen 4: 1600 GB	Gen 3: 800 GB	Gen 4: 1600 GB	Up to 14.4 TB	Up to 38.4 TB	Up to 38.4 TB	Up to 76.8 TB	Up to 76.8 TB
Native performance	Gen 3: 60 MBps	Gen 4: 120 MBps	Gen 3: 80 MBps	Gen 4: 120 MBps	Up to 120 MBps	Up to 120 MBps	Up to 240 MBps	Up to 240 MBps	Up to 480 MBps
Interface	LVD SCSI, 3 Gbps SAS	3 Gbps SAS	LVD SCSI	LVD SCSI, 3 Gbps SAS	3 Gbps SAS	4 Gbps FC 3 Gbps SAS LVD SCSI	3 Gbps SAS LVD SCSI	4 Gbps FC 3 Gbps SAS LVD SCS	3 Gbps SAS LVD SCSI
Supported tape libraries	NA	NA	NA	NA	N/A	N/A	NA	NA	NA
Platform support[4]	System p, System i, System x, Microsoft Windows, HP-UX, Sun Solaris, Linux	System p, System x and others supporting 3 Gbps attach	System p, System i, System x, Microsoft Windows; HP-UX; Sun Solaris; Linux	System p, System i, System x, Microsoft Windows, HP-UX, Sun Solaris, Linux	System p, System x and other supporting 3 Gbps attach	System p, System i, System x, Microsoft Windows; HP-UX; Sun Solaris; Linux	System p, System i, System x, Microsoft Windows; HP-UX; Sun Solaris; Linux	System p, System i, System x, Microsoft Windows; HP-UX; Sun Solaris; Linux	System p, System i, System x, Microsoft Windows; HP-UX; Sun Solaris; Linux
Application support[5]	A, B, C, D, E, F, G, H, J, L, M	A (others in plan)	A, B, C, D, E, F, G, H, J, L, M, N[7]	A (others in plan)	A (others in plan)	A, B, C, D, E, F, G, H, J, L, M, N[7]	A, B (others in plan)	A, B, C, D, E, F, G, H, J, L, N[7]	A, B (others in plan)
Media	Refer to Tape Media, page 8	Refer to Tape Media, page 8	Refer to Tape Media, page 8	Refer to Tape Media, page 8	Refer to Tape Media, page 8	Refer to Tape Media, page 8	Refer to Tape Media, page 8	Refer to Tape Media, page 8	Refer to Tape Media, page 8
Warranty period	3 years[6]	3 years	3 years[6]	3 years[6]	1 year[6]	3 years[6]	3 years[6]	3 years[6]	3 years[6]
Warranty type	CRU	CRU	CRU	CRU	CRU	CRU	CRU	CRU	CRU

F/W = Fast/Wide, **Diff** = Differential, **N/A** = Not Applicable, **FC** = Fibre Channel, **X** = Extended length cartridge, **IOE** = IBM Onsite Exchange, **CRU** = Customer Replaceable Unit

NOTES 1: Max number of cartridges decreases as tape drives are added. **2:** Typical compression for open system environments is 2:1 (user results may vary) **4:** Also includes selected IBM xSeries®, IBM Netfinity®, IBM System i, IBM AS/400® and IBM System p servers. System z support for Linux only **5:** Refer to http://www-03.ibm.com/systems/support/storage/config/ssic/displayesssearchwithoutjs.wss?start_over=yes for current application support **6:** In most countries **7:** The following vendors provide application support to the platforms defined above: **A** = IBM Tivoli® Storage Manager, **B** = Symantec VERITAS NetBackup, **C** = Symantec VERITAS Backup Exec, **D** = EMC Legato NetWorker, **E** = CA BrightStor ARCserve Backup, **F** = HP OpenView Storage Data Protector, **G** = CommVault Galaxy, **H** = BakBone NetVault, **I** = LSC, **J** = IBM BRMS, **K** = IBM OnDemand, **L** = Help/Systems Robot/Save, **M** = LXI Media Management, **N** = Dantz.

Midrange/Enterprise Tape Products



	Midrange Tape Drives		Midrange Tape Libraries	
	TS1030	**TS1040**	**TS3310**	**TS3500**
Product	3588	3588	3576	3584
Machine Type model	**3588** F3B	**3588** F4A	**3576** L5U E9U	**3584** L53 D53 S54
Product strengths	Multiplatform support High performance High capacity	Multiplatform support High performance High capacity Data protection	Multiplatform support High performance High capacity Modular design	Multiplatform support High performance High capacity High density (HD) Slot Technology
Number of drives	1	1	1–18	1–192
Max number of cartridges	NA	NA	396	6,887[1]
WORM/ Encryption	yes/no	yes/yes	yes/yes	yes/yes
Native capacity	400 GB	800 GB	Gen 3: 158.4 TB Gen 4: 316.8 TB	Up to 5.5 PB
Typical capacity[2]	800 GB	1600 GB	Up to 633.6 TB	Up to 11 PB
Native performance	80 MBps	120 MBps	Up to 2.16 GBps	Up to 23 GBps
Interface	4 Gbps FC	4 Gbps FC	4 Gbps FC 3 Gbps SAS LVD SCSI	4 Gbps FC
Supported tape libraries	TS3500	TS3500	NA	NA
Platform support[4]	System p, System i, System x, Microsoft Windows; HP-UX; Sun Solaris; Linux	System p, System i, System x, Microsoft Windows; HP-UX; Sun Solaris; Linux	System p, System i, System x, Microsoft Windows; HP-UX; Sun Solaris; Linux	System p, System i, System x, Microsoft Windows; HP-UX; Sun Solaris; Linux
Application support[5]	A, B, C, D, E, F, G, H, J, L[7]	A (others in plan)	A, B, C, D, E, F, G, H, J, L[7]	A, B, C, D, E, F, G, H, J, L[7]
Media	Refer to Tape Media, page 8	Refer to Tape Media, page 8	Refer to Tape Media, page 8	Refer to Tape Media, page 8
Warranty period	1 year	1 year	1 year	1 year
Warranty type	Onsite Repair (24x7)	Onsite Repair (24x7)	Next Business Day (9x5)	Onsite Repair (24x7)

	Tape Drive	Tape Drive	Tape Controller	Tape Library	
	3592	**3592**	**3592**	**3577**	**3584**
Product	TS1130	TS1120	TS1120	TS3400	TS3500
Machine Type model	**3592** E06 EU6	**3592** E05	**3592** C06	**3577** L5U	**3584** L23 D23 S24
Product strengths	Multiplatform support High performance High capacity Data protection	Multiplatform support High performance High capacity Data protection	System z attachment of TS1130 and TS1120 drives High performance	Compact format Operates in library or autoloader mode	Multiplatform support Advanced management Scalable High Density (HD) Slot Technology
Number of drives	1	1	1–12	1–2	1–192
WORM/ Encryption	yes/yes	yes/yes	yes/yes	yes/yes	yes/yes
Number of cartridges	NA	NA	NA	18	6260[2]
Native capacity	60/100/128 GB (JJ/JR media) 300/500/ 640 GB (JA/JW media) 700 GB/1 TB (JB/JX media)	60/100 GB (JJ/JR media) 300/500 GB (JA/JW media) 700 GB (JB/JX media)	NA	Up to 18 TB	Up to 6.2 PB
Typical capacity[1]	384 GB with JJ/JR 1920 GB with JA/JW 3 TB with JB/JX	180/300 GB with JJ/JR 900/1500 GB with JA/JW 2.1 TB with JB/JX	NA	Up to 54 TB	Up to 18.6 PB
Native performance	Up to 160 MBps	Up to 104 MBps	Varies[8]	Up to 320 MBps	Up to 30.7 GBps
Interface	4 Gbps	4 Gbps FC	4 Gbps FC	4 Gbps FC	4 Gbps FC
Supported tape library	TS3400, TS3500, 3494***	TS3400, TS3500, 3494***	TS3400, TS3500, 3494***	NA	NA
Platform support[5]	System p, System i, System x, System z; Microsoft Windows; HP-UX; Sun Solaris; Linux	System p, System i, System x, System z; Microsoft Windows; HP-UX; Sun Solaris; Linux	System p, System i, System x, System z; Microsoft Windows; HP-UX; Sun Solaris; Linux	System p, System i, System x, System z, Microsoft Windows, HP-UX, Sun Solaris, Linux	System p, System i, System x, System z; Microsoft Windows; HP-UX; Sun Solaris; Linux
Application support[6]	A B C D E G	A B C D E F G H J L[7]	A B C D E F G H J L[7]	A B C D E J	See drive
Media	Refer to Tape Media, page 8	Refer to Tape Media, page 8	NA	Refer to Tape Media, page 8	Refer to Tape Media, page 8
Warranty period	1 year	1 year	1 year	1 year	1 year
Warranty type	Onsite Repair (24x7)	Onsite Repair (24x7)	Onsite Repair (24x7)	Onsite Repair (24x7)	Onsite Repair (24x7)

Enterprise/Other Backup Tape Products




	Tape Virtualization	Tape Virtualization		
	ProtecTIER Gateway	**Virtualization Engine**		
Product	TS7650G	TS7530	TS7720	TS7740
Machine Type model	**3958** DD1	**3954** CV7 (requires additional machine types and models)	**3957** VEA (requires additional machine types and models)	**3957** V06 (requires additional machine types and models)
Product strengths	Eliminates redundant data by up to a factor of 25:1	Reduces backup window Reduces recovery time High capacity	Increases performance Scalable Large cache for fast recall	Increases performance Scalable Helps reduce cost
Number of drives	Up to 256 (1 node)* Up to 512 (clustered)*	Up to 1024 (1 node)* Up to 4096 (4 node)*	NA	Up to 128* Up to 768* (3 site GRID)
WORM/ Encryption	no/no	no/yes	no/no	no/yes
Number of cartridges	Up to 500,000 (1 node)* Up to 1,000,000 (clustered)*	Up to 64,000 (1 node)* Up to 256,000 (4 node)*	Up to 1,000,000*	Up to 1,000,000*
Native capacity	Up to 1 PB, 2 PB clustered	Up to 1.7 PB	Up to 70 TB Up to 210 TB (3 site GRID)	Up to 14 TB Up to 42 TB (3 site GRID)
Typical capacity[1]	Up to 1 PB, 2 PB clustered	Up to 1.7 PB Up to 2.6 PB	Up to 210 TB Up to 630 TB (3 site GRID)	Up to 42 TB Up to 126 TB (3 site GRID)
Native performance	Up to 450 MBps, 900 MBps clustered	Up to 4.8 GBps	Up to 600 MBps	Up to 600 MBps
Interface	4 GBps FC	4 Gbps FC	4 Gbps FC	4 Gbps FC
Supported tape library	NA	TS3500, TS3310, TS3200, TS3100, 3494***	NA	TS3500, 3494***
Platform support[5]	System p, System i, System x, Microsoft Windows; HP-UX; Sun Solaris; Linux	System p, System x, System z[10], System i[11]; Microsoft Windows; HP-UX; Sun Solaris; Linux	System z	System z
Application support[6]	A, B	A, B	E	E
Media	NA	NA	NA	NA
Warranty period	1 year	1 year	1 year	1 year
Warranty type	Onsite Repair (24x7)	Onsite Repair (24x7)	Onsite Repair (24x7)	Onsite Repair (24x7)

* Virtual resource specification

** for data replication only

*** Product withdrawn from marketing



	Tape Drives			
	7206-336	**7207**	**7212**	**7214**
Product	DAT72 Tape Drive	SLR60 Tape Drive	Device Enclosure*	Device Enclosure*
Machine Type model	**7206** 336-DDS Gen 5	**7207** 330	**7212** 103	**7214** 1U2
Product strengths	Cost-effective streaming tape drive	Backward read/write compatible with System i internal	Rack-mountable 2-drive enclosure utilizes only 1U (1.75") of space	Rack-mountable 2-drive enclosure utilizes only 1U (1.75") of space
Number of drives	1	1	1–2	1–2
Max number of cartridges	1	1	2	2
Cartridge capacity native/ compressed	36/72 GB	330: 30/60 GB	DVD: Variable (FC1103) DAT72: 36/72GB (FC1105) SLR60: Variable (FC1107) SLR100: Variable (FC1108) HHLTO2: 200/400 GB (FC1109)	DVDRAM: Variable (FC1420) DVDROM: Variable (FC1421) DAT72: 36/72 GB (FC1400) DAT160 80/160 GB (FC1401) HHLTO4 800 GB/1.6 TB (FC1404)
Max drive data rate[1] native/ compressed	336: 3/6 MBps	330: 4/8 MBps	DDS/DAT72: 3/6 MBps HHLTO2: 30/60 MBps	DAT72 3/6 MBps DAT160 6.9/13.8 MBps HHLTO4 120/40 MBps
Interface	SCSI-2 F/W SE, LVD/SE	SCSI-2 SE, ULTRA, LVD/SE, 160/320	SCSI-3 ULTRA, LVS, 160/320	3 Gbps SAS
Platform support[3]	System p	System p, System i	System p, System i, IBM Power Systems	IBM Power Systems
Media	Refer to Tape Media, page 8	Refer to Tape Media, page 8	Refer to Tape Media, page 8	Refer to Tape Media, page 8
Warranty period	1 year	1 year	1 year	1 year
Warranty type	Onsite Repair (24x7)	Onsite Repair (24x7)	Onsite Repair (24x7)	Onsite Repair (24x7)

* 7212-103 and 7214-1U2 also offer DVD-ROM and DVD-RAM optical drives
For most current information, visit: **ibm.com**/servers/storage/tape/compatibility/index.html

F/W = Fast/Wide, **Diff** = Differential, **N/A** = Not Applicable, **FC** = Fibre Channel, **X** = Extended length cartridge, **IOE** = IBM Onsite Exchange, **CRU** = Customer Replaceable Unit
NOTES 1: Typical compression for mainframe environments is 3:1; 2:1 for open systems (user results may vary) **2:** Max number of 3592 cartridges decreases as tape drives are added **3:** IBM AIX® 4.1.5 or later. **4:** Load and search only **5:** Server platforms with SAN-ready attachability, model- and feature-dependent. **6:** The latest ISV support can be found in the connectivity section at http://www-03.ibm.com/systems/storage/tape/library.html#compatibility. **7:** The following vendors provide application support to the platforms defined above: **A** = IBM Tivoli Storage Manager, **B** = Symantec VERITAS NetBackup, **C** = Symantec VERITAS Backup Exec, **D** = EMC Legato NetWorker, **E** = CA BrightStor ARCserve Backup, **F** = HP OpenView Storage Data Protector, **G** = CommVault Galaxy, **H** = BakBone NetVault, **I** = LSC, **J** = IBM BRMS, **K** = IBM OnDemand, **L** = Help/Systems Robot/Save, **M** = LXI Media Management. **8:** Performance varies by environment **10:** Applies to Linux on System z using FCP **11:** Requires RPQ **12:** EE=Enterprise Edition LE=Limited Edition

Diff = Differential, **N/A** = Not Applicable, **FC** = Fibre Channel, **X** = Extended length cartridge, **IOE** = IBM Onsite Exchange, **CRU** = Customer Replaceable Unit
NOTES 1: Compressed data rates are estimates and are data-, application- and processor-dependent. User results may vary. **3:** Server platforms with SAN-ready attachability, model- and feature-dependent. **6:** The following vendors provide application support to the platforms defined above: **A** = IBM Tivoli Storage Manager, **B** = Symantec VERITAS NetBackup, **C** = Symantec VERITAS Backup Exec, **D** = EMC Legato NetWorker, **E** = CA BrightStor ARCserve Backup, **F** = HP OpenView Storage Data Protector, **G** = CommVault Galaxy, **H** = BakBone NetVault, **I** = LSC, **J** = IBM BRMS, **K** = IBM OnDemand, **L** = Help/Systems Robot/Save, **M** = LXI Media Management, **N** = Dantz.

Selecting a Solution

	Solution	Native Performance	Capacity*	System z	System p	System i**	System x	Open Systems***
Entry tape products	3580 tape drive	120 MBps	1600 GB					
	TS2900 tape autoloader	120 MBps	Up to 14.4 TB					
	TS3100 tape library	120 MBps	Up to 38.4 TB					
	TS3100 tape library with HH drives	240 MBps	Up to 38.4 TB					
	TS3200 tape library	240 MBps	Up to 76.8 TB					
	TS3200 tape library with HH drives	480 MBps	Up to 76.8 TB					
Midrange tape products	TS1040 tape drive	120 MBps	1600 GB					
	TS3310 tape library	Up to 2.16 GBps	Up to 633.6 TB					
	TS3500 tape library	Up to 23 GBps	Up to 11 PB					
Enterprise tape products	TS1130 tape drive	Up to 160 MBps	3000 GB					
	TS1120 tape drive	Up to 104 MBps	2100 GB					
	TS1120 tape controller	Up to 230 MBps	NA					
	TS3400 tape library	Up to 320 MBps	Up to 54 TB					
	TS3500 tape library	Up to 30.7 GBps	Up to 18.6 TB					
Tape Virtualization	TS7520**	Up to 4.8 GBps	Up to 2.6 PB					
	TS7530	Up to 600 MBps	Up to 210 TB					
	TS7740	Up to 600 MBps	Up to 42 TB					
Other backup products	7206-336	Up to 3 MBps	72 GB					
	7206-VX2	Up to 6 MBps	60 GB					
	7206-VX3	Up to 24 MBps	160 GB					
	7207-330	Up to 4 MBps	60 GB					
	7212-103	Up to 12 MBps	320 GB					

* Compressed; see **ibm.com**/storage for specific capacities.

** Available on System i through AIX/Linux partitioning.

*** See **ibm.com**/storage for specific open systems connectivity.

Yes No Partial

IBM Systems

Demand for lightning-fast communication and transactions has driven the need for a high-performance, responsive infrastructure that embraces open standards—exactly what you will find in the IBM Systems product portfolio. Investments in servers often result in demands on disk and tape storage systems. IBM has a family of storage offerings that complements the IBM Systems product portfolio. There is no better storage offering for IBM Systems than an IBM System Storage product. These offerings are tested and supported by IBM and are backed by outstanding IBM service and support.

IBM System Storage Proven Program Helps Simplify Interoperability

Overview

The IBM System Storage Proven™ program has been designed on a simple premise: give customers the ability to select the best combination of interoperable storage technologies to help minimize their investment risk, increase business efficiency and expedite their infrastructure implementation.

The IBM System Storage Proven program is all about leveraging IBM storage with business applications, ISV and Business Partner software, and market-leading hardware components which together deliver solutions that address today's client needs.

Customer Benefits

- Prequalified configurations
- Customers will be better able to identify a variety of prequalified, interoperable storage elements. By taking prequalified applications and hardware and combining them with IBM storage technology clients can more easily identify solutions that address their storage needs.

IBM Business Partner Benefits

- Potential for reduced sales cycle and integration issues
- For IBM Business Partners, the IBM System Storage Proven program is intended to help shorten the sales cycle and ease integration issues, allowing more time for higher margin customization. Another added value for IBM Business Partners is the interoperability qualification program where companies work together with IBM, which can help support their ability to develop and deliver products or solutions that interoperate with the broad portfolio of IBM System Storage products.

Please visit the System Storage Proven Web site at **ibm.com**/storage/proven to view more than 500 available products and solutions from over 300 participating companies to meet your storage needs.

IBM Business Partner Innovation Centers (BPIC)

More than 140 worldwide IBM TotalStorage Solution Centers can deliver one-stop shopping for storage hardware, software and consulting services. The Solution Centers offer you both a local venue for hands-on testing of IBM storage solutions and a platform for proof-of-concept and benchmarking activities. These centers also work with the leading storage software providers to support a wide variety of choices for interoperability. IBM Business Partners will help you select and implement a solution to help your business succeed in today's dynamic marketplace. Visit: **ibm.com**/storage/tssc

Media tape	Highlights	Technology	Capacity: Length (m/feet)	Capacity: native	Capacity: Compressed (typical)	Part number	Related products	Part number
Enterprise tape	• Custom labeling and initialization services are available • Server tracks help improve data integrity • Cartridge intermix within libraries supports smooth migration, legacy systems • Write Once Read Many (WORM) functionality • Machine type/model: 3599	3592 Tape Cartridge	825/2706 825/2706 610/2001 610/2001 246/810 246/810	700 GB/1 TB 700 GB/1 TB* 300/500/640 GB 300/500/640 GB* 60/100/128 GB 60/100/128 GB*	2.1/3 TB 2.1/3 TB 900 GB, 1.5/1.9 TB 900 GB, 1.5/1.9 TB 180/300/384 GB 180/300/384 GB	23R9830 23R9831 18P7534 18P7538 24R0316 24R0317	3592 Cleaning Cartridge	18P7535
		3590 Tape Cartridge	320/1050	10/20/30 GB	30/60/90 GB	05H4434 05H3302-J-less	3590 Cleaning Cartridge	05H4435
		3590E Tape Cartridge	634/2070	20/40/60 GB	60/120/180 GB	05H3188 08L6091-K-less		
.31" MP tape	• Unique midpoint load mechanism enables the system to locate data fast • Durable cartridge case helps protect the tape • Self-contained tape path helps improve reliability and extend tape life • Almost instantaneous head/tape contact at load time speeds processing	IBM Magstar® MP Fast Access Linear Tape Cartridge	167/54	5 GB	15 GB	05H2462—B 08L6187—C	Cleaning Cartridge	05H2463
		Magstar MP Fast Access Linear Tape Cartridge—XL	227/745	7 GB	21 GB	08L6663-C-XL		
LTO® tape	• Media uses industry-leading, interchangeable LTO format • Cartridge is highest-capacity open standard tape cartridge available • Custom labeling is available • IBM-exclusive Statistical Analysis and Reporting System (SARS) statistics are stored in cartridge memory • High durability helps support automation environments • Machine type/model: 3589	Ultrium 4 Ultrium 4* Ultrium 3 Ultrium 3* Ultrium 2 Ultrium 1	820/2690 820/2690 680/2231 680/2231 609/1998 609/1998	800 GB 800 GB 400 GB 400 GB 200 GB 100 GB	1600 GB 1600 GB 800 GB 800 GB 400 GB 200 GB	95P4436 95P4450 24R1922 96P1203 08L9870 08L9120	Ultrium Cleaning Cartridge (all) Leader Pin Attachment Kit 5-pack LTO Ultrium 4 tapes 5-pack LTO Ultrium 3 tapes	35L2086 23R7008 08L9129 95P4278 95P2020
Optical cartridge	• Suitable for storing data that can be overwritten and has a finite life span • WORM media helps safeguard against data being erased or changed	3996 Ultra Density Optical (UDO)	NA	30 GB 30 GB* 60 GB 60 GB*		23R2568 23R2567 59H5629 59H5628		
DLTtape	• Cartridge labelling area and labels are included • VS1 Data Cartridge	VS1	563/1850	80 GB	160 GB	18P8923	Cleaning Cartridge - VS160	18P8924
VXA-2/3	• Durable coating can resist oxidation and moisture • Advanced archival and capacity properties are included • Wide selection of compatible cartridge capacities support daily or full backups • Media enclosure shutter locks out dirt and debris	VXA 8 mm—X6 VXA 8 mm—X10 VXA 8 mm—X23	62/203 124/406 230/754	40 GB 80 GB 160 GB	80 GB 160 GB 320 GB	24R2134 24R2136 24R2137	Cleaning Cartridge—X-MEDIA	24R2138
4 mm Tape	• Precision-matched tape reels and reel heights help support reliable operation • Proprietary hub lock helps reduce positioning errors to improve data integrity • Improved media coating helps reduce head friction and provide cleaner operation	DDS-3	125/410	12 GB	24 GB	59H3465	Cleaning Cartridge—4 mm 4 mm format	21F8763 23R5638
		DDS-4	150/492	20 GB	40 GB	59H4456		
		DAT72 DAT160	170/557 190/700	36 GB 80 GB	72 GB 160 GB	18P7912 23R5635		
8 mm Tape	• Special media formulation can help reduce drop-out to improve reliability • Rigid magnetic stability specification helps increase coercivity to prolong shelf life and improve read reliability	AME	22/73	2.5 GB	5 GB	59H2671	Cleaning Cartridge—AME	35L1409
			170/557	20 GB	40 GB	59H2678		
SLR (QIC) cartridges	• Sophisticated mirror optics support BOT and EOT recognition • Advanced media-binder process provides ultra-clean operation • Stringent wheel-pin perpendicularity specification enables smoother operation and fewer re-reads • Proprietary belt design provides steady tension • Special stippled base-plate design helps provide rigidity and a stable tape path • Cartridge cover shields against static discharge and airborne debris • Durastat on drive rollers dissipates static 1-888-IBM-MEDIA **ibm.com**/storage/media	5.25" SLR5/QIC-4GB-DC	458/1500	4 GB	8 GB	59H3660	QIC 5.25" MLR/SLR Cleaning Cartridge (50 uses)	35L0844
		5.25" MLR1/QIC-5010-DC	458/1500	16 GB	32 GB	59H4175		
		5.25" MLR3/QIC-5120-DC	462/1515	25 GB	50 GB	59H4128		
		5.25" SLR60	274/900	30 GB	60 GB	19P4209		
		5.25" SLR60	366/1200	37.5 GB	75 GB	24R0146		
		5.25" SLR100	47/156	5 GB	10 GB	35L0661		
		5.25" SLR100	457/1500	50 GB	100 GB	35L0968		

* WORM version

Entry-level Disk Systems




	System x and IBM BladeCenter® Direct Attach or SAN Solutions				System p Only Direct Attach Solutions
	EXP3000	**DS3200**	**DS3300**	**DS3400**	**EXP24**
Product	EXP3000	DS3200	DS3300	DS3400	EXP24
Machine/model	1727-01X, 1727-02T Telco DC Power Model	1726-21X, 1726-22X, 1726-22T Telco DC Power Model	1726-31X, 1726-32X, 1726-32T Telco DC Power Model	1726-41X, 1726-42X, 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 4, RedHat 5, SUSE 9, SUSE 10, NetWare, VMware 3.5/3i	Windows 2003, RedHat 4, RedHat 5, SUSE 9, SUSE 10	Windows 2003, RedHat 4, RedHat 5, SUSE 9, SUSE 10, NetWare, VMware 2.5.4, VMware 3.0.1, VMware 3.0.2, VMware 3.5/3i, AIX 5.2, AIX 5.3	AIX 5L 5.2 AIX 5L 5.3 RedHat 3 RedHat 4 RedHat 5 SUSE 9 SUSE 10
Host connectivity	SAS	SAS	iSCSI	4 Gbps Fibre Channel	SCSI
SAN support	N/A	N/A	Switched, IP SAN	Direct, Switched Fabric	N/A
Copy services	N/A	IBM FlashCopy®, IBM VolumeCopy	IBM FlashCopy, IBM VolumeCopy	IBM FlashCopy, IBM VolumeCopy	N/A
Availability features	Fault-tolerant RAID, Redundant Hot-swap power, Hot-swap drives, Dual pathing drives	Fault-tolerant, RAID, Redundant Hot-swap power, Hot-swap drives, Dual controller, dual pathing drivers	Fault-tolerant, RAID, Redundant Hot-swap power, Hot-swap drives, Dual controller, dual pathing drivers	Fault-tolerant, RAID, Redundant Hot-swap power, Hot-swap drives, Dual controller, dual pathing drivers	Fault-tolerant RAID, Redundant Hot-swap power, Hot-swap drives
Controller	MegaRAID 8480	Dual active 3 Gbps SAS RAID Controllers	Dual active 1 Gbps iSCSI RAID Controllers	Dual Active 4 GB FC RAID Controllers	System p FC 5741 & 5742 SCSI Repeaters
Cache (min, max)	256 MB battery backup	512 MB, 2 GB battery backup	512 MB, 2 GB battery backup	512 MB, 2 GB battery backup	N/A
RAID support	0, 1, 3, 5, 6,10	0, 1, 3, 5, 6, 10	0, 1, 3, 5, 6, 10	0, 1, 3, 5, 6, 10	0, 1, 3, 5, 10
Capacity (min, max)	146 GB, 12 TB in a single EXP3000 Expansion Units	146 GB, 48 TB with 3 EXP3000 Expansion Units	146 GB, 48 TB with 3 EXP3000 Expansion Units	146 GB, 48 TB with 3 EXP3000 Expansion Units	73 GB, 7.2 TB
Drive interface	3 Gbps SAS, 3 Gbps SATA II	3 Gbps SAS	3 Gbps SAS	3 Gbps SAS	Ultra320 SCSI
Drive support	SAS: 73 GB, 146 GB, 300 GB 15,000 rpm disk drives; 500 GB, 750 GB, 1 TB SATA II 7,200 rpm	SAS: 73 GB, 146 GB, 300 GB 15,000 rpm disk drives, SATA: 500 GB, 750 GB, 1 TB SATA II 7,200 rpm	SAS: 73 GB, 146 GB, 300 GB 15,000 rpm disk drives, SATA: 500 GB, 750 GB, 1 TB 7,200 rpm	SAS: 73 GB, 146 GB, 300 GB 15,000 rpm disk drives, SATA: 500 GB, 750 GB, 1 TB 7,200 rpm	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	Microsoft Windows MSCS	HACMP™

Midrange Disk Systems




	DS4200 Express	DS4700 Express	DS4800	DS5000 series
Product	DS4200 Express Disk System	DS4700 Express Disk System	DS4800 Disk System	DS5100 and DS5300
Machine/model	1814-7VA/7VH	1814-72A/70A	1815-80A/82A/84A/88A	1818-51A,1818-53A
Platform support[1]	Microsoft Windows Server® 2003 w/SP1, R2, and x64, Windows 2000 Server & Advanced 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 3.0/3.5/3i AIX 5.1, 5.2, 5.3, 6.1 HP-UX 11.0, 11i and 11.23 with PVLinks Solaris 8, 9, 10	System p, System x, System i w/ VIOS, Windows Server 2003 w/SP1, Windows 2000 Server & Advanced 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 3.0/3.5/3i, VMware ESX 2.5.2 AIX 5.1, 5.2, 5.3, 6.1 HP-UX 11i and 11.23, Solaris 8, 9, 10	System p, System x, System i w/VIOS, Windows Server 2003 w/SP1, Windows 2000 Server & Advanced 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, AIX 5.1, 5.2, 5.3, 6.1, VMware ESX 3.0/3.5/3i HP-UX 11i and 11.23, Solaris 8, 9, 10	System p, System x, Windows 2003, Windows 2008 w/ Hyper V, AIX 5.2,5.3 and 6.1, VMware 3.5, SLES 9 and 10, RHEL 4 and 5, HP=UX
Host connectivity	Fibre Channel	Fibre Channel	Fibre Channel	Fibre Channel
SAN support	Direct, FC-AL, Switched Fabric	Direct, FC-AL, Switched Fabric	Direct, FC-AL, Switched Fabric	Direct, FC-AL, Switched Fabric
Copy services	Enhanced Remote Mirroring, FlashCopy, VolumeCopy	Enhanced Remote Mirroring, FlashCopy, 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	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	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)	8 GB total cache –DS5100, 8-16 GB –DS5300
RAID support	0, 1, 3, 5, 6, 10	0, 1, 3, 5, 6, 10	0, 1, 3, 5, 10	0, 1, 3, 5, 6, 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)	Legacy support for EXP810 587 GB min, up to 256 TB w/ 16 EXP5000
Drive interface	4 GB FC-AL	4 Gbps Switched	4 Gbps Switched	4 Gbps Switched
Drive support	500 GB EV-DDM, 750 GB EV-DDM, 1 TB 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, 1 TB 7,200 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, 1 TB 7,200 rpm (SATA)	750 GB/7.2K SATA DDM,1000 GB/7.2K SATA DDM, 4 Gbps FC, 146.8 GB/15K DDM,4 Gbps FC, 300 GB/ 15K DDM,4 Gbps FC, 450 GB/15K DDM
Certifications	Microsoft Clustering Services, IBM SAN Volume Controller 3.1.0 and 4.1.0	Microsoft RAID, Cluster, NetWare Cluster, HACMP, VERITAS Clustering[4]	Microsoft RAID, Cluster, NetWare Cluster, HACMP, VERITAS Clustering[4]	Microsoft Clustering Services, IBM SAN Volume Controller 4.3, HACMP

High-end and Enterprise Disk Systems





	XIV	DS6800	DS8100	DS8300	ESS 800
Product	IBM XIV Storage System	IBM System Storage DS6800	IBM System Storage DS8000™ Turbo	IBM System Storage DS8000 Turbo	ESS Model 800 Refurbished with Warranty
Machine/model	2810/A14	1750/522	2421, 2422, 2423, 2424/931	2421, 2422, 2423, 2424/932/9B2	2105/800
Platform support[1]	System x, System p, AIX, Solaris, HP-UX, Windows 2000, Windows Server 2003, Linux for Intel systems, Linux for System p, VMware, Apple Macintosh OSX	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, Microsoft 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	4 Gbps Fibre Channel, iSCSI	1 Gbps and 2 Gbps Fibre Channel/FICON	2 Gbps and 4 Gbps Fibre Channel, FICON, ESCON®	2 Gbps and 4 Gbps Fibre Channel, FICON, ESCON	1 Gbps and 2 Gbps Fibre Channel/FICON, ESCON, SCSI
SAN support	Direct, FC-AL, Switched Fabric, Ethernet	Direct, FC-AL, Switched Fabric	Direct, FC-AL, Switched Fabric	Direct, FC-AL, Switched Fabric	Direct, FC-AL, Switched Fabric
Copy services	Synchronous Mirror, snapshot, thin provisioning	FlashCopy, Metro Mirror, Global Mirror, Global Copy, as target for z/OS Global Mirror	FlashCopy, FlashCopy SE, Metro Mirror, Global Mirror, Global Copy, z/OS Global Mirror, Metro/Global Mirror	FlashCopy, FlashCopy SE, 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, N+1 Redundancy, hot-swappable parts, 3 Universal Power Supplies, non-disruptive hardware changes, non-disruptive software code load updates for fixes, multipathing device drivers as supported through OSs	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, multipathing 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, multipathing 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, multipathing device driver	Fault-tolerant, RAID, redundant power/cooling, hot-swap drives, dual controllers, concurrent microcode update capability, dual pathing driver
Controller	Multiple Active-Active	Dual active/active	Dual active/active	Dual active/active	SMB dual active; optional turbo feature
Cache (min, max)	120 GB	4 GB	16/128 GB	32/256 GB	8 GB, 64 GB
RAID support	Data mirroring	5, 10	5, 10	5, 10	5, 10
Capacity (min, max)	180 TB 180 TB	292 GB, 64 TB	1.1 TB, 192 TB	1.1 TB, 512 TB	582 GB, 55.9 TB
Drive interface	2 Gbps Fibre Channel	2 Gbps Fibre Channel	2 Gbps Fibre Channel	2 Gbps Fibre Channel	SSA
Drive support	1000 GB SATA	73 GB 15K, 146 GB 15K, 300 GB 15K, 500 GB FATA, 7.2K	73 GB 15K, 146 GB 15K, 300 GB 15K, 500 GB 7.2 FATA	73 GB 15K, 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	n/a	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	XIV
Local copy within controller							
Remote Copy (>10 km)							
Centralized management							
Storage area network							
Concurrent heterogeneous servers (UNIX and Intel)							
Concurrent microcode install							
Intermix disk capacities							
Multiple RAID options							
Controller-based call-home			Through DS Storage Manager Server	Through DS Storage Manager Server	Through DS Storage Manager Server		
Rack mount							
Virtualization							
Virtualization through SAN Volume Controller							

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

Yes No

	EXP3000	DS3200	DS3300	DS3400	DS4200 Express	EXP24
Local copy within controller						
Remote Copy (>10 km)						
Centralized management						
Storage area network						
Concurrent heterogeneous servers (UNIX and Intel)	Intel/AMD only	Intel/AMD only	Intel/AMD only	Intel/AMD/AIX		
Concurrent microcode install						
Intermix disk capacities						
Multiple RAID options						
Controller-based call-home						
Rack mount						
Virtualization						
Virtualization through SAN Volume Controller						

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

Yes No

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

Product	Highlights
DS8300 Turbo	• Outstanding enterprise class functionality with extraordinary performance and scalability up to 512 TB of physical capacity • Host connectivity via 4 Gbps FC/FICON or ESCON interfaces to a wide variety of UNIX, Windows, Linux, System i systems, System p servers, System x servers and System z mainframes • Top notch storage consolidation system with Storage System LPAR capability • Offers FlashCopy, FlashCopy SE, 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	• Outstanding enterprise class functionality and performance with scalability up to 192 TB of physical capacity • Host connectivity via 4 Gbps FC/FICON or ESCON interfaces to wide variety of UNIX, Windows, Linux, System p servers, System x servers, System i systems and System z mainframes • Offers FlashCopy, FlashCopy SE, 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, Linux, System p servers, System x servers, System i systems and System z mainframes • Features FlashCopy as well as Global and Metro Mirroring functions • Enterprise-class warranty, 24x7, same day IBM onsite response
Enterprise Storage Server® Model 800 Refurbished with Warranty	• Affordable enterprise strength reliability and function for modular and mainframe servers • 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 systems and System z mainframes • Features copy services for rapid backup and disaster recovery • Full 3 year warranty on Refurbished with Warranty systems available worldwide
XIV Storage System	• A revolutionary high-end disk system for UNIX and Intel processor-based environments designed to eliminate the complexity of tiered storage management • Offers 4 Gbps FC and 1 Gbps iSCSI host connectivity and scales up to 180 TB of physical capacity • Up to 16,000 instantaneous and highly space-efficient snapshots enable point-in-time copies of data • Built-in thin provisioning that can help reduce direct and indirect costs • Synchronous remote mirroring provides protection against primary site outages, disasters and site failures
DS5000	• Provides SAN-ready flexible, efficient, scalable disk storage system for UNIX and Intel processor-based environments • Offers high-performance, full fibre solution with up to 16 – 4 Gbps Fibre Channel host port connectivity and 8 Gbps FC and 10 Gbps iSCSI ready • Supports business continuance with its optional high-availability software and advanced Enhanced Remote Mirroring function • Helps protect customer data with its multi-RAID capability ,including RAID 6, and hot-swappable redundant components
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

Product	Highlights
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	• Scalable to 12 terabytes (TB) of storage capacity with 1 TB hot-swappable Serial ATA (SATA) disks • Expandable by attaching up to three EXP3000s, a total of 48 TB of storage capacity • Flexible for use with IBM System x and BladeCenter servers
DS3300	• 1 Gbps iSCSI interface technology • Easy to deploy and manage with the DS3000 Storage Manager • Scalable to 12 TB of storage capacity with 1 TB hot-swappable Serial ATA(SATA) disks • Expandable by attaching up to three EXP3000s, a total of 48 TB of storage capacity
DS3200	• 3 Gbps Serial Attached SCSI (SAS) interface technology • Easy to deploy and manage with the DS3000 Storage Manager • Scalable to 12 TB of storage capacity with 1 TB hot-swappable Serial ATA (SATA) disks
EXP3000	• 3 Gbps SAS interface technology • Support for up to 12 TB of storage in a single enclosure • Support for up to 48 TB in a cascaded configuration with MegaRAID 8480 adapter • 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

Operating Systems and Copy Services Platform Coverage

	DS4800	DS6800	DS8100 Turbo	DS8300 Turbo	ESS 800 RwW	XIV
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, FlashCopy SE, Metro Mirror, Global Mirror, Global Copy, Metro/Global Mirror	FlashCopy, FlashCopy SE, Metro Mirror, Global Mirror, Global Copy, Metro/Global Mirror	FlashCopy, Metro Mirror, Global Mirror, Global Copy, Metro/ Global Mirror (RPQ)	snapshot, synchro-nous mirroring, thin provisioning
Windows Server 2003	FlashCopy, VolumeCopy, Metro Mirror, Global Copy and Global Mirror	FlashCopy, Metro Mirror, Global Mirror, Global Copy	FlashCopy, FlashCopy SE, Metro Mirror, Global Mirror, Global Copy, Metro/Global Mirror	FlashCopy, FlashCopy SE, Metro Mirror, Global Mirror, Global Copy, Metro/Global Mirror	FlashCopy, Metro Mirror, Global Mirror, Global Copy, Metro/ Global Mirror (RPQ)	snapshot, synchro-nous mirroring, thin provisioning
NetWare	FlashCopy, VolumeCopy, Metro Mirror, Global Copy and Global Mirror	FlashCopy, Metro Mirror, Global Mirror, Global Copy	FlashCopy, FlashCopy SE, Metro Mirror, Global Mirror, Global Copy, Metro/Global Mirror	FlashCopy, FlashCopy SE, 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, FlashCopy SE, Metro Mirror, Global Mirror, Global Copy, Metro/Global Mirror	FlashCopy, FlashCopy SE, Metro Mirror, Global Mirror, Global Copy, Metro/Global Mirror	FlashCopy, Metro Mirror, Global Mirror, Global Copy, Metro/ Global Mirror (RPQ)	snapshot, synchro-nous mirroring, thin provisioning
AIX	FlashCopy, VolumeCopy, Metro Mirror, Global Copy and Global Mirror	FlashCopy, Metro Mirror, Global Mirror, Global Copy	FlashCopy, FlashCopy SE, Metro Mirror, Global Mirror, Global Copy, Metro/Global Mirror	FlashCopy, FlashCopy SE, Metro Mirror, Global Mirror, Global Copy, Metro/Global Mirror	FlashCopy, Metro Mirror, Global Mirror, Global Copy, Metro/ Global Mirror (RPQ)	snapshot, synchro-nous mirroring, thin provisioning
VMware	FlashCopy, VolumeCopy, Metro Mirror, Global Copy and Global Mirror	FlashCopy, Metro Mirror, Global Mirror, Global Copy	FlashCopy, FlashCopy SE, Metro Mirror, Global Mirror, Global Copy, Metro/Global Mirror	FlashCopy, FlashCopy SE, Metro Mirror, Global Mirror, Global Copy, Metro/Global Mirror	FlashCopy, Metro Mirror, Global Mirror, Global Copy, Metro/ Global Mirror (RPQ)	snapshot, synchro-nous mirroring, thin provisioning
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, FlashCopy SE, Metro Mirror, Global Mirror, Global Copy, Metro/Global Mirror	FlashCopy, FlashCopy SE, Metro Mirror, Global Mirror, Global Copy, Metro/Global Mirror	FlashCopy, Metro Mirror, Global Mirror, Global Copy, Metro/ Global Mirror (RPQ)	snapshot, synchro-nous mirroring, thin provisioning
Solaris	FlashCopy, VolumeCopy, Metro Mirror, Global Copy and Global Mirror	FlashCopy, Metro Mirror, Global Mirror, Global Copy	FlashCopy, FlashCopy SE, Metro Mirror, Global Mirror, Global Copy, Metro/Global Mirror	FlashCopy, FlashCopy SE, Metro Mirror, Global Mirror, Global Copy, Metro/Global Mirror	FlashCopy, Metro Mirror, Global Mirror, Global Copy, Metro/ Global Mirror (RPQ)	snapshot, synchro-nous mirroring, thin provisioning
IRIX	*	FlashCopy, Metro Mirror, Global Mirror, Global Copy	FlashCopy, FlashCopy SE, Metro Mirror, Global Mirror, Global Copy, Metro/Global Mirror	FlashCopy, FlashCopy SE, 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, FlashCopy SE, Metro Mirror, Global Mirror, Global Copy, Metro/Global Mirror	FlashCopy, FlashCopy SE, 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, FlashCopy SE, Metro Mirror, Global Mirror, Global Copy, Metro/Global Mirror	FlashCopy, FlashCopy SE, 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, FlashCopy SE, Metro Mirror, Global Mirror, Global Copy, z/OS Global Mirror, Metro/Global Mirror	FlashCopy, FlashCopy SE, 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, FlashCopy SE, Metro Mirror, Global Mirror, Global Copy, Metro/Global Copy	FlashCopy, FlashCopy SE, Metro Mirror, Global Mirror, Global Copy, Metro/Global Copy	FlashCopy, Metro Mirror, Global Mirror, Global Copy, Metro/ Global Mirror (RPQ)	
Apple Macintosh OSX		FlashCopy, Metro Mirror, Global Mirror, Global Copy	FlashCopy, FlashCopy SE, Metro Mirror, Global Mirror, Global Copy, Metro/Global Mirror	FlashCopy, FlashCopy SE, Metro Mirror, Global Mirror, Global Copy, Metro/Global Mirror		snapshot, synchro-nous mirroring, thin provisioning

* 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.

Operating Systems and Copy Services Platform Coverage (continued)

	EXP3000/MegaRAID	DS3200/DS3300/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	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 require turbo option.

Yes No

IBM System Storage N series—Unified Storage Systems

	N3000 Express series			N6000 series*			N7000 series	
	N3700	**N3300 Express**	**N3600 Express**	**N5200**	**N6040**	**N6070**	**N7700**	**N7900**
Model	2863-A10 (single) 2863-A20 (clustered)	2859-A10 (single) 2859-A20 (clustered)	2862-A10 (single) 2862-A20 (clustered)	2864-A10 (single) 2864-A20 (clustered)	2858-A10 (single) 2858-A20 (clustered)	2858-A10 (single) 2858-A20 (clustered)	2866-A11 (single) 2866-A21 (clustered)	2867-A11(single) 2867-A21 (clustered)
Maximum raw capacity	16 TB	68 TB	104 TB	84 TB	420 TB	840 TB	840 TB	1176 TB
Integrated Onboard I/O ports*	Two optical FC ports for tape attachment Four 1 Gbps Ethernet	Up to four (4) 4 Gbps Fibre Channel ports Up to four (4) 1 GbE ports	Up to four (4) 4 Gbps Fibre Channel ports Up to four (4) 1 GbE ports	Eight 2 Gbps FC Eight 1 Gbps Ethernet	Eight 4 Gbps FC Four 1 Gbps Ethernet	Eight 4 Gbps FC Four1 Gbps Ethernet	Sixteen 4 Gbps FC Twelve 1 Gbps Ethernet	Sixteen 4 Gbps FC Twelve 1 Gbps Ethernet
PCI expansion slots for additional FC HBAs or GbE NIC cards*	NA	0	2	6	5	5	16	16
Performance*	13,620 IO/sec	146 MB/sec	181 MB/sec	34,089 IO/sec	58,906 IO/sec	85,615 IO/sec	100,295 IO/sec	136,048 IO/sec
NVRAM*	256 MB	256 MB	512 MB	1 GB	1 GB	1 GB	1 GB	1 GB
Random Access Memory*	2 GB	2 GB	4 GB	4 GB	8 GB	32 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: 300 GB 10K, 144 GB 15K 4 Gbps FC: 144 GB 15K, 300 GB 15K, 450 GB 15K
SATA disk drive support	320 GB 7.2K, 500 GB 7.2K, 1 TB, 7.2K
SAS disk drive support (N3300 and N3600)	144 GB 15K, 300 GB 15K
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, MetroCluster, Protection Manager™
Redundancy/ high availability	CompactFlash dual redundant hot-plug integrated cooling fans, hot-swappable auto-ranging power supplies, clustered filers, hot-swappable disk bays
Backup	External tape (SCSI or Fibre Channel)
RAID levels	RAID 4, RAID-DP™ (double parity)
System management/ Storage management	FilerView®, SecureAdmin™, SNMP, Operations Manager, Protection 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, Clustered Failover, Data ONTAP, Disk Sanitization. FCP protocol, FlexCache, FlexClone®, FlexShare, FlexScale, FlexVol, FTP protocol, HTTP protocol, iSCSI protocol, LockVault™ Enterprise, MetroCluster, MultiStore®, NDMP protocol, NearStore® (near-line), NFS protocol, Open Systems SnapVault (OSSV), Operations Manager Core & SRM License, Protection Manager, Provisioning Manager, RAID 4, RAID-DP, SecureAdmin, Single Mailbox Recovery for Exchange (SMBR), SnapDrive®, SnapLock® Enterprise, SnapManager® for Exchange, SnapManager for Oracle, SnapManager for SAP SnapManager for SQL Server®, SnapManager for Microsoft Office SharePoint® Server, SnapMirror, SnapMover, SnapRestore, Snapshot, SnapValidator™, SnapVault, SyncMirror, Virtual File Manager™ (VFM)

* N6000 series Gateways are available ordered through a gateway feature.

IBM System Storage N series—Unified Storage Systems

	N5000 Gateway series	N7000 Gateway series	
	N5200	**N7700**	**N7900**
Model	2864-G10 (single) 2864-G20 (clustered)	2866-G11 (single) 2866-G21 (clustered)	2867-G11 (single) 2867-G21 (clustered)
Maximum raw capacity	84 TB	840 TB	1176 TB
Onboard I/O ports*	Eight 2 Gbps FC Eight 1 Gbps Ethernet	Sixteen 4 Gbps FC Twelve 1 Gbps Ethernet	Sixteen 4 Gbps FC Twelve 1 Gbps Ethernet
PCI expansion slots for additional FC HBAs or GbE NIC cards*	6	16	16
Performance*	34,089 IO/sec	100,295 IO/sec	136,048 IO/sec
NVRAM*	1 GB	1 GB	1 GB
Random Access Memory*	4 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, MetroCluster, Protection Manager
Redundancy/ high availability	CompactFlash dual redundant hot-plug integrated cooling fans, hot-swappable auto-ranging power supplies, clustered filers, hot-swappable disk bays
Backup	External tape (SCSI or Fibre Channel)
RAID levels	Provided by backend storage system
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, Clustered Failover, Data ONTAP, Disk Sanitization. FCP protocol, FlexCache, FlexClone, FlexShare, FlexScale, FlexVol, FTP protocol, HTTP protocol, iSCSI protocol, LockVault Enterprise, MetroCluster, MultiStore, NDMP protocol, NearStore (near-line), NFS protocol, Open Systems SnapVault (OSSV), Operations Manager Core & SRM License, Protection Manager, Provisioning Manager, SecureAdmin, Single Mailbox Recovery for Exchange (SMBR), SnapDrive, SnapLock Enterprise, SnapManager for Exchange, SnapManager for Oracle, SnapManager for SAP SnapManager for SQL Server, SnapManager for Microsoft Office SharePoint Server, SnapMirror, SnapMover, SnapRestore, Snapshot, SnapValidator, SnapVault, SyncMirror, Virtual File Manager (VFM)

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
- **Application-aware software**—SnapManager software provides host-based data management of N series storage for databases and business applications. Simplifies application-consistent policy-based automation for data protection and disaster recover. Snapshot copies and automates error-free data restores and enables application-aware disaster recovery
- **Thin Provisioning**—allows applications and users to get more space dynamically and non-disruptively without IT staff intervention
- **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. SnapMirror provides one-to-one, one-to-many and many-to-one mirroring over Fibre Channel or IP infrastructures
- **NearStore (near-line) feature**—SATA drive technology enables online 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
- **Compliance and data retention**—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 one-half 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/network/interophome.html
The following are trademarks or registered trademarks of NetApp Inc.; Data ONTAP, FlexCache, FlexScale, FlexVol, FilerView, Protection Manager, SecureAdmin, RAID-DP, SecureAdmin, FlexClone, MultiStore, SnapLock, LockVault, Snapshot, SnapDrive, SnapMirror, SnapMover, SnapRestore, SnapVault, SnapManager, SnapValidator, SyncMirror, FlexShare, NearStore, Virtual File Manager.

IBM System Storage DR550/Disk Storage Virtualization

	DR550	DR550
Product	IBM System Storage DR550	IBM System Storage DR550
Machine/model	2233 DR1	2233 DR2
Platform support	All IBM systems platforms and other vendor platforms	All IBM systems platforms and other vendor platforms
Host connectivity	2 port Gigabit Copper or Fibre Ethernet (upgrades available)	2 port Gigabit Copper or Fibre Ethernet (upgrades available)
Software	IBM System Storage Archive Manager (SSAM)	IBM System Storage Archive Manager (SSAM)
Archiving application interface	SSAM application programming interface (API) v5.5.0 or DR550 File System Gateway	SSAM application programming interface (API) v5.5.0 or DR550 File System Gateway
Controller	Single System p5™ POWER5+™	Single or Dual active/passive System p5 POWER5+
Operating system	IBM AIX, Version 5.3	IBM AIX, Version 5.3 Dual server includes IBM HACMP 5.3
Management interface	IBM Director 5.20.2	IBM Director 5.20.2
Systems supported	External Tape and Optical	External Tape and Optical
Backup sw	Included in SSAM	Included in SSAM
Backup hw	External tape	External tape
Copy services	NA	Metro or Global mirroring
Encryption	Disk or tape, 128-bit AES or 56-bit DES encryption technology	Disk or tape, 128-bit AES or 56-bit DES encryption technology
RAID support	5 and 6	5 and 6
Capacity (min, max)	.88 TB, 48.8 TB	8 TB, 224 TB
Drive support	1 TB SATA	1 TB SATA

DR550 Highlights

- An award-winning and industry-proven information archiving and retention offering with built-in lifecycle management capabilities to help organizations meet the growing challenges of efficiently managing, protecting and retaining data.
- Repository for all kinds of content (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) helping lower TCO
- 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 224 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
- Protect customer data against disasters through Synchronous or Asynchronous Replication
- Award-winning: Data Protection Summit—Information Lifecycle Management (ILM)—Best of Show, 2007 and AIIM (The Enterprise Content Management Association)—Best in Show, 2005, 2006

IBM System Storage Multilevel Grid Access Manager Software (Grid Access Manager Software)

Function and Value	Highlights
Grid Access Manager Software is built on an open, high-performance grid architecture that delivers data protection, information lifecycle management, simplified storage management and multi-site data access based on open standards. Grid Access Manager Software enables customers with single or multiple sites and with fixed content/reference data storage requirements to improve storage utilization and investment across sites by way of an enterprise-wide, fault-tolerant storage grid with real-time failover capabilities. Grid Access Manager Software can help protect enterprise data through automated replication, lifecycle management and digital signature functionality.	• The potential benefits derived from these features can help deliver important cost savings and operational efficiencies, including: Simplified management and improved storage utilization, with excellent performance; Data protection and improved business continuity; Support for global access, multi-site operation.

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. New Space-Efficient Virtual Disks (thin provisioning) and Space-Efficient FlashCopy (snapshots) functions can help improve storage utilization even further. • **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 allow you to 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, can 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

IBM Tivoli Storage Manager is designed to protect 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 reduce 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, allowing customers to customize, better secure and extend the functionality of their storage environment.

Highlights

- 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 Extended Edition expands on Tivoli Storage Manager backup, restore and archive abilities. It helps expedite disaster recovery with detailed planning and automated scripts. Disaster recovery reporting functionality can track where offsite copies of data are stored.

IBM Tivoli Storage Manager FastBack

Next-generation data protection and recovery solution provides customers the power to quickly recover any amount of Microsoft Windows server data, anywhere in the organization, from any previous point-in-time, following almost any type of data loss. These solutions are an excellent complement to IBM Tivoli Storage Manager offerings, providing additional protection and recovery capabilities for Microsoft Windows servers in the data center and in remote/branch offices.

IBM Tivoli Storage Manager FastBack for Microsoft Exchange

Fast and easy recovery of individual e-mail objects from a Microsoft Exchange Database (EDB), including messages, attachments, contacts, calendar entries, tasks, notes and journal entries. Works with either TSM FastBack or TSM for Mail.

IBM Tivoli Storage Manager FastBack for Bare Machine Recovery

Restores the operating system volume of Microsoft Windows servers, within an hour, to similar, dissimilar or Virtual server platforms. Used in conjunction with the near-instant data volume restore capabilities of TSM FastBack, an entire server workload can be moved and operational, anywhere in the organization, to recover from almost any type of disaster, in about an hour.

IBM Tivoli Storage Manager FastBack Center

IBM Tivoli Storage Manager FastBack Center is a convenient, cost-effective, easy-to-order and deploy combination of TSM FastBack, TSM FastBack for Microsoft Exchange and TSM FastBack for Bare Machine Recovery.

IBM Tivoli Storage Manager for Advanced Copy Services
IBM Tivoli Storage Manager for Copy Services

IBM Tivoli Storage Manager for Advanced Copy Services and IBM Tivoli Storage Manager for Copy Services help protect mission-critical data that requires 24x7 availability. They offer ready-to-use, product-based solutions designed to implement high-efficiency backup and restore processes and helps eliminate backup-related performance issues. TSM for Copy Services provides the integration with Microsoft Volume Shadow Copy Service (VSS) and VSS providers for snapshots. TSM for Advanced Copy Services provides the integration with IBM FlashCopy as supported by IBM System Storage SAN Volume Controller (SVC), IBM System Storage DS6000, IBM System Storage DS8000, and other snapshot mechanisms.

IBM Tivoli Storage Manager for Enterprise Resource Planning

IBM Tivoli Storage Manager for Enterprise Resource Planning protects your vital SAP system data. Now you can improve the availability of your SAP database servers and reduce your administration workload with automated data protection designed for mySAP environments.

IBM Tivoli Storage Manager for Mail

IBM Tivoli Storage Manager for Mail protects data on e-mail servers running Lotus® Domino® or Microsoft Exchange. This software module for Tivoli Storage Manager automates data protection, enables "hot" backups without shutting down the server and improves data restore performance.

IBM Tivoli Storage Manager for Microsoft SharePoint

IBM Tivoli Storage Manager for Microsoft SharePoint is a policy-based backup and recovery solution. Quickly and confidently restore your Microsoft SharePoint business data and content after almost any kind of business interruption.

IBM Tivoli Storage Manager for Space Management

IBM Tivoli Storage Manager for Space Management moves inactive data to reclaim online disk space for important active data. It frees administrators and users from manual file system pruning tasks, and can allow you to defer the need to purchase additional disk storage.

IBM Tivoli Storage Manager for Storage Area Networks

IBM Tivoli Storage Manager for Storage Area Networks works with servers and client computers to make data transfers over SAN. It allows SAN-connected Storage Manager servers and Storage Manager client computers to make maximum use of their direct network connection to storage.

Tivoli Storage Manager for System Backup and Recovery

IBM Tivoli Storage Manager for System Backup and Recovery delivers a flexible backup method for your AIX systems. It offers a comprehensive system backup, restore and reinstallation tool including Bare Machine Recovery, and can be executed from either the AIX command line or by using the SMIT menu interface.

IBM Tivoli Continuous Data Protection for Files

IBM Tivoli Continuous Data Protection for Files backs up your most important files the moment they are saved. It provides a real-time, continuous data protection solution for desktop and laptop computers, effortlessly and transparently, without administrative intervention.

Cristie Bare Machine Restore

Cristie Bare Machine Recovery (CBMR) integrates with IBM Tivoli Storage Manager to provide a Bare Machine Recovery (BMR) solution for Windows, Linux, SUN Solaris and HP-UX. CBMR combined with Tivoli Storage Manager functionality allows customers to recover a Windows 2000, XP or 2003 operating system to a new disk drive, RAID array or a completely new machine using only a CD and a disaster recovery backup stored in the Tivoli Storage Manager server. This functionality is also supported for Linux, SUN Solaris and HP-UX operating systems.

IBM TotalStorage Productivity Center

Product	Function and Value	Highlights
IBM TotalStorage Productivity Center Basic Edition	IBM TotalStorage Productivity Center Basic Edition is designed to provide basic storage resource management through a centralized location. It extends existing management of a single storage system and provides capabilities such as storage reporting, monitoring, policy-based management and storage provisioning.	• Inexpensive entry point for IT managers requiring basic asset and capacity reporting. • Designed to provide storage management via the SNIA Storage Management Interface Specification (SMI-S), which includes the IBM System Storage DS family, IBM System Storage SAN Volume Controller (SVC) and other vendor storage devices that have implemented support for the SMI-S standards.
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, performance analytics, capacity utilization, storage optimization, green tools 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 Data	IBM TotalStorage Productivity Center for Data is a Storage Resource Management (SRM) tool for storage environments that provides 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 help you manage more storage with the same staff
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

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 Mirror, Global Mirror and IBM FlashCopy management. It is also designed to monitor and automate copy operations across devices to support a replication environment. TotalStorage Productivity Center for Replication is available in both Two-Site and Three-Site Business Continuity options and provides disaster recovery management through planned and unplanned failover and failback automation for the IBM ESS Model 800, IBM DS6000, IBM DS8000 and the IBM System Storage SAN Volume Controller.	• Automates the configuration of your IBM DS8000, DS6000™ and ESS Model 800 and the IBM SAN Volume Controller advanced copy services features • Monitors and manages the replication operations to ensure successful completion from your source volumes to your disaster recovery volumes • Allows 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 • Designed to provide automated failover 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 Standard Edition	Combines the best of Disk, Data and Fabric products 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 System Storage Productivity Center	An integrated offering that provides a consolidated focal point for managing IBM storage products as well as managing mixed-vendor storage environments. SSPC provides enhancements to daily storage administration by making available a broader set of configuration functions.	• Combines the power of a customized IBM System x server with preinstalled storage software that represents a significant point of centralized management. SSPC enhances several rudimentary device utilities for easier, more intuitive, context-based administration and, on the whole, lowers resource overhead.

IBM Global Services for System Storage and Storage Networking

Data Storage Services from IBM can help you achieve 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

Design
- 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

Financing that supports throughout the technology life cycle

IBM Global Financing can help you accelerate your acquisitions of the latest technology and services, and help make your IT and information infrastructure projects more affordable by providing competitive, customized financing of your storage, server, PC, software and services investments. In addition, IBM Global Financing can also enable you to reduce technology obsolescence risk and handle planning for disposal and replacement of your IT hardware assets. With single-source, customized, competitive financing of the entire life cycle of your IT equipment, it is easier to manage both the up-front investment and the ongoing operating costs.

From acquisition through daily use, buyback and disposal, our end-to-end offerings form the foundation of a cohesive technology management strategy, improve asset management and increase your flexibility in small and large IT projects.

Offerings, rates, terms and availability may vary by country. Contact your local IBM representative or visit the Web at **ibm.com**/financing

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November 2008
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TSO00364-USEN-29
G325-3369-29