



IBM System Storage Product Guide



Cost effective and reliable access to your information

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

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

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

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

Empower your people to innovate and make more informed business decisions

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

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

Get the most value from your information

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

- Align your storage investment with the value of your information using comprehensive tiered storage, policy-based automation and intelligent information management solutions from IBM

- Confidently protect your strategic information assets and efficiently comply with regulatory and security requirements with the unrivaled breadth of storage solutions from IBM.

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

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

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

Entry SAN switches for easy-to-use small, medium business (SMB) solutions

<p>IBM System Storage SAN100-2 (691810X)</p>	<ul style="list-style-type: none"> • Small and capable; an easy-to-use fabric switch that only consumes 1U and half rack width in a standard rack. This 4 Gigabits per second (Gbps) switch has ten auto-sensing, auto-configuring ports. It comes in a complete package with four small form-factor pluggables (SFPs) and SANsurfer Express software, which enables easy switch installation, manageability and fabric scaling
<p>IBM TotalStorage SAN16B-2 (2005-B16) IBM TotalStorage SAN16B-2 Express Model (200516B)</p>	<ul style="list-style-type: none"> • Provides high performance, scalable and simple-to-use fabric switch with 8, 12 or 16 ports operating at 1, 2 and 4 Gbps fabric for servers running Microsoft® Windows®, UNIX®, Linux®, NetWare and IBM OS/400 operating systems (OS), server clustering, infrastructure simplification and business continuity solutions. The SAN16B-2 includes Advanced Web Tools, an easy-to-use configuration wizard designed to simplify setup and ongoing maintenance for novice users
<p>IBM TotalStorage SAN16M-2 (2026-416) IBM TotalStorage SAN16M-2 Express Model (202616E)</p>	<ul style="list-style-type: none"> • Provides high performance, scalable and simple-to-use fabric with 8, 12 or 16 ports operating at 1, 2 and 4 Gbps fabric for servers running Microsoft Windows, UNIX, Linux, NetWare and OS/400 OS, server clustering, infrastructure simplification and business continuity solutions. The base switch includes dual power, zoning, enterprise fabric connectivity manager (EFCM) Basic management and an easy-to-use installation wizard designed to simplify setup and ongoing maintenance for novice users

Midrange SAN switches for scalable SMB and enterprise solutions

<p>IBM System Storage SAN32B-3 (2005-B5K, 20055KB) IBM TotalStorage SAN32B-2 (2005-B32) IBM TotalStorage SAN32B-2 Express Model (200532B)</p>	<ul style="list-style-type: none"> • Provides high performance, scalable and simple-to-use fabric switch with 16, 24 or 32 ports operating at 1, 2 and 4 Gbps fabric for servers running Microsoft Windows, UNIX, Linux, NetWare and OS/400 OS, server clustering, infrastructure simplification and business continuity solutions. The SAN32B-2 and SAN32B-3 include dual replaceable power supplies, Advanced Zoning, Fabric Watch and Web Tools
<p>IBM TotalStorage SAN32M-2 (2026-432) IBM TotalStorage SAN32M-2 Express Model (202632E)</p>	<ul style="list-style-type: none"> • Provides high performance, scalable and simple-to-use fabric with 16, 24 or 32 ports operating at 1, 2 and 4 Gbps fabric for servers running Microsoft Windows, UNIX, Linux, NetWare and OS/400 OS, server clustering, infrastructure simplification and business continuity solutions. The base switch includes dual power, zoning, EFCM Basic management and an easy-to-use installation wizard designed to simplify setup and ongoing maintenance for novice users
<p>IBM TotalStorage SAN64B-2 (2005-B64)</p>	<ul style="list-style-type: none"> • Provides high performance, scalable and simple-to-use fabric switch with 32, 48 or 64 ports operating at 1, 2 and 4 Gbps fabric for servers running Microsoft Windows, UNIX, Linux, NetWare, OS/400 and z/OS OS, server clustering, infrastructure simplification and business continuity solutions. The SAN64B-2 includes dual replaceable power supplies, Advanced Zoning, Fabric Watch and Web Tools
<p>Cisco MDS 9124 for IBM System Storage (2053-424)</p>	<ul style="list-style-type: none"> • Provides high performance, scalable and simple-to-use fabric switch with 8, 16 or 24 ports operating at 1, 2 and 4 Gbps for servers running Microsoft Windows, UNIX, Linux, NetWare and OS/400 OS, 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
<p>Cisco MDS 9216i for IBM System Storage (2054-D1H)</p>	<ul style="list-style-type: none"> • Provides SAN switching for Intel processor-based servers, System i, System p and IBM System z. Midrange 14-port, 1 and 2 Gbps Fibre Channel (FC) and 2-port Gigabit Ethernet (GbE) model with; one feature slot for 1, 2, 4 Gbps or 10 Gbps FC line card and IBM FICON switch for Windows, Linux, UNIX and IBM z/OS server, includes one module slot, Virtual SAN and Cisco Fabric Manager
<p>Cisco MDS 9216A for IBM System Storage (2054-D1A)</p>	<ul style="list-style-type: none"> • Provides SAN switching for Intel® processor-based servers, System i, System p and IBM System z. Midrange 16-port, 1 and 2 Gbps FC model with; one feature slot for 1, 2, 4 Gbps or 10 Gbps FC line card and IBM FICON switch for Windows, Linux, UNIX and IBM z/OS server, includes one module slot, Virtual SAN and Cisco Fabric Manager

Enterprise SAN directors for high availability (HA) and scalability enterprise solutions

<p>IBM TotalStorage SAN256B (2109-M48)</p>	<ul style="list-style-type: none"> • 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 HA and from one to eight blades, each of which contains either 16, 32 or 48 ports. Each port can support 1, 2 or 4 Gbps FC and FICON link speeds. A FC Routing blade is also available to enable routing between heterogeneous SAN fabrics and distance extension between sites using FCIP. Standard features including Advanced Inter-Switch Link (ISL) Trunking, Web Tools, Advanced Zoning, Fabric Watch, Performance Monitoring and Fabric Access Layer application programming interfaces (API)
<p>IBM TotalStorage SAN140M (2027-140)</p>	<ul style="list-style-type: none"> • HA enterprise SAN director for Intel processor-based servers, System i, System p and System z. Provides 16 to 140 port, scalable in 4-port increments, 1, 2 and 4 Gbps FC and FICON switch for Windows, Linux, UNIX and z/OS servers • Provides 10 Gbps backbone links for high performance continuity solutions
<p>IBM TotalStorage SAN256M (2027-256)</p>	<ul style="list-style-type: none"> • HA enterprise SAN director for Intel processor-based servers, System i, System p, IBM System x and System z. Provides 64 to 256 port, scalable in 32-port increments, 1, 2 and 4 Gbps FC and FICON director with 10 Gbps backbone links for Windows, Linux, UNIX and z/OS servers. Includes Director FlexPar capability for up to four logical partitions (LPARs) with separate fabric services
<p>Cisco MDS 9506 for IBM System Storage (2054-E04)</p>	<ul style="list-style-type: none"> • HA enterprise SAN director for Intel processor-based servers, System i, System p and System z. Provides 12 to 96 ports (12-, 24- and 48-port modules) 1, 2 and 4 Gbps FC and FICON switch for Windows, Linux, UNIX and z/OS servers
<p>Cisco MDS 9509 for IBM System Storage (2054-E07)</p>	<ul style="list-style-type: none"> • HA enterprise SAN director for Intel processor-based servers, System i, System p and System z. Provides 12 to 236 ports (12-, 24- and 48-port modules) 1, 2 and 4 Gbps FC and FICON switch for Windows, Linux, UNIX and z/OS servers
<p>Cisco MDS 9513 for IBM System Storage (2054-E11)</p>	<ul style="list-style-type: none"> • HA enterprise SAN director for Intel processor-based servers, System i, System p and System z. Provides 12 to 528 ports with 12, 24 and/or 48 port 1, 2 and 4 Gbps switching modules with 10 Gbps backbone links for Windows, Linux, UNIX and z/OS servers

SAN routers to connect heterogeneous SAN fabrics and enable distance extension using FC over internet protocol (IP)

<p>IBM TotalStorage SAN16B-R SAN router (2109-A16)</p>	<ul style="list-style-type: none"> • Provides multi-protocol SAN routing for IBM System x, System i and System p. Router includes eight or sixteen 1 and 2 Gbps FC and GbE ports and iSCSI server connectivity. FC-FC Routing for SAN island consolidation and FCIP Tunnelling Service for SAN extension of IP wide area network (WAN) infrastructures features
<p>IBM TotalStorage SAN18B-R SAN router (2005-R18)</p>	<ul style="list-style-type: none"> • Provides multi-protocol SAN routing for IBM System x, System i and System p. Router includes sixteen 1, 2 and 4 Gbps FC or FICON and two GbE ports. FC-FC Routing for SAN island consolidation and FCIP Tunnelling Service for SAN extension of IP WAN infrastructures features
<p>IBM TotalStorage SAN04M-R SAN router (2027-R04)</p>	<ul style="list-style-type: none"> • Provides two FC ports for attachment to existing SANs and two GbE ports with Internet SCSI, iSCSI server connectivity for cost-effective infrastructure simplification solutions. Internet Fibre Channel Protocol (iFCP) features are offered for cost-effective high performance metro and global business continuity solutions
<p>IBM TotalStorage SAN16M-R SAN router (2027-R16)</p>	<ul style="list-style-type: none"> • Provides multi-protocol SAN routing with twelve 2 Gbps FC ports for attachment to existing SANs and four GbE ports with iSCSI server connectivity for enterprise infrastructure simplification solutions. SAN Routing features for SAN island consolidation and iFCP features for SAN extension over IP WAN infrastructures for enterprise business continuity solutions.

Entry-level/Midrange Tape Products



	Entry-level Tape Drives			Entry-level Tape Libraries				Midrange Tape Drives		Midrange Tape Libraries	
	TS2230	3580	TS2340	TS3100	TS3100	TS3200	TS3200	TS1030	TS1040	TS3310	TS3500
Product Name	3580	3580	3580	3573 L2U	3573 L2 3573 L4U U featuring Ultrium 3 Half-High (HH)	3573 L4U	3573 L4U featuring Ultrium 3 HH	3588	3588	3576	3584
Machine Type model	H3L	3580 L33	L43 S43	3573 L2U and PNs 3573L3S, 3573F3S, 3573L4S, 3583F4S, 3583S4S	3573 PNs 3573L32, 3573S32	3573 L4U and PNs 3573L3H, 3573F3H, 3573L4H, 3573F4H, 3573S4H	3573 PNs 3573L34, 3573S34	3588 F3B	F4A	3576 L5U E9U	3584 L53 D53
Product strengths	Multi-platform support HH form factor Lower entry price	Multi-platform support Backward read capable to LTO1 Max performance for LTO3	3 Gigabit (Gb) serial attached SCSI (SAS) attachment Encryption capable Multi-platform support High performance High capacity	multi-platform support high performance high capacity	multi-platform support, same capacity as full high at a lower price	multi-platform support high performance high capacity	multi-platform support, same capacity as full high at a lower price	multi-platform support high performance high capacity	multi-platform support high performance high capacity data protection	multi-platform support high performance high capacity	multi-platform support high performance high capacity
Number of drives	1	1	1	1	1 or 2 LTO Gen 3 HH	1-2	1-4 LTO Gen 3 HH	1	1	1-18	1-192
Max number of cartridges	1	1	1	24	24	48	48	NA	NA	396	6,887 ¹
Write once, read many (WORM)/ Encryption	yes/no	yes/no	yes/yes	yes/yes	yes/no	yes/yes	yes/no	yes/no	yes/yes	yes/yes	yes/yes
Native capacity	Gen 3: 400 Gigabyte (GB)	Gen 3: 400 GB	Gen 4: 800 GB	Gen 3: 9.6 TB Gen 4: 19.2 TB	up to 9.6 Terabyte (TB)	Gen 3: 19.2 TB Gen 4: 38.4 TB	up to 19.2 TB	400 GB	800 GB	Gen 3: 158.4 TB Gen 4: 316.8 TB	up to 5.5 PB
Typical capacity²	Gen 3: 800 GB	Gen 3: 800 GB	Gen 4: 1600 GB	Up to 38.4 TB	up to 19.2 TB	Up to 76.8 TB	up to 38.4 TB	800 GB	1600 GB	up to 633.8 TB	up to 11 PB
Native performance	Gen 3: 60 Megabytes per second (MBps)	Gen 3: 80 MBps	Gen 4: 120 MBps	120 MBps	up to 120 MBps	up to 240 MBps	up to 240 MBps	80 MBps	120 MBps	21.6 GBps	up to 23 Terabytes per second (TBps)
Interface	160 Mbps small computer system interface (SCSI)	160 MBps SCSI	4 Gbps FC 3 Gbps SAS	4 Gbps FC 3 Gbps SAS Low voltage differential (LVD) SCSI	3 Gbps SAS LVD SCSI	4 Gbps FC 3 Gbps SAS LVD SCSI	3 Gbps SAS LVD SCSI	4 Gbps FC	4 Gbps FC	4 Gbps FC 3 Gbps SAS LVD SCSI	4 Gbps FC SCSI-LVD
Supported tape libraries	NA	NA	NA	NA	NA	NA	NA	TS3500	TS3500	NA	NA
Platform support⁴	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, 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, 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 support⁵	A, B, C, D, E, F, G, H, J, L, M	A, B, C, D, E, F, G, H, J, L, M, N ⁷	A (others in plan)	A, B, C, D, E, F, G, H, J, L, M, N ⁷	B (others in plan)	A, B, C, D, E, F, G, H, J, L, N ⁷	B (others in plan)	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	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	Three years ⁶	Three years ⁶	Three years ⁶	Three years ⁶	Three years ⁶	Three years ⁶	Three years ⁶	One year	One year	One year	One year
Warranty type	Customer replaceable unit (CRU)	CRU	CRU	CRU	CRU	CRU	CRU	On-site Repair (around-the-clock)	On-site Repair (around-the-clock)	Next Business Day (9 A.M. to 5 P.M.)	On-site Repair (around-the-clock)

F/W = Fast/Wide, Diff = Differential, N/A = Not Applicable, FC = FC, X = Extended length cartridge, IOE = IBM On-site 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, Netfinity, IBM System i, IBM AS/400 and IBM System p servers. System z support for Linux only 5: Refer to ibm.com/storage/tape/compatibility 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 = Veritas.

Enterprise Tape Products



	Tape Drive	Tape Controller	Tape Library		Tape Virtualisation		
	3592	3592	3577	3584	Virtualization Engine		
Product Name	TS1120	TS1120	TS3400	TS3500	TS7510	TS7520	TS7740
Machine Type	3592	3592	3577	3584	3954	3954	3957
model	E05	C06	L5U	L23 D23	CV5 (requires additional machine types and models)	CV6 (requires additional machine types and models)	VO6 (requires additional machine types and models)
Product strengths	multi-platform support high performance high capacity data protection	System z attachment of TS1120 drives high performance	compact format operates in library or autoloader mode	multiplatform support advanced management scalable	reduces backup window reduces recovery time augments native tape	reduces backup window reduces recovery time high capacity	increases performance scalable reduces cost
Number of drives	1	1–12	1–2	1–192	up to 512 (1 node)* up to 1,024 (2 node)*	up to 1024 (1 node)* up to 4096 (4 node)*	up to 128* up to 256* (GRID)
WORM/ Encryption	yes/yes	yes/yes	yes/yes	yes/yes	no/yes**	no/yes	no/no
Number of cartridges	NA	NA	18	6260 ²	up to 4,096 (1 node)* up to 8,192 (2 node)*	up to 64,000 (1 node)* up to 256,000 (4 node)*	up to 500,000*
Native capacity	60/100 GB (JJ/JR media) 300/500 GB (JA/JW media) 700 GB (JB/JX media)	NA	up to 1.8 TB up to 9 TB up to 12.6 TB	up to 626 TB up to 3.1 PB up to 4.3 PB	up to 23 TB (1 node) up to 46 TB (2 node)	up to 884 TB EE ¹² up to 19.5 TB LE ¹²	up to 6 TB up to 12 TB (GRID)
Typical capacity¹	180/300 GB with JJ/JR 900/1500 GB with JA/JW 2.1 TB with JB/JX	NA	up to 5.4 TB up to 27 TB up to 37.8 TB	up to 1.87 PB up to 9.3 PB up to 13.1 PB	up to 46 TB (1 node) up to 92 TB (2 node)	up to 884 TB EE ¹² up to 1.76 PB	up to 18 TB up to 36 TB (GRID)
Native performance	up to 104 MBps	Varies ⁶	up to 208 MBps	up to 104 MBps	up to 600 MBps	up to 4.8 GBps	up to 600 MBps
Interface	4 Gbps FC	4 Gbps FC	4 Gbps FC	4 Gbps FC	2 Gbps FC	4 Gbps FC	4 Gbps FC
Supported tape library	TS3400, TS3500, 3494***	TS3500, 3494***	NA	NA	TS3500, 3494***	TS3500, TS3310, TS3200, TS3100, 3494***	TS3500, 3494***
Platform support⁶	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 ¹⁰ ; 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 x, System z ¹⁰ ; System i ¹¹ ; 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
Application support⁶	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	A, B, D, E, F, H ⁷	A, B	E
Media	Refer to Tape Media, page 8	NA	Refer to Tape Media, page 8	Refer to Tape Media, page 8	NA	NA	NA
Warranty period	One year	One year	One year	One year	One year	One year	One year
Warranty type	On-site Repair (around-the-clock)	On-site Repair (around-the-clock)	On-site Repair (around-the-clock)	On-site Repair (around-the-clock)	On-site Repair (around-the-clock)	On-site Repair (around-the-clock)	On-site Repair (around-the-clock)

* Virtual resource specification
 ** for data replication only
 *** Product withdrawn from marketing

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 ibm.com/storage/tape/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

Other Backup Tape Products



	Tape Drives				Optical	
	7206-336	7206-VXA	7207	7212	7210	3996
Product Name	DAT72 Tape Drive	VXA-2 Tape Drive	SLR60 Tape Drive	Device Enclosure*	DVD option	Library
Machine Type	7206	7206	7207	7212	7210	3996
model	336-DDS Gen 5	VX2, VX3	330	103	030	32, 80, 174
Product strengths	Cost-effective streaming tape drive	Low-cost, high-capacity VXA-2 technology	Backward read/write compatible with System i internal	Rack-mountable 2-drive enclosure utilises only 1U (1.75") of space	External deskside	Large scale optical
Number of drives	1	1	1	1-2	1	up to 4
Max number of cartridges	1	1	1	2	1	up to 166
Cartridge capacity native/compressed	36/72 GB	VX2: 80/160 GB VX3: 160/320 GB	330: 30/60 GB	DVD: Variable (FC1103) VXA2: 80/160GB (FC 1104) DAT72:36/72GB (FC1105) SLR60:Variable (FC1107) SLR100:Variable (FC1108) HHLT02:200/400GB (FC1109) XVA320 (FC1114)	4.9/9.4 GB	30 GB
Max drive data rate¹ native/compressed	336: 3/6 MBps	VX2: 6/12 MBps VX3: 12/24 MBps	330: 4/8 MBps	DDS/DAT72: 3/6 MBps VXA: 12/24 MBps	NA	8 MBps
Interface	SCSI-2 F/W SE, LVD/SE	SCSI-3 ULTRA, LVD/SE, 160/320	SCSI-2 SE, ULTRA, LVD/SE, 160/320	SCSI-3 ULTRA, LVS/SE, 160/320	SCSI-3 ULTRA, LVD-SE, 160/320	LVD SCSI, 160/320
Platform support²	System p	System p, System i	System p, System i	System p, System i	System p, System i	System p, System i
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
Warranty period	One year	One year	One year	One year	One year	One year
Warranty type	On-site Repair (around-the-clock)	On-site Repair (around-the-clock)	On-site Repair (around-the-clock)	On-site Repair (around-the-clock)	CRU, On-site Repair	On-site Repair (around-the-clock)

* 7212-102 also offers DVD-ROM and DVD-RAM optical drives
For most current information, visit: ibm.com/servers/storage/tape/compatibility/index.html

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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. **4:** Also includes selected System x, System i and System p. System z support for Linux only **5:** Refer to ibm.com/storage/tape/connext for current application support **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	Native Capacity*	System z	System p	System i**	System x	Open Systems***
Entry tape products	3580 tape drive	120 MBps	1600 GB	Yes	Yes	Yes	Yes	Yes
	TS3100 tape library	120 MBps	up to 35.2 TB	Yes	Yes	Yes	Yes	Yes
	TS3100 tape library with HH drives	60 MBps	up to 19.2 TB	Yes	Yes	Yes	Yes	Yes
	TS3200 tape library	240 MBps	up to 70.4 TB	Yes	Yes	Yes	Yes	Yes
	TS3200 tape library with HH drives	120 MBps	up to 38.4 TB	Yes	Yes	Yes	Yes	Yes
Midrange tape products	TS1040 tape drive	120 MBps	1600 GB	Partial	Yes	Yes	Yes	Yes
	TS3310 tape library	up to 21.6 GBps	up to 633.6 TB	Partial	Yes	Yes	Yes	Yes
	TS3500 tape library	up to 23 TBps	up to 11 PB	Yes	Yes	Yes	Yes	Yes
Enterprise tape products	TS1120 tape drive	up to 104 MBps	2100 GB	Yes	Yes	Yes	Yes	Yes
	TS1120 tape controller	up to 230 MBps	NA	Yes	Yes	Yes	Yes	Yes
	TS3400 tape library	up to 208 MBps	up to 37.8 TB	Partial	Yes	Yes	Yes	Yes
	TS3500 tape library	up to 19.2 TBps	up to 13.1 PB	Yes	Yes	Yes	Yes	Yes
Tape Virtualisation	TS7510**	up to 600 MBps	up to 92 TB	Partial	Yes	Yes	Yes	Yes
	TS7520**	up to 4.8 GBps	up to 1.76 PB	Partial	Yes	Yes	Yes	Yes
	TS7740	up to 600 MBps	up to 36 TB	Yes	Yes	Yes	Yes	Yes
Other backup products	3996	up to 8 MBps	5.2 TB	Yes	Yes	Yes	Yes	Yes
	7206-336	up to 3 MBps	72 GB	Yes	Yes	Yes	Yes	Yes
	7206-VX2	up to 6 MBps	60 GB	Yes	Yes	Yes	Yes	Yes
	7206-VX3	up to 24 MBps	160 GB	Yes	Yes	Yes	Yes	Yes
	7207-330	up to 4 MBps	60 GB	Yes	Yes	Yes	Yes	Yes
	7212-103	up to 12 MBps	320 GB	Yes	Yes	Yes	Yes	Yes

* 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.



IBM Systems

Customer demand for lightning-fast communication and transactions has driven the need for universal commitment to e-business. No matter what industry, or what size company, success today hinges on building 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 minimise 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, independent software vendor (ISV) and Business Partner (BP) software and market leading hardware components which together deliver solutions that address today's client needs.

Customer Benefits

Pre-qualified configurations

Customers will be better able to identify a variety of pre-qualified, interoperable storage elements. By taking pre-qualified applications and hardware and combining them with IBM storage technology a client can have an easier time identifying solutions that address their storage needs.

IBM BP Benefits

Potential for reduced sales cycle and integration issues

For IBM BPs, the IBM System Storage Proven program is intended to help reduce the sales cycle and integration issues, allowing more time for higher margin customisation. Another added value for IBM BPs is the interoperability qualification program where companies work together with IBM, which can help supports 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 five hundred available products and solutions from over three hundred participating companies to meet your storage needs.

IBM Business Partner Innovations Centres (BPIC)

More than 140 worldwide IBM TotalStorage Solution Centres can deliver one-stop shopping for storage hardware, software and consulting services. The Solution Centres 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 centres also work with the leading storage software providers to support a wide variety of choices for interoperability. IBM BPs 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			Part number	Related products	Part number		
			Length (m/feet)	native	Compressed (typical)					
Enterprise tape	<ul style="list-style-type: none"> • Custom labelling and initialisation services are available • Server tracks help improve data integrity • Cartridge intermix within libraries supports smooth migration, legacy systems • WORM functionality 	3592 Tape Cartridge	825/2706 825/2706 610/2001 610/2001 246/810 246/810	700 GB 700 GB WORM 300/500 GB 300/500 GB WORM 60/100 GB 60/100 GB WORM	2.1 TB 2.1 TB WORM 900 GB/1.5 TB 900 GB/1.5 TB WORM 180/300 GB 180/300 GB WORM	23R9830 23R9831 18P7534 18P7538 24R0316 24R0317	3592 Cleaning Cartridge	18P7535		
		3590 Tape Cartridge	320/1050	10/20/30 GB	30/60/90 GB	05H4434			3590 Conductive Abrasive Cleaning Cartridge	05H4435
		3590E Tape Cartridge	634/2070	20/40/60 GB	60/120/ 180 GB	05H3188 05H3302-J-less 08L6091-K-less			3480/3490 Conductive Cleaner 3480/3490 Cleaning Cartridge 3592 Cleaning Cartridge	05H3917 4780527 18P7535
		3490E Enhanced Capacity Tape Cartridge (36-track)	335/1100	800 MB	2.4 GB	09G4494				
		3480 Tape Cartridge (18-track)	165/541	200 MB		4479753				
.31" MP tape	<ul style="list-style-type: none"> • 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				
Linear tape-open (LTO) tape	<ul style="list-style-type: none"> • Media uses industry-leading, interchangeable LTO format • Cartridge is highest-capacity open standard tape cartridge available • Custom labelling is available • IBM-exclusive Statistical Analysis and Reporting System (SARS) statistics are stored in cartridge memory • High durability helps support automation environments 	Ultrium 4	820/2690	800 GB	1600 GB	95P4436	Ultrium Cleaning Cartridge (all) Leader Pin Attachment Kit LTO 6-Cartridge Magazine	35L2086 08L9129 19P4529		
		Ultrium 4 WORM	820/2690	800 GB	1600 GB	95P4450				
		Ultrium 3	680/2231	400 GB	800 GB	24R1922				
		Ultrium 3 WORM	680/2231	400 GB	800 GB	96P1203				
		Ultrium 2	609/1998	200 GB	400 GB	08L9870				
Optical cartridge	<ul style="list-style-type: none"> • 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		3R2568 3R2567 WORM				
SDLTtape	<ul style="list-style-type: none"> • Optical servo and backcoating technologies help support precision positioning and high-capacity recording • New leader buckle helps accurate loading and new durable cartridge design 	SDLT-1 SDLT220	557/1800	110 GB	220 GB	35L1119	Cleaning Cartridge	19P4357		
		SDLT-1 SDLT320	557/1800	160 GB	320 GB	35L1119				
DLTtape	<ul style="list-style-type: none"> • Two visible reel-lock indicators show open or damaged locks to protect drives • Cartridge labelling area and labels are included • DLTtape IV is backward-compatible with earlier DLT 4000 and 7000 drives • VS1 Data Cartridge 	DLT 4000	548/1800	20 GB	40 GB	59H3040	Cleaning Cartridge - DLT	59H3092		
		DLT 7000	548/1800	35 GB	70 GB	59H3040				
		DLT 8000	548/1800	40 GB	80 GB	59H3040				
		VS1	563/1850	80 GB	160 GB	18P8923	Cleaning Cartridge - VS160	18P8924		
VXA-2	<ul style="list-style-type: none"> • 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 • V-MEDIA and X-MEDIA are interchangeable on VXA-2 Drive • X-MEDIA may be used on VXA-2 & VXA-320 drives 	VXA 8 mm – X6	62/203	40 GB	80 GB	24R2134	Cleaning Cartridge – V-MEDIA Cleaning Cartridge – X-MEDIA	19P4880 24R2138		
		VXA 8 mm – X10	124/406	80 GB	160 GB	24R2136				
		VXA 8 mm – X23	230/754	160 GB	320 GB	24R2137				
VXA-3	<ul style="list-style-type: none"> • Latest media for newest VXA drives, wide selection of capacities 	VXA 8 mm – X6	62/203	40 GB	80 GB	24R2134				
		VXA 8 mm – X10	124/406	80 GB	160 GB	24R2136				
		VXA 8 mm – X23	230/754	160 GB	320 GB	24R2137				
AIT-2	<ul style="list-style-type: none"> • Advanced Metal Evaporated media format provides highly durable tape • Built-in memory chip stores critical information and helps provide fast access to data • High native recording capacity with 50GB or 100GB can store more information in less space 	AIT	230/754	50 GB	100 GB	18P6482	Cleaning Cartridge	18P7057		
AIT-3			230/754	100 GB	260 GB	18P6483				

Media tape	Highlights	Technology	Length (m/feet)	Capacity		Part number	Related products	Part number
				native	Compressed (typical)			
4 mm Tape	<ul style="list-style-type: none"> • 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-1	90/295	2 GB	4 GB	21F8754	Cleaning Cartridge – 4 mm	21F8763
		DDS-2	120/393	4 GB	8 GB	8191151		
		DDS-3	125/410	12 GB	24 GB	59H3465		
		DDS-4	150/492	20 GB	40 GB	59H4456		
		DAT72	170/557	36 GB	72 GB	18P7912		
8 mm Tape	<ul style="list-style-type: none"> • 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 • 100 percent media enclosure can help lock out dirt and debris to protect the cartridge • Built-in electrostatic discharge shield helps reduce risks to data and hardware 	Metal particle	112/367	2.5 GB	5.0 GB	21F8575	Cleaning Cartridge – AME	35L1409
			160/524	3.5 GB	7 GB	87G1603	Cleaning Cartridge – Metal Particle	16G8467
		AME	22/73	2.5 GB	5 GB	59H2671		
			170/557	20 GB	40 GB	59H2678		
		Mammoth-2 (w/ SmartClean)	225/738	60 GB	150 GB	18P6485		
			150/492	40 GB	100 GB	09L5323		
			75/246	20 GB	50 GB	35L1044		
SLR (QIC) cartridges	<ul style="list-style-type: none"> • 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 	5.25" DC9120/QIC-1000	290/950	1.2 GB	NA	21F8730	QIC 5.25" Wet Process Cleaning Cartridge	16G8572
		5.25" DC9250/QIC-2GB-DC	366/1200	2.5 GB	5 GB	16G8436	QIC 5.25" MLR/SLR Cleaning Cartridge (50 uses)	35L0844
		5.25" SLR5/QIC-4GB-DC	458/1500	4 GB	8 GB	59H3660		
		5.25" MLR1/QIC-5010-DC	458/1500	16 GB	32 GB	59H4175		
			60/200	2 GB	4 GB	35L0589		
		5.25" MLR3/QIC-5120-DC	462/1515	25 GB	50 GB	59H4128		
		5.25" SLR60/SLR100	47/156	5 GB	10 GB	35L0661	155' Data Cartridge	
			274/900	30 GB	60 GB	19P4209	900' Data Cartridge	
		5.25" SLR60	366/1200	37.5 GB	75 GB	24R0146		
		5.25" SLR100	457/1500	50 GB	100 GB	35L0968	1500' Data Cartridge	
		NS20	226/740	10 GB	20 GB	59H4364		
		Travan 40	228.7/750	20 GB	40 GB	19P4882	Travan Cleaning Cartridge	19P4881

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Entry-level Disk Systems



	System x and BladeCenter Direct Attach or SAN Solutions			System p Only Direct Attach Solutions	System p Only Direct Attach Solutions
	EXP3000	DS3200	DS3400	EXP Plus 320	7204
Product	EXP3000	DS3200	DS3400	EXP Plus 320	External Disk Drive
Machine/model	1727-01X	1726-21X, 1726-22X 1726-21E Express 1726-22E Express	1726-41X, 1726-42X 1726-41E Express 1726-42E Express	2104/DS4, TS4	7204-573, 7204-646
Platform support¹	Windows 2003, RedHat 3, RedHat 4, SUSE 9	Windows 2003, RedHat 3, RedHat 4, SUSE 9, SUSE 10, NetWare	Windows 2003, RedHat 3, RedHat 4, SUSE 9, SUSE 10, NetWare, VMware 2.5.4, VMware 3.0.1	System p, IBM AIX	System p, AIX 7204 646 – also supports Linux version SLES 9
Host connectivity	SAS	SAS	4 Gbps FC	Ultra 320 SCSI	Ultra SCSI - LVD
SAN support	N/A	N/A	Direct, Switched Fabric	N/A	N/A
Copy services	N/A	IBM FlashCopy, IBM VolumeCopy	IBM FlashCopy, IBM VolumeCopy	N/A	N/A
Availability features	Fault Tolerant RAID, Redundant Hotswap Power, Hotswap drives, Dual pathing drives	Fault Tolerant, RAID, Redundant Hotswap Power, Hotswap drives, Dual controller, dual pathing drivers	Fault Tolerant, RAID, Redundant Hotswap Power, Hotswap drives, Dual controller, dual pathing drivers	RAID with server adapters, redundant power/cooling, hot-swap drives, enclosure services	
Controller	MegaRAID 8480	Dual active 3 Gbps SAS RAID Controllers	Dual Active 4 GB FC RAID Controllers	Adapters in server	
Cache (min, max)	256 MB Battery Back-up	512 MB, 2 GB Battery Back-up	512 MB, 2 GB Battery Back-up	N/A	N/A
RAID support	0, 1, 5, 10, 50	0, 1, 3, 5, 10	0, 1, 3, 5, 10	0, 1, 5 (using server-based adapters)	N/A
Capacity (min, max)	114 GB, 14.4 TB with 4 EXP3000 Expansion Units behind single MegaRAID 8480	144 GB, 14.4 TB with 4 EXP3000 Expansion Units	144 GB, 14.4 TB with 4 EXP3000 Expansion Units	32 GB, 2 TB	7204-573; 73 GB 7204-646; 146 GB
Drive interface	3-Gbps SAS, 3-Gbps serial advanced technology attachment (SATA II)	3-Gbps SAS	3-Gbps SAS	Ultra 320 SCSI	Ultra SCSI
Drive support	73 GB, 146 GB, 300 GB 10,000 revolutions per minute (rpm) disk drives; 36 GB, 73 GB, 146 GB, 300 GB 15,000 rpm disk drives; 500 GB, 750 GB SATA II	73 GB, 146 GB, 300 GB 10,000 rpm disk drives; 36 GB, 73 GB, 146 GB, 300 GB 15,000 rpm disk drives	73 GB, 146 GB, 300 GB 10,000 rpm disk drives; 36 GB, 73 GB, 146 GB, 300 GB 15,000 rpm disk drives	18.2 GB, 36.4 GB, 73.4 GB and 146.8 GB 10,000 rpm disk drives; 36.4 GB and 73.4 GB 15,000 rpm disk drives	Single Drive 7204-573; 73 GB 7204-646; 146 GB
Clustering Support	N/A	Microsoft Windows MSCS	Microsoft Windows MSCS	IBM high availability cluster multi-processing (HACMP)	N/A

Midrange Disk Systems



	DS4200 Express	DS4700 Express	DS4800
Product	DS4200 Express Disk System	DS4700 Express Disk System	DS4800 Disk System
Machine/model	1814-7VA/7VH	1814-72A/70A	1815-80A/82A/84A/88A
Platform support¹	Windows Server 2003 w/SP1, R2 and x64, Windows 2000 Server & Adv.Server w/SP4, Novell NetWare 6.5 w/SP5 Red Hat Enterprise Linux (RHEL) 3.8 RHEL 4.4 SUSE Linux Enterprise Server (SLES) 8 SP4 SLES 9 SP3 VMWare ESX 2.5.3 and 3.0 AIX 5.1, 5.2, 5.3 HP-UX 11.0, 11i and 11.23 with PVLinks Solaris 8, 9, 10	System p, System x, Windows Server 2003 w/SP1, Windows 2000 Server & Adv.Server w/SP4, Novell NetWare 6.0 w/SP5 & 6.5 w/SP5, RHEL 3.0 U7, RHEL 4.0 U3 SLES 8 SP4, SLES 9 SP3, VMWare ESX 2.5.2 AIX 5.1, 5.2, 5.3, HP-UX 11i and 11.23, Solaris 8, 9, 10	System p, System x, Windows Server 2003 w/SP1, Windows 2000 Server & Adv.Server w/SP4, Novell NetWare 6.0 w/SP5 & 6.5 w/SP5, RHEL 3.0 U7, RHEL 4.0 U3 SLES 8 SP4, SLES 9 SP3, VMWare ESX 2.5.2 AIX 5.1, 5.2, 5.3, HP-UX 11i and 11.23, Solaris 8, 9, 10
Host connectivity	FC	FC	FC
SAN support	Direct, FC-AL, Switched Fabric	Direct, FC-AL, Switched Fabric	Direct, FC-AL, Switched Fabric
Copy services	FlashCopy option, Enhanced Remote Mirroring, VolumeCopy	Enhanced Remote Mirroring, FlashCopy, VolumeCopy	Enhanced Remote Mirroring, FlashCopy, VolumeCopy
Availability features	Fault-tolerant, RAID, redundant power/cooling, hot-swap drives, dual controllers, concurrent microcode update capability, dual-pathing driver	Fault-tolerant, RAID, redundant power/cooling, hot-swap drives, dual controllers, concurrent microcode update capability, dual-pathing driver	Fault-tolerant, RAID, redundant power/cooling, hot-swap drives, dual controllers, concurrent microcode update capability, dual-pathing driver
Controller	Dual 4 GB RAID controller	Dual active 4 Gbps RAID controllers	Dual active 4 Gbps RAID controllers
Cache (min, max)	2 GB	2 GB, 4 GB (70A/72A)	4 GB, 4 GB (80A/82A) 8 GB, 8 GB (84A) 16 GB, 16 GB (88A)
RAID support	0, 1, 3, 5, 10	0, 1, 3, 5, 10	0, 1, 3, 5, 10
Capacity (min, max)	500 GB, supports 84 TB with six Expansion Units	36.4 GB, 33.6 TB via EXP810, EXP710 (FC), 84 TB via EXP810 (SATA), 44.8 TB via EXP100	36.4 GB, 67.2 TB via EXP810/EXP700/EXP710 (FC) 400 GB, 89.6 TB via EXP100 (SATA), 168 TB via EXP810 (SATA)
Drive interface	4 GB FC-AL	4 Gbps Switched	4 Gbps Switched
Drive support	500 GB EV-DDM, 750 GB EV-DDM 7,200 rpm SATA disk drives	2 Gbps 73.4 GB, 146.8 GB and 300 GB 10,000 rpm; (FC) 36.4 GB, 73.4 GB, 146.8 GB 15,000 rpm; 4 Gbps 36.4 GB, 73.4 GB, 146.8 and 300 GB 15,000 rpm (FC) (SATA) 250 GB, 400 GB, 500 GB and 750 GG 7200 rpm (SATA)	2 Gbps 73.4 GB, 146.8 GB and 300 GB 10,000 rpm; (FC) 36.4 GB, 73.4 GB, 146.8 GB 15,000 rpm; 4 Gbps 36.4 GB, 73.4 GB, 146.8 and 300 GB 15,000 rpm (FC) (SATA) 250 GB, 400 GB, 500 GB and 750 GG 7200 rpm (SATA)
Certifications	Microsoft Clustering Services, IBM SAN Volume Controller 3.1.0 and 4.1.0	Microsoft RAID, Cluster, NetWare Cluster, HACMP, VERITAS Clustering ⁴	Microsoft RAID, Cluster, NetWare Cluster, HACMP, VERITAS Clustering ⁴

Enterprise Disk Systems



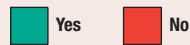
	DS6800	DS8100	DS8300	ESS 800
Product	IBM System Storage DS6800	IBM System Storage DS8000 Turbo	IBM System Storage DS8000 Turbo	ESS Model 800 Refurbished with Warranty
Machine/model	1750/522	2421, 2422, 2423, 2424/931	2421, 2422, 2423, 2424/932/9B2	2105/800
Platform support¹	System x, System i, System p, System z, IBM i5/OS, OS/400, AIX, Solaris, HP-UX, Windows 2000, Windows Server 2003, Linux for IBM System z, z/OS, IBM z/VM, IBM VSE/ESA, TPF, Linux for System i, Linux for System p, Linux for Intel systems, OpenVMS, TRU64, NetWare, VMWare, Apple Macintosh OS X, Fujitsu Primepower, SGI IRIX	System x, System i, System p, System z, i5/OS, OS/400, AIX, Solaris, HP-UX, Windows 2000, Windows Server 2003, Linux for System z, z/OS, z/VM, VSE/ESA, TPF, Linux for System i, Linux for System p, Linux for Intel systems, OpenVMS, TRU64, NetWare, VMWare, Apple Macintosh OS X, Fujitsu Primepower, SGI IRIX	System x, System i, System p, System z, i5/OS, OS/400, AIX, Solaris, HP-UX, Windows 2000, Windows Server 2003, Linux for System z, z/OS, z/VM, VSE/ESA, TPF, Linux for System i, Linux for System p, Linux for Intel systems, OpenVMS, TRU64, NetWare, VMWare, Apple Macintosh OS X, Fujitsu Primepower, SGI IRIX	System x, System i, System p, System z, i5/OS, OS/400, AIX, Solaris, HP-UX, Windows NT, Windows 2000, Windows Server 2003, NetWare, Linux for System z, z/OS, z/VM, OS/390, VM/ESA, VSE/ESA, TPF, Linux for Intel systems, Dynix, OpenVMS, Tru64, VMWare, Fujitsu Primepower, SGI Origin IRIX
Host connectivity	1 Gb and 2 Gb FC/FICON	2 Gb and 4 Gb FC, FICON, ESCON	2 Gb and 4 Gb FC, FICON, ESCON	1 Gb and 2 Gb FC/FICON, ESCON, SCSI
SAN support	Direct, FC-AL, Switched Fabric	Direct, FC-AL, Switched Fabric	Direct, FC-AL, Switched Fabric	Direct, FC-AL, Switched Fabric
Copy services	FlashCopy, Metro Mirror, Global Mirror, Global Copy, as target for z/OS Global Mirror	FlashCopy, Metro Mirror, Global Mirror, Global Copy, z/OS Global Mirror, Metro/Global Mirror	FlashCopy, Metro Mirror, Global Mirror, Global Copy, z/OS Global Mirror, Metro/Global Mirror	FlashCopy, Metro Mirror, Global Mirror, Global Copy, z/OS Global Mirror, Metro/Global Mirror(RPQ)
Availability features	Fault Tolerant, dual redundant and hot-swap RAID Controller Cards, Battery Backup Units, FC switch controllers, power supplies, non-disruptive hardware and software code load updates, multi-pathing device driver	Fault Tolerant, dual redundant and hot-swap RAID Controller Cards, Battery Backup Units, FC switch controllers, power supplies, non-disruptive hardware and software code load updates, multi-pathing device driver	Fault Tolerant, dual redundant and hot-swap RAID Controller Cards, Battery Backup Units, FC switch controllers, power supplies, non-disruptive hardware and software code load updates, multi-pathing device driver	Fault-tolerant, RAID, redundant power/cooling, hot-swap drives, dual controllers, concurrent microcode update capability, dual-pathing driver
Controller	Dual active/active	Dual active/active	Dual active/active	SMB dual active; optional turbo feature
Cache (min, max)	4 GB	16/128 GB	32/256 GB	8 GB, 64 GB
RAID support	5, 10	5, 10	5, 10	5, 10
Capacity (min, max)	292 GB, 64 TB	1.1 TB, 192 TB	1.1 TB, 512 TB	582 GB, 55.9 TB
Drive interface	2 Gb FC	2 Gb FC	2 Gb FC	SSA
Drive support	73 GB 15K, 146 GB 10K, 146 GB 15K, 300 GB 10K, 500 GB FATA, 7.2K	73 GB 15K, 146 GB 10K, 146 GB 15K, 300 GB 15K, 500 GB 7.2 FATA	73 GB 15K, 146 GB 10K, 146 GB 15K, 300 GB 15K, 500 GB 7.5K FATA	36.4 GB, 72.8 GB and 145.6 GB 10,000 rpm disk drives 36.4 GB and 72.8 GB 15,000 rpm disk drives
Certifications	Oracle OSCP Validation of Compatibility, HACMP, Solaris Ready, Veritas Cluster	Oracle OSCP Validation of Compatibility, HACMP, GDPS, Solaris Ready, Veritas Cluster	Oracle OSCP Validation of Compatibility, HACMP, GDPS, Solaris Ready, Veritas Cluster	Microsoft RAID, Cluster and Data Centre, GDPS, HACMP, Solaris Ready

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

Selecting a solution

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

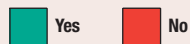
* Remote Copy (>10 km) is via System Storage Proven vendors (CNT, Legato, NSI)



Selecting a solution (continued)

	EXP3000	DS3200	DS3400	DS4200 Express	EXP Plus 320
Local copy within controller	No	Yes	Yes	Yes	No
Remote Copy (>10 km)	No	Yes	Yes	Yes	No
Centralised management	No	Yes	Yes	Yes	No
SAN	No	Yes	Yes	Yes	No
Concurrent heterogeneous servers (UNIX and Intel)	Intel/AMD only	Intel/AMD only	Intel/AMD only	Yes	No
Concurrent microcode install	No	Yes	Yes	Yes	No
Intermix disk capacities	Yes	Yes	Yes	Yes	Yes
Multiple RAID options	Yes	Yes	Yes	Yes	requires adapter
Controller-based call-home	No	Yes	Yes	Yes	No
Rack mount	Yes	Yes	Yes	Yes	Yes
Virtualisation	No	Yes	Yes	Yes	No
Virtualisation through SVC	No	Yes	Yes	Yes	No

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



Product	Highlights
DS8300 Turbo	<ul style="list-style-type: none"> A new standard in enterprise class functionality with extraordinary performance and up to 512 TB of physical capacity Host connectivity via 4 Gb FC/FICON or ESCON interfaces to a wide variety of UNIX, Windows, System i and System z servers Top notch storage consolidation system with Storage System LPAR capability Offers FlashCopy, Global and Metro Mirroring functions (2-site and 3-site) Call home and remote support as well as an Enterprise Choice one year, two year, three year or four year warranty
DS8100 Turbo	<ul style="list-style-type: none"> A new standard in enterprise class functionality and performance with up to 192 TB of physical capacity Host connectivity via 4 Gb FC/FICON or ESCON interfaces to wide variety of UNIX, Windows, System p, System x, System i and System z servers Offers FlashCopy, Global and Metro Mirroring functions (2-site and 3-site) Call home and remote support as well as an Enterprise Choice one year, two year, three year or four year warranty
DS6800	<ul style="list-style-type: none"> Provides enterprise-class disk offering in a modular package at an affordable price Designed to provide host connectivity via FC/FICON to a wide variety of UNIX, Windows, System p, System x, System i and System z servers Features FlashCopy as well as Global and Metro Mirroring functions Enterprise-class warranty, around-the-clock, same day IBM on-site response
Enterprise Storage Server (ESS) Model 800 Refurbished with Warranty	<ul style="list-style-type: none"> Affordable enterprise strength reliability and function Great second tier storage option for backup, remote mirroring, test or archive needs Host connectivity via SCSI, FC/FICON, or ESCON interfaces to a wide variety of UNIX, Windows, System i and System z servers Features state-of-the-art copy services for rapid backup and disaster recovery Full three year warranty on Refurbished with Warranty systems available worldwide
DS4800	<ul style="list-style-type: none"> Provides SAN-ready flexible disk storage system for UNIX and Intel processor-based environments Offers high-performance, full fibre solution with 4 Gbps FC Connectivity Supports business continuance with its optional HA software and advanced Enhanced Remote Mirroring function Helps protect customer data with its multi-RAID capability and hot-swappable redundant components
DS4700 Express	<ul style="list-style-type: none"> Provides SAN-ready flexible disk storage system for UNIX and Intel processor-based environments Offers high-performance, full fibre solution with 4 Gbps FC Connectivity Supports business continuance with its optional HA software and advanced Enhanced Remote Mirroring function Helps protect customer data with its multi-RAID capability and hot-swappable redundant components
DS4200 Express	<ul style="list-style-type: none"> 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 FC Connectivity Supports business continuance with its optional HA software and advanced Enhanced Remote-Mirroring function Helps protect customer data with its multi-RAID capability and hot-swappable redundant components
DS3400	<ul style="list-style-type: none"> 4 Gbps FC interface technology Easy to deploy and manage with the DS3000 Storage Manager Scalable to 3.6 TB of storage capacity with 300 GB hot-swappable SAS disks Expandable by attaching up to three EXP3000s, a total of 14.4 TB of storage capacity Flexible for use with IBM System x and BladeCenter servers Affordable for the SMB budgets.
DS3200	<ul style="list-style-type: none"> 3 Gbps SAS interface technology Easy to deploy and manage with the DS3000 Storage Manager Scalable to 3.6 TB of storage capacity with 300 GB hot-swappable SAS disks Expandable by attaching up to three EXP3000s, a total of 14.4 TB of storage capacity Affordable for the SMB budgets
EXP3000	<ul style="list-style-type: none"> 3-Gbps SAS interface technology Support for up to 3.6 TB of storage in a single enclosure Support for up to 14.4 TB in a cascaded configuration with MegaRAID 8480 adapter 3.5" SAS hard disk drives (HDDs) supported Powerful and comprehensive management and configuration tools included
EXP Plus 320	<ul style="list-style-type: none"> Provides flexible, scalable and cost-effective SCSI-attach disk storage for System p servers Supports Internet-centric service providers



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

Operating Systems and Copy Services Platform Coverage

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

* Request via RPQ process

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

 Yes  No

Operating Systems and Copy Services Platform Coverage (continued)



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

* Request via RPQ process

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

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

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

 Yes  No

IBM System Storage N series – Unified Storage Systems



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

All N series systems provide the following features:

Storage controllers/filers	Active/Active with automatic failover to secondary system
FC disk drive support	2 Gbps FC: 144 GB 10K, 300 GB 10K, 144 GB 15K 4 Gbps FC: 144 GB 15K, 300 GB 15K
SATA disk drive support	250 GB 7.2K, 320 GB 7.2K, 500 GB 7.2K
Host connectivity & platform support	The N series systems support a multitude of host attachment capabilities via Fibre Channel Protocol (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
OS	Data ONTAP
Data protection	Double Parity RAID, Snapshot, SnapRestore, SnapMirror, SyncMirror, SnapVault, Open System Snap Vault
Redundancy/HA	CompactFlash dual redundant hot plug integrated cooling fans, hot-swappable autoranging power supplies, clustered filers, hot-swappable disk days
Backup	External tape (SCSI or FC)
RAID levels	RAID 4, RAID-DP (double parity)
System management/Storage management	FilerView, SecureAdmin, single network management protocol (SNMP), Operations Manager /Industry standard NDMP protocols
Standard software features	Snapshot, FlexVol, FlexShare, Integrated Automatic RAID Manager, Fast Boot, NIS, DNS, SNMP, FilerView, NDMP, LDAP, iSCSI, AutoSupport, SyncMirror, SnapMover, FTP protocol feature, SecureAdmin, Disk Sanitisation
Optional software features	CIFS Protocol, NFS Protocol, HTTP Protocol, FCP Protocol, Cluster Failover, FlexClone, MultiStore, SnapLock Compliance, SnapLock Enterprise, SnapMirror, SnapRestore, SnapVault, Open Systems SnapVault, LockVault, SnapDrive for Windows, SnapDrive for Unix: AIX, Solaris, HP-UX, Linux, SnapValidator, SnapDrive for Windows, SnapManager for SQL, SnapManager for Exchange, SnapManager for Oracle, Single Mailbox Recovery for Exchange, Operations Manager, NearStore feature, MetroCluster, Advanced Single Instance Storage



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

All N series Gateway systems provide the following features:

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

N series Highlights

- Unified Storage Architecture – provides a single storage platform to support heterogeneous, multi-protocol storage requirements with the capability of simultaneously handling both Block I/O (with FCP or iSCSI protocol) and File I/O (with CIFS, NFS, HTTP, FTP protocols) application needs
- Ease of installation – offers installation tools designed to help simplify installation and setup
- Increased Access – allows heterogeneous access to IP attached storage and FC attached storage subsystems
- OS – optimised and finely tuned for storing and sharing data assets, designed to enable greater efficiency within your organisation 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 organisation
- 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 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 minimise downtime
- Redundancy – several redundancy and hot-swappable features provide the highest system availability characteristics
- Copy Services – provides extensive outboard services that help recover data in disaster recovery environments
- NearStore (near-line) Feature – SATA drive technology enables on-line and quick access to archived and non-intensive transactional data
- Advanced Single Instance Storage (A-SIS) – provides block level deduplication of data stored in NearStore volumes
- WORM data protection – software and hardware features that offer non-erasable and non-rewritable data protection to meet the industry's highest regulatory requirements for retaining company data assets.

NOTES:

*Systems are based on dual clustered storage controllers. Divide all numbers by 1/2 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 fallback capabilities.
 The N series Interoperability Matrix can be found at the following web site: ibm.com/storage/nas
 The following are trademarks or registered trademarks of Network Appliance, Inc.: Data ONTAP, FlexVol, FilerView, SecureAdmin, RAID-DP, SecureAdmin, FlexClone, Multi-Store, SnapLock, LockVault, SnapShot, SnapMirror, SnapMover, SnapRestore, SnapVault, SnapManager, FlexShare, NearStore



IBM System Storage DR550 and DR550 Express

Model	An award-winning information archiving and retention solution designed to:
Highlights	<ul style="list-style-type: none"> • Store, retrieve, manage, share and secure all types of data (e-mail, database, documents, images, files, etc.) • Provide non-erasable, non-rewritable archival storage. Prevents deletion or alteration of data stored on the system • Support multiple storage tiers for long term archiving (disk, tape and optical) • Provide the facilities to migrate archive data from aging disk or tape subsystems to new ones • Offer automatic provisioning, migration, expiration and archiving capabilities • Offer scalability up to 112 TB raw physical capacity and supports petabytes of storage with attached tape and optical • Offer chronological and event-based data retention • Offer high availability option to avoid single points of failure • Provide security and protection through data encryption and data shredding options • Support and integrate with broad set of IBM and non-IBM content management applications • Provide file archiving through the new IBM System Storage DR550 File System Gateway • Protect customer data against disasters through Synchronous or Asynchronous Replication • Offer low TCO through the use of multiple storage devices for long period archiving • Carefree Services – for onsite software/firmware upgrades and three year warranty repair and maintenance (around-the-clock, four hour response)
Scalability	DR550: Single engine: 8 TB and 16 TB, Dual engine: 8, 16, 32, 56, 112 TB of raw physical storage, up to petabytes with attached tape and optical storage. DR550 Express 1.1, 5.1 and 9.1 TB configurations.
Nodes	Single- or dual-server configurations Dual-server configuration offers failover protection
Processors	DR550: 2-way 2.1 GHz POWER5+ Processor Card, 36 MB L3 Cache DR550 Express: 1-way 1.65 GHz POWER5+ Processor Card, no L3 Cache
Network protocol support	IBM System Storage Archive Manager (SSAM) application programming interface (API) v5.4
Operating system	IBM AIX, Version 5.3
Performance	Performance testing results: ibm.com/servers/storage/disk/dr/performance.html
PCI slots available	N/A
Network connectivity	2 port Gb Copper or Fibre Ethernet (upgrades available)
Error checking and correction (ECC) SDRAM memory (max)	1 GB per node
Data protection	Mirrored OS, RAID-5, RAID-10 (opt.) for user data Data Encryption for enhanced security for disk and tape via 128-bit AES or 56-bit DES encryption technology. Encryption keys can be managed by the application or by the DR550. Maintains data as non-erasable and non-rewritable until deletion is permitted by retention policy.
Redundancy/HA	IBM HACMP 5.3 (Dual-server configuration), redundant DS4700 controllers, RDAC driver to provide path failover, RAID
Backup	External tape (recommended IBM 3592 WORM tape)
RAID levels	RAID-5, RAID-10 (opt.)
Systems management	SMIT, DS4000 Storage Manager GUI, SNMP
Storage management	IBM Tivoli Storage Manager (TSM) client and storage agent

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

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

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

Disk Storage Virtualisation

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

Product	Function and Value	Highlights
IBM System Storage SVC	Based on virtualisation technology, the IBM System Storage SVC is designed to increase the efficiency and flexibility of your storage infrastructure by pooling storage and centralising management and enabling changes to the physical storage while avoiding disruption to applications	<ul style="list-style-type: none"> • Manage storage volumes from a central point: SVC is designed to enhance the flexibility of your storage environment. It can combine the storage capacity from multiple disk systems from different suppliers into a single pool of storage that can be managed from a central point. In this way, fewer skills are required and storage administrators can become more productive • Virtually eliminate downtime related to storage: SVC enables data migrations, maintenance and upgrades to the SVC system itself and changes to the physical storage without impacting host applications • Improve storage resource utilisation: By combining the storage capacity from multiple disk systems into a single pool, SVC uses existing storage capacity more efficiently, which can defer additional storage purchases to save costs • A single, cost-effective set of advanced copy services: SVC can apply copy services across all the managed storage, regardless of the disk system supplier. This capability helps simplify the environment, reduce the costs of implementing disaster recovery solutions, increases flexibility in using storage and increases personnel productivity • Create a tiered storage environment: Using virtualisation 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 FC disks while non-mission-critical data can be stored on SATA 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 (VTS) and Peer-to-Peer VTS
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
DFSMSdftp	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
DFSMSshsm	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
DFSMSStvs	Enables batch jobs and IBM Customer Information Control Systems (CICS) online transactions to update shared VSAM data sets concurrently

IBM TSM

Function and Value

IBM TSM is designed to provide protection of your around-the-clock applications and key data in the event of hardware, software or network failures. It offers move-and-store techniques and policy-based automation, which are designed to work together to help increase data and application protection, decrease disaster recovery time and lower storage administration costs. It manages inactive data, helping you match the value of the data to the most cost-effective storage management practices. TSM is designed to scale easily to protect hundreds of computers running a dozen OS ranging from laptops to mainframes and connected together via the Internet, WANs, local area networks (LANs) or SANs. TSM also offers open, easy-to-use APIs designed to enable ISVs to more easily adapt their solutions to IBM software, helping to allow joint customers to customise, 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 TSM Extended Edition

IBM TSM Express

IBM TotalStorage Productivity Centre (TPC)

Product	Function and Value	Highlights
IBM TPC for Disk	In a pooled or virtualised SAN environment, multiple devices work together to create a storage solution. IBM TPC for Disk is designed to provide integrated administration, optimisation and replication features for these environments.	<ul style="list-style-type: none"> • Designed to help reduce the complexity and cost of storage management while improving data availability • Offers centralised, open standards-based management of storage devices • Designed to help enhance storage administrator productivity • Offers proactive management of storage devices
IBM TPC for Replication	TPC For Replication is designed to simplify and automate the configuration of your replication environment allowing for more effective Metro Mirroring, Global Mirror and IBM FlashCopy management. It is also designed to monitor and automate copy operations across devices to support a replication environment.	<ul style="list-style-type: none"> • Automates the configuration of your IBM DS8000, DS6000 and ESS advanced copy services features. • Monitors and manages the IBM DS8000 and SVC copy operations to ensure successful completion from your source volumes to your disaster recovery volumes

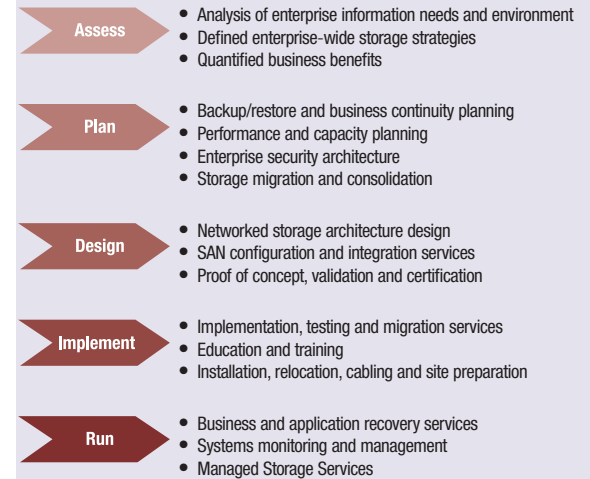
IBM TotalStorage Productivity Centre (TPC)

IBM TPC for Replication Two Site Business Continuity	TPC for Replication Two Site and Three Site Business Continuity provides disaster recovery management through planned and unplanned failover and failback automation for the IBM ESS Model 800, IBM DS6000 and IBM DS8000.	<ul style="list-style-type: none"> • TPC for Replication Two Site and Three Site Business Continuity helps you manage replication to a remote backup site(s) through Metro Mirror or Global Mirror. The software is designed to allow you to monitor the progress of the copy services so you can verify the amount of replication that has been done as well as the amount of time needed to complete the replication. Automated failover is designed to keep your critical data online and available to your users even if your primary site fails. When the primary site comes back on, the software manages failback to the default configuration as well.
IBM TPC for Data	IBM TPC for Data is a Storage Resource Management (SRM) tool for storage environments that provide a set of policy-driven automated tools for managing storage capacity, availability, events, performance and assets, including direct attached storage (DAS), NAS and SAN technologies.	<ul style="list-style-type: none"> • Designed to help leverage and optimise existing storage resources and perform storage management with a high level of control • Designed to help maximise storage utilisation • Designed to be able to manage more storage with the same staff
IBM TPC for Fabric	IBM TPC 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.	<ul style="list-style-type: none"> • 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 TPC Standard Edition	Combines Disk, Data and Fabric components together as one orderable product.	<ul style="list-style-type: none"> • Having Disk, Data and Fabric allows higher levels of value – i.e. combined SAN and Disk performance reports or automated workflows to do provisioning (under the control of Tivoli Provisioning Manager)

IBM Global Services (IGS) for System Storage and Storage Networking

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

IGS, 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:



IGS 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:

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