

Category
SAN 1

Disk Technology

IBM FASTt 200
3542-2RU



- A full-fibre, compact, entry-level storage system for UNIX and Intel-based servers
- Scales from 18GB to a system capacity of 9.6TB using five EXP500s or 9.6TB using four EXP700s
- Offers a wide range of data protection options with RAID levels 0, 1, 3, 5 and 10.

The FASTt200 is the entry level product in the FASTt family. It provides flexible and affordable storage for workgroup and departmental servers. The FASTt200 High Availability (HA) model features a fully redundant configuration with dual-active controllers. The IBM TotalStorage FASTt Storage Manager provides remote management capabilities and the ability to share storage resources among servers through storage partitioning. It supports up to 128 logical units (LUNs) and up to 16 storage partitions.

For more information - ibm.com/storage/fast200

* Also available in this category – FASTt600

Switching Technology



IBM TotalStorage San Switch F08
3534-F08

Full-fabric switch feature provides 8-port, 2 Gigabit per second switch for high availability dual redundant core/edge SAN fabrics. Provides UNIX and Intel-based servers and storage with fabric scalability from small workgroups to large enterprise SANs with a common management system.

For more information - ibm.com/storage/san

Sample Solutions

- FASTt200 with 1.4 TB of raw capacity (20 x 73GB drives)
- Cables, software and Fibre Channel HBAs to attach four Windows 2000 hosts, each with redundant fibre channel connections to the FASTt via two 8 ports Fibre Channel switches (no zoning or ISL capability), 3 years 7/24 warranty

1	Group 1.1 Rack	4,577
1	Group 1.3 Storage Controller	11,868
20	Group 3.2 72.8GB Drive	19,500
1	Group 3.9 EXP500 disk drawer	5,501
2	Group 2.1 8 port switch	32,090
-2	Group 3.22 Remove Full Fabric	- 7,890
8	Group 2.2 2Gb PCI HBA for Win2000	14,304
Solution TOTAL		\$ 79,950

- FASTt200 with 2.8 TB of raw capacity (20 x 146GB drives)
- Direct Attached to one Windows host which already has two (redundant) fibre channel HBAs.

1	Group 1.1 Rack	4,577
1	Group 1.3 Storage Controller	11,868
20	Group 3.6 145.6GB Drive	45,600
2	Group 3.9 EXP500 disk drawer	11,002
2	Group 3.17 25m LC-LC cable	694
Solution TOTAL		\$ 73,741

Fast and reliable storage for 2.6¢ / MB !!!

Benefits

- Includes unlimited Load Balancing / Failover client licenses for Windows and Unix servers.
- Prices include installation

Category details

SAN Category 1

Item	Description	HW & Inst Unit Price	7/24 Warr Upg Price
1.0 Storage Platform			
1.1	Rackmount Cabinet / Enclosure [2101] 19 inch Rack, two single-phase PDUs and mounting hardware	\$4,577.01	\$0.01
1.2	Power Distribution Units PDUs Included in 1.1	Incl.	Incl.
1.3	Storage Controller(s) FASiT 200 3542-2RU High Availability Controller Shelf for up to 10 drives (3EIA), with 4 GBICs, two 1m Fibre Channel cables, Storage Manager (management software), LUN masking and Load Balancing Software	\$11,868.01	\$1,022.00
1.4	Disk Shelving Two EXP500 3560-1RU Disk Shelf (3EIA) for up to 20 drives with 6 GBICs and four 1m Fibre Channel cables	\$9,932.01	\$338.00
1.5	Hard Disk Drives Thirty 36.4GB 1Gb/s FC 10K RPM Disk Drives	\$12,600.01	\$0.01
1.6	Power system Power system included in 1.3	Incl.	Incl.
1.7	Management Software Management software included in 1.3	Incl.	Incl.
1.8	LUN Masking Software Storage Subsystem based LUN Masking included in 1.3	Incl.	Incl.
1.9	Installation Installation charges included in 1.1, 1.3, 1.4 and 1.5	\$0.01	Incl.
2.0 Evaluated Options			
2.1	2Gb 8 port Fibre Channel SAN Switch 3534-F08 2Gb eight-port Fibre Channel SAN switch with 8 SW transceivers (total) and Full Fabric Activation feature	\$15,726.00	\$319.00
2.2	2Gb PCI Host Bus Adapter 2Gb Fibre Channel PCI Host Bus Adapter including firmware, driver and 25m LC-LC Fibre Channel cable	\$1,788.00	\$0.01
2.3	Load Balancing Software for Windows 2000 Load Balancing (RDAC) software is included in 1.3 for all Windows 2000 hosts attached to this storage platform	Incl.	Incl.
2.4	Load Balancing Software for Windows NT4 Load Balancing (RDAC) software is included in 1.3 for all Windows NT4 hosts attached to this storage platform	Incl.	Incl.
3.0 Platform Options			
3.1	One 10K RPM 36.4GB Drive (1Gb/s) [3560-5005] Add or Remove drives to 3560-1RU (EXP500) or 3542-2RU (FASiT200)	\$420.00	Incl.
3.2	One 10K RPM 72.8GB Drive (1Gb/s) [3560-5006] Add drives to 3560-1RU (EXP500) or 3542-2RU (FASiT200)	\$975.00	Incl.
3.3	One 15K RPM 18.2GB Drive (1Gb/s) [3560-5011] Add drives to 3560-1RU (EXP500) or 3542-2RU (FASiT200)	\$530.00	Incl.
3.4	One 10K RPM 36.4GB Drive (2Gb/s) [1740-5205] Add drives to 3560-1RU (EXP500) or 1740-1RU (DS4000 EXP700)	\$570.00	Incl.
3.5	One 10K RPM 72.8GB Drive (2Gb/s) [1740-5206] Add drives to 3560-1RU (EXP500) or 1740-1RU (DS4000 EXP700)	\$1,140.00	Incl.
3.6	One 10K RPM 145.6GB Drive (2Gb/s) [1740-5207] Add drives to 3560-1RU (EXP500) or 1740-1RU (DS4000 EXP700)	\$2,280.00	Incl.
3.7	One 15K RPM 18.2GB Drive (2Gb/s) [1740-5211] Add drives to 3560-1RU (EXP500) or 1740-1RU (DS4000 EXP700)	\$531.00	Incl.
3.8	One 15K RPM 73.4GB Drive (2Gb/s)	\$1,710.00	Incl.

	[1740-5213] Add drives to 3560-1RU (EXP500) or 1740-1RU (DS4000 EXP700)		
3.9	One 3560-1RU (EXP500) Drive Expansion Drawer	\$5,332.00	\$169.00
	[3560-1RU] Remove or add 1Gb/s disk shelves from base config. Each EXP500 can accommodate up to 10 drives. Includes four SW GBICs and two SC-SC 1m cables.		
3.10	One 1740-1RU(DS4000 EXP700) Drive Expansion Drawer	\$8,584.00	\$848.00
	[1740-1RU] Add 2Gb/s disk shelves to the base config. Each EXP700 can accommodate up to 14 drives. Includes four SW SFPs, two LC-LC 1m cables and two SC-LC coupling cables.		
3.11	pSeries Host Bus Adapter (2Gb/s)	\$3,710.00	Incl.
	[7026-6228] Add 2Gb/s Fibre Channel HBA to qualified pSeries and RS/6000 Servers		
3.12	One ShortWave SFP Transceiver (2Gb/s)	\$316.00	Incl.
	[2109-2210] Remove/add ShortWave SFP Transceiver (FASiT, EXP or switches)		
3.13	One LongWave SFP Transceiver (2Gb/s)	\$897.00	Incl.
	[2109-2220] Add LongWave SFP Transceiver (FASiT, EXP or switches)		
3.15	FC SW Cable LC-LC 1m	\$131.00	Incl.
	[19K1247] Fibre Channel Cable, 1 meter		
3.16	FC SW Cable LC-LC 5m	\$223.00	Incl.
	[19K1248] Fibre Channel Cable, 5 meters		
3.17	FC SW Cable LC-LC 25m	\$347.00	Incl.
	[19K1249] Fibre Channel Cable, 25 meters		
3.18	FC SW Adapter SC female-LC Male	\$296.00	Incl.
	[19K1250] Fibre Channel Adapter SC Female / LC Male		
3.19	FC SW Adapter SC Male-LC Female	\$216.00	Incl.
	[3542-5702] Fibre Channel Adapter SC Male / LC Female		
3.20	FASiT200 Upgrade to Storage Manager 8	\$3,412.00	Incl.
	[3542-7108] Upgrade from SM7 to SM8. Pre-requisite to FlashCopy		
3.21	FASiT200 FlashCopy Activation	\$12,680.00	Incl.
	[3542-7201] Add FlashCopy licence to FASiT200/SM8		
3.22	3534-F08 Full Fabric Support	\$3,945.00	Incl.
	[2109-7320] Add/Remove Full Fabric Support on 3534-F08		
3.23	3534-F08 Performance Bundle	\$6,750.00	Incl.
	[2109-7321] Add Performance Bundle to 3534-F08		
3.24	3534-F08 Remote Switch Activation	\$8,570.00	Incl.
	[2109-7302] Add Remote Switch feature to 3534-F08		
3.25	3534-F08 Extended Fabric Activation	\$8,570.00	Incl.
	[2109-7303] Add Extended Fabric feature to 3534-F08		
3.26	NAS Gateway	\$41,877.00	\$4,250.00
	[5196-G27] Add NAS model G27 Gateway to the FASiT, allowing CIFS, NFS, FTP and HTTP connection to the FASiT200 over the LAN. Dual engine configuration with 1 FC and 1 Gb Ethernet on each engine.		
3.27	Additional SAN Management Software	\$1,451.00	Incl.
	[5698-SRM] Storage Resource Manager per Client/Processor		
3.28	Additional SAN Management Software	\$1,607.00	Incl.
	[5698-SRD] SRM for Databases per Client/Processor		

Category
SAN 1 Alt

Disk Technology

IBM DS4300 (FAStT600)
1722-60U



- A full-fibre, compact, storage system for mid-sized UNIX and Intel-based servers
- Dual active 2GB RAID controller
- Scales to 8.2 TB using three EXP700 Expansion Units
- Offers a wide range of data protection options with RAID levels 0, 1, 3, 5 and 10.

The DS4300 (formerly known as the FAStT600) is the mid-level storage server in the DS4000 product family. It is designed to be an affordable, scalable storage server for storage consolidation and clustering applications. Built to support four Fibre Channel attached servers, the DS4300 reduces the need for additional switches, making server clustering more cost effective. Dynamic Capacity Addition (DCE) allows for additional DS4000 EXP700 enclosures to be added without interruption, bringing unused storage online in support of on demand capacity.

For more information - ibm.com/servers/storage/disk/ds4000/ds4300

* Also available in this category – FAStT200

Switching Technology



IBM TotalStorage San Switch H08
2005-H08

Next generation entry fabric switch provides up to 8 ports, 2Gigabit/second (Gbps) fabric switching for Windows NT/2000 and UNIX server clustering, infrastructure simplification and business continuity solutions. The base switch offers zoning, WEBTOOLS and attachment in two switch fabric.

Ports **4 - 8**
Performance **1 and 2Gbps**
Servers **iSeries, pSeries, xSeries**

For more information - ibm.com/storage/san

Sample Solutions

- DS4300 (FAStT600) with 3TB of raw capacity (42 x 73 GB drives)
- Cables, software and Fibre Channel HBAs etc , 3 years 7/24 warranty

1	Group 1.1 Rack	4,577
1	Group 1.3 DS4300 Storage Controller	39,404
42	Group 3.5 72.8GB Drive	47,880
1	Group 1.4 EXP700 disk drawers (Q=2)	15,770
Solution TOTAL		\$107,631

- DS4300 (FAStT600) with 4.4 TB of raw capacity (30 x145 GB drives)
- Cables, software and Fibre Channel HBAs etc , 3 years 7/24 warranty

1	Group 1.1 Rack	4,577
1	Group 1.3 DS4300 Storage Controller	39,404
30	Group 3.6 145.6GB Drive	68,400
1	Group 1.4 EXP700 disk drawers (Q=2)	15,770
Solution TOTAL		\$128,151

Benefits

- Includes unlimited Load Balancing / Failover client licenses for Windows and Unix servers.
- Prices include installation

Category details

SAN Category 1-Alternate

Item	Description	HW & Inst Unit Price	7/24 Warr Upg Price
1.0 Storage Platform			
1.1	Rackmount Cabinet / Enclosure [2101] 19 inch Rack, two single-phase PDUs and mounting hardware	\$4,577.01	\$0.01
1.2	Power Distribution Units PDUs Included in 1.1	Incl.	Incl.
1.3	Storage Controller(s) DS4300 - FASiT 600 1722-60U High Availability Controller with 4 GBICs, two 1m Fibre Channel cables, Storage Manager 8 (management software), LUN masking and Load Balancing Software. The 1722-60U holds up to 14 drives	\$38,387.01	\$1,017.00
1.4	Disk Shelving Two DS4000 EXP700 1740-1RU 2Gb/s Disk Shelf. Each EXP700 can accommodate up to 14 drives. Includes six SW SFPs and four LC-LC 1m cables.	\$15,264.01	\$506.00
1.5	Hard Disk Drives Thirty 36.4GB 2Gb/s FC 15K RPM Disk Drives	\$31,860.01	\$0.01
1.6	Power system Power system included in 1.3 and 1.4	Incl.	Incl.
1.7	Management Software Management software included in 1.3	Incl.	Incl.
1.8	LUN Masking Software Storage Subsystem based LUN Masking included in 1.3	Incl.	Incl.
1.9	Installation Installation charges included in 1.1, 1.3, 1.4 and 1.5	\$0.01	Incl.
2.0 Evaluated Options			
2.1	2Gb 8 port Fibre Channel SAN Switch 2005-H08 2Gb eight-port Fibre Channel SAN switch with 8 SW transceivers (total) and Full Fabric Activation feature	\$12,647.00	Incl.
2.2	2Gb PCI Host Bus Adapter 2Gb Fibre Channel PCI Host Bus Adapter including firmware, driver and 25m LC-LC Fibre Channel cable	\$1,788.00	\$0.01
2.3	Load Balancing Software for Windows 2000 Load Balancing (RDAC) software is included in 1.3 for all Windows 2000 hosts attached to this storage platform	Incl.	Incl.
2.4	Load Balancing Software for Windows NT4 Load Balancing (RDAC) software is included in 1.3 for all Windows NT4 hosts attached to this storage platform	Incl.	Incl.
3.0 Platform Options			
3.1	One 10K RPM 36.4GB Drive (1Gb/s) [3560-5005] Add or Remove drives to 3560-1RU (EXP500)	\$420.00	Incl.
3.2	One 10K RPM 72.8GB Drive (1Gb/s) [3560-5006] Add drives to 3560-1RU (EXP500)	\$975.00	Incl.
3.3	One 15K RPM 18.2GB Drive (1Gb/s) [3560-5011] Add drives to 3560-1RU (EXP500)	\$530.00	Incl.
3.4	One 10K RPM 36.4GB Drive (2Gb/s) [1740-5205] Add drives to 3560-1RU (EXP500) or 1740-1RU (DS4000 EXP700) or 1722-60U (DS4300 FASiT600)	\$570.00	Incl.
3.5	One 10K RPM 72.8GB Drive (2Gb/s) [1740-5206] Add drives to 3560-1RU (EXP500) or 1740-1RU (DS4000 EXP700) or 1722-60U (DS4300 FASiT600)	\$1,140.00	Incl.
3.6	One 10K RPM 145.6GB Drive (2Gb/s)	\$2,280.00	Incl.

	[1740-5207] Add drives to 3560-1RU (EXP500) or 1740-1RU (DS4000 EXP700) or 1722-60U (DS4300 FASiT600)		
3.7	One 15K RPM 18.2GB Drive (2Gb/s)	\$531.00	Incl.
	[1740-5211] Add drives to 3560-1RU (EXP500) or 1740-1RU (DS4000 EXP700) or 1722-60U (DS4300 FASiT600)		
3.8	One 15K RPM 36.4GB Drive (2Gb/s)	\$1,062.00	Incl.
	[1740-5212] Add drives to 3560-1RU (EXP500) or 1740-1RU (DS4000 EXP700) or 1722-60U (DS4300 FASiT600)		
3.9	One 15K RPM 36.4GB Drive (2Gb/s)	\$1,062.00	Incl.
	[1740-5212] Remove drives from base config.		
3.10	One 15K RPM 73.4GB Drive (2Gb/s)	\$1,710.00	Incl.
	[1740-5213] Add drives to 3560-1RU (EXP500) or 1740-1RU (DS4000 EXP700) or 1722-60U DS4300 FASiT600)		

Category
SAN 2

Disk Technology



IBM DS4300 (FAStT600) Turbo
1722-60U

- Scales to 16.4 TB with 7 DS4000 EXP700 Expansion Units
- Dual controller with 2 GB of cache
- Supports from 8 to 64 storage partitions
- Increased cache size of 2GB
- DS4000 Storage Manager V9.1
- Copy services include VolumeCopy

The IBM TotalStorage DS4300 (formerly known as FAStT600) Storage Server can be ordered with the Turbo feature, or you can upgrade your existing FAStT600. The DS4300 Turbo is designed to meet your growing need for storage capacity and performance. Using Storage Manager 9.1, the DS4300 Turbo is designed to perform up to 75,000 cached I/Os and provide up to 768 MB/sec throughput.

The Turbo option comes with auto-sensing capability to assist in the detection of host connectivity speed of either 1 Gbps or 2 Gbps. With VolumeCopy, the Turbo feature allows for the full replication of logical volumes for enhanced data management and protection.

For more information - ibm.com/servers/storage/disk/ds4000/ds4300

Switching Technology



IBM TotalStorage San Switch F08
3534-F08

Full-fabric switch feature provides 8-port, 2 Gigabit per second switch for high availability dual redundant core/edge SAN fabrics. Provides UNIX and Intel-based servers and storage with fabric scalability from small workgroups to large enterprise SANs with a common management system.



IBM TotalStorage San Switch F16
2109-F16

Two Gigabit per second, high availability core-to-edge SAN fabrics for UNIX and Intel-based servers and storage, scalable from small workgroups to large enterprise SANs with a common management system.

For more information - ibm.com/storage/san

Sample Solutions

- 2 TB of raw DS4300 Turbo capacity connecting to Intel, AIX, SUN and HP hosts (28 x 73 GB Drives).
- Includes HBAs, cables to connect the DS4300 to the two 16-ports switches.

1	Group 1.1 Rackmount Cabinet / Enclosure	4,577
1	Group 1.2 Power distribution Units	1,565
1	Group 1.3 Storage Controllers with Turbo	42,302
1	Group 3.10 EXP700 Drive Expansion Dwr	9,432
28	Group 3.5 10K RPM 72.8GB Disk drive	31,920
2	Group 2.2 16-port Fibre Channel Switch	66,176
2	Group 3.22 5m Fibre Channel Cable	446
20	Group 2.3 2Gb PCI Host Bus Adapter	35,760
Solution TOTAL		\$ 192,178

- 3TB of raw DS4300 Turbo capacity (42 X 73 GB Drives) to connect to an existing SAN, serving data to Windows, Novell, Linux, Unix, ...hosts

1	Group 1.1 Rackmount Cabinet / Enclosure	4,577
1	Group 1.2 Power distribution Units	1,565
1	Group 1.3 Storage Controller with Turbo	42,302
2	Group 3.10 EXP700 Drive Expansion Drawer	18,864
42	Group 3.8 15K RPM 73GB Disk Drive	71,820
Solution TOTAL		\$ 139,128

Benefits

- Includes unlimited Load Balancing/Failover client licenses for Windows and Unix servers
- Prices include installation

Category details

SAN Category 2

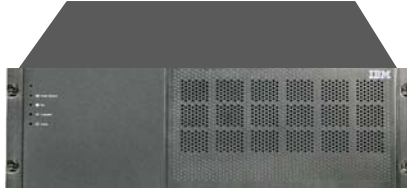
Item	Description	HW & Inst Unit Price	7/24 Warr Upg Price
1.0 Storage Platform			
1.1	Rackmount Cabinet / Enclosure [2101] 19 inch Rack, two single-phase PDUs and mounting hardware	\$4,577.01	\$0.01
1.2	Power Distribution Units One PDUs pair Included in 1.1 - this is for one additional pair	\$1,565.01	\$0.01
1.3	Storage Controller(s) DS4300 Turbo (FASiT600) 1722-60U High Availability Controller Shelf with Turbo Feature, ShortWave 4 GBICs, two 1m Fibre Channel cables, Storage Manager 9.1 (management software), LUN masking, Load Balancing Software	\$41,285.01	\$1,017.00
1.4	Disk Shelving Four DS4000 EXP700 1740-1RU Disk Shelf (3EIA) for up to 56 drives, with 14 GBICs and 4 1M LC-LC and 4 5M LC-LC Fibre Optic cables	\$31,338.01	\$1,013.00
1.5	Hard Disk Drives Sixty 36.4GB 2Gb/s FC 10K RPM Disk Drives	\$34,200.01	\$0.01
1.6	Power system Power system included in 1.3	Incl.	Incl.
1.7	Management Software Management software included in 1.3	Incl.	Incl.
1.8	LUN Masking Software Storage Subsystem based LUN Masking included in 1.3	Incl.	Incl.
1.9	Installation Installation charges included in 1.1, 1.3, 1.4 and 1.5	\$0.01	Incl.
2.0 Evaluated Options			
2.1	2Gb 8 port Fibre Channel SAN Switch 3534-F08 2Gb eight-port Fibre Channel SAN switch with 8 SW transceivers (total) and Full Fabric Activation feature	\$15,726.00	\$319.00
2.2	2Gb 16 port Fibre Channel SAN Switch 2109-F16 2Gb sixteen-port Fibre Channel SAN switch with 16 SW transceivers (total)	\$33,088.00	\$0.01
2.3	2Gb PCI Host Bus Adapter 2Gb Fibre Channel PCI Host Bus Adapter including firmware, driver and 25m LC-LC Fibre Channel cable	\$1,788.00	\$0.01
2.4	Load Balancing Software for Windows 2000 Load Balancing (RDAC) software is included in 1.3 for all Windows 2000 hosts attached to this storage platform	Incl.	Incl.
2.5	Load Balancing Software for Windows NT4 Load Balancing (RDAC) software is included in 1.3 for all Windows NT4 hosts attached to this storage platform	Incl.	Incl.
3.0 Platform Options			
3.1	One 10K RPM 36.4GB Drive (1Gb/s) [3560-5005] Add or Remove drives to 3560-1RU (EXP500) or 3542-2RU (FASiT200)	\$420.00	Incl.
3.2	One 10K RPM 72.8GB Drive (1Gb/s) [3560-5006] Add drives to 3560-1RU (EXP500) or 3542-2RU (FASiT200)	\$975.00	Incl.
3.3	One 15K RPM 18.2GB Drive (1Gb/s) [3560-5011] Add drives to 3560-1RU (EXP500) or 3542-2RU (FASiT200)	\$530.00	Incl.
3.4	One 10K RPM 36.4GB Drive (2Gb/s) [1740-5205] Add drives to 3560-1RU (EXP500) or 1740-1RU (DS4000 EXP700) or 1722-60U (DS4300 FASiT600)	\$570.00	Incl.
3.5	One 10K RPM 72.8GB Drive (2Gb/s) [1740-5206] Add drives to 3560-1RU (EXP500) or 1740-1RU (DS4000 EXP700) or 1722-60U (DS4300 FASiT600)	\$1,140.00	Incl.
3.6	One 10K RPM 145.6GB Drive (2Gb/s)	\$2,280.00	Incl.

	[1740-5207] Add drives to 3560-1RU (EXP500) or 1740-1RU (DS4000 EXP700) or 1722-60U (DS4300 FASiT600)		
3.7	One 15K RPM 18.2GB Drive (2Gb/s)	\$531.00	Incl.
	[1740-5211] Add drives to 3560-1RU (EXP500) or 1740-1RU (DS4000 EXP700) or 1722-60U (DS4300 FASiT600)		
3.8	One 15K RPM 73.4GB Drive (2Gb/s)	\$1,710.00	Incl.
	[1740-5213] Add drives to 3560-1RU (EXP500) or 1740-1RU (DS4000 EXP700) or 1722-60U (DS4300 FASiT600)		
3.9	One 3560-1RU (EXP500) Drive Expansion Drawer	\$5,332.00	\$169.00
	[3560-1RU] Remove or add 1Gb/s disk shelves from base config. Each EXP500 can accommodate up to 10 drives. Includes four SW GBICs and two SC-SC 1m cables.		
3.10	One 1740-1RU(DS4000 EXP700) Drive Expansion Drawer	\$8,584.00	\$848.00
	[1740-1RU] Add 2Gb/s disk shelves to the base config. Each EXP700 can accommodate up to 14 drives. Includes four SW SFPs, two LC-LC 1m cables and two SC-LC coupling cables.		
3.11	DS4300 FASiT600 Fibre Channel Short Wave GBIC	\$1,306.00	Incl.
	[1722-2210] Add two shortwave GBIC		
3.12	pSeries Host Bus Adapter (2Gb/s)	\$3,710.00	Incl.
	[7026-6228] Add 2Gb/s Fibre Channel HBA to qualified pSeries and RS/6000 Servers		
3.13	One ShortWave SFP Transceiver (2Gb/s)	\$316.00	Incl.
	[2109-2210] Remove/add ShortWave SFP Transceiver (FASiT, EXP or switches)		
3.14	One LongWave SFP Transceiver (2Gb/s)	\$897.00	Incl.
	[2109-2220] Add LongWave SFP Transceiver (FASiT, EXP or switches)		
3.15	2109-F16 Performance Bundle Activation	\$8,580.00	Incl.
	[2109-7421] Enables ISL trunking and performance monitoring tools		
3.16	2109-F16 Remote Switch Activation	\$7,150.00	Incl.
	[2109-7302] Enables connectivity through gateways (FC over ATM, ...)		
3.17	2109-F16 Extended Fabric Activation	\$7,150.00	Incl.
	[2109-7303] Provides a licence for added buffer credits which enables ISL at distances greater than 10km		
3.18	AToP upgrade 16 to 24 port Chasis	\$44,827.00	Incl.
	[F16-S2031-224] At Time of Purchase switch upgrade from 2.2, from 16 to 24 ports (McData), including 24 SW SFPs, Spheron Element Manager, Management Server and EFC Fabric Manager		
3.20	AToP substitute 16 to 20 port chasis	\$9,766.00	Incl.
	[2061-020] At Time of Purchase swith upgrade from 2.2, from 16 to 20-port (CISCO MDS 9120) including 20 SW SFP transceivers and MDS 9000 Enterprise Package		
3.21	FC SW Cable LC-LC 1m	\$131.00	Incl.
	[19K1247] Fibre Channel Cable, 1 meter		
3.22	FC SW Cable LC-LC 5m	\$223.00	Incl.
	[19K1248] Fibre Channel Cable, 5 meters		
3.23	FC SW Cable LC-LC 25m	\$347.00	Incl.
	[19K1249] Fibre Channel Cable, 25 meters		
3.24	FC SW Adapter SC female-LC Male	\$296.00	Incl.
	[19K1250] Fibre Channel Adapter SC Female / LC Male		
3.25	FC SW Adapter SC Male-LC Female	\$302.00	Incl.
	[1722-5702] Fibre Channel Adapter SC Male / LC Female		
3.27	DS4300 FASiT600 FlashCopy Activation	\$10,989.00	Incl.
	[1722-7351] Add FlashCopy licence		
3.29	3534-F08 Full Fabric Support	\$3,945.00	Incl.
	[2109-7320] Add/Remove Full Fabric Support on 3534-F08		
3.30	3534-F08 Performance Bundle	\$6,750.00	Incl.
	[2109-7321] Add Performance Bundle to 3534-F08		
3.31	3534-F08 Remote Switch Activation	\$8,570.00	Incl.
	[2109-7302] Add Remote Switch feature to 3534-F08		
3.32	3534-F08 Extended Fabric Activation	\$8,570.00	Incl.
	[2109-7303] Add Extended Fabric feature to 3534-F08		
3.33	NAS Gateway	\$41,877.00	\$4,250.00

	[5196-G27] Add NAS model G27 Gateway to the FASiT, allowing CIFS, NFS, FTP and HTTP connection to the FASiT over the LAN. Dual engine configuration with 1 FC and 1 Gb Ethernet on each engine.		
3.34	Additional SAN Management Software	\$1,451.00	Incl.
	[5698-SRM] Storage Resource Manager per Client/Processor		
3.35	Additional SAN Management Software	\$1,607.00	Incl.
	[5698-SRD] SRM for Databases per Client/Processor		
3.36	One Loop Switch	\$10,718.00	Incl.
	[2031-L00] Add Loop Switch to 2031/2032 switch in order to support FC-AL devices		

Category
SAN 2 Alt

Disk Technology



**IBM DS4400
(FAST700)
1742-1RU**

- Superior performance and bandwidth of the 2Gbps technology provides faster access to your data
- Attaches to AIX, HP-UX, Solaris, Windows NT, Windows 2000, Novell NetWare, VMWare and Red Hat Linux servers
- Offers business continuance with FlashCopy and Remote Mirroring functions
- Offers enhanced management functions such as Dynamic Volume Expansion with DS4000 Storage Manager
- Scales from 36GB to 32.8TB of storage
- Provides broad range of RAID levels (0, 1, 3, 5, 10).

The IBM TotalStorage DS4400 (formerly known as FAST700) Storage Server delivers superior performance with 2Gbps Fibre Channel technology. It is designed to offer investment protection with advanced functions and flexible features. Its high scalability supports growing storage requirements created by e-business applications. DS4400 offers advanced replication services to support business continuance.

For more information - ibm.com/servers/storage/disk/ds4000/ds4400

Switching Technology



**IBM TotalStorage San Switch H08
2005-H08**

Next generation entry fabric switch provides up to 8 ports, 2Gigabit/second (Gbps) fabric switching for Windows NT/2000 and UNIX server clustering, infrastructure simplification and business continuity solutions. The base switch offers zoning, WEBTOOLS and attachment in two switch fabric.

Ports **4 - 8**
Performance **1 and 2Gbps**
Servers **iSeries, pSeries, xSeries**

For more information - ibm.com/storage/san

Sample Solution

1	Group 1.1 Rackmount Cabinet / Enclosure	6,142
1	Group 1.2 Power Distribution Units	Incl
1	Group 1.3 Storage Controllers	49,959
60	Group 3.10 73 GB Drives	102,600
1	Group 1.4 EXP500 Drive Expansion Dwr (Q=6)	32,171
Solution TOTAL		\$ 190,872

- Provides 4.3 TB of raw DS4400 capacity (60 X 73 GB Drives) to an existing SAN within six EXP500 drive expansion drawers
- Includes FlashCopy

Benefits

- Includes unlimited Load Balancing / Failover client licenses for Windows and Unix servers.
- Prices include installation
- 2Gb/s Fibre Channel throughout (server and disk sides)

Category details

SAN Category 2-alternate

Item	Description	HW & Inst Unit Price	7/24 Warr Upg Price
1.0 Storage Platform			
1.1	Rackmount Cabinet / Enclosure [2101] 19 inch Rack, four single-phase PDUs and mounting hardware	\$6,142.01	\$0.01
1.2	Power Distribution Units Two PDU pairs Included in 1.1	Incl.	Incl.
1.3	Storage Controller(s) DS4400 FASiT 700 1742-1RU High Availability Controller, with ShortWave 4 SFPs, three 1m Fibre Channel cables, one 5m Fibre Channel cable, two LC/SC cable adapters, Storage Manager 9.1 (management software), LUN masking and Load Balancing Software	\$48,942.01	\$1,017.00
1.4	Disk Shelving Six EXP500 3560-1RU Disk Shelf (3EIA) for up to 60 drives, with 22 GBICs and ten short Fibre Channel cables	\$31,158.01	\$1,013.00
1.5	Hard Disk Drives Sixty 36.4GB 2Gb/s FC 15K RPM Disk Drives	\$63,720.01	\$0.01
1.6	Power system Power system included in 1.3 and 1.4	Incl.	Incl.
1.7	Management Software Management software included in 1.3	Incl.	Incl.
1.8	LUN Masking Software Storage Subsystem based LUN Masking included in 1.3	Incl.	Incl.
1.9	Installation Installation charges included in 1.1, 1.3, 1.4 and 1.5	Incl.	Incl.
2.0 Evaluated Options			
2.1	2Gb 8 port Fibre Channel TotalStorage SAN Switch 2005-H08 2Gb eight-port Fibre Channel SAN switch with 8 SW transceivers (total) and Full Fabric Activation feature	\$12,647.00	Incl.
2.2	2Gb 16 port CISCO MDS 9120 Multilayer SAN Switch 2061-020 2Gb configured to 16 ports with 16 SW transceivers (total). Rack mounting hardware, MDS 9000 Enterprise package for switch management is also included	\$39,742.00	\$0.01
2.3	2Gb PCI Host Bus Adapter 2Gb Fibre Channel PCI Host Bus Adapter including firmware, driver and 25m LC-LC Fibre Channel cable	\$1,788.00	\$0.01
2.4	Load Balancing Software for Windows 2000 Load Balancing (RDAC) software is included in 1.3 for all Windows 2000 hosts attached to this storage platform	Incl.	Incl.
2.5	Load Balancing Software for Windows NT4 Load Balancing (RDAC) software is included in 1.3 for all Windows NT4 hosts attached to this storage platform	Incl.	Incl.
3.0 Platform Options			
3.1	One 10K RPM 36.4GB Drive (1Gb/s) [3560-5005] Add or Remove drives to 3560-1RU (EXP500)	\$420.00	Incl.
3.2	One 10K RPM 72.8GB Drive (1Gb/s) [3560-5006] Add drives to 3560-1RU (EXP500)	\$975.00	Incl.
3.3	One 15K RPM 18.2GB Drive (1Gb/s) [3560-5011] Add drives to 3560-1RU (EXP500)	\$530.00	Incl.
3.4	One 10K RPM 36.4GB Drive (2Gb/s) [1740-5205] Add drives to 3560-1RU (EXP500) or 1740-1RU (DS4000 EXP700)	\$570.00	Incl.
3.5	One 10K RPM 72.8GB Drive (2Gb/s) [1740-5206] Add drives to 3560-1RU (EXP500) or 1740-1RU (DS4000 EXP700)	\$1,140.00	Incl.

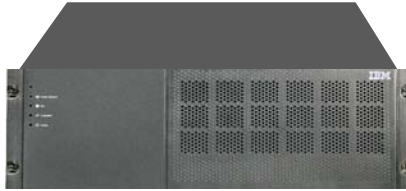
Storage NMSO

PWGSC Contract # E60EJ-020005/001/EJ

3.6	One 10K RPM 145.6GB Drive (2Gb/s) [1740-5207] Add drives to 3560-1RU (EXP500) or 1740-1RU (DS4000 EXP700)	\$2,280.00	Incl.
3.7	One 15K RPM 18.2GB Drive (2Gb/s) [1740-5211] Add drives to 3560-1RU (EXP500) or 1740-1RU (DS4000 EXP700)	\$531.00	Incl.
3.8	One 15K RPM 36.4GB Drive (2Gb/s) [1740-5212] Add drives to 3560-1RU (EXP500) or 1740-1RU (DS4000 EXP700)	\$1,062.00	Incl.
3.9	One 15K RPM 36.4GB Drive (2Gb/s) [1740-5212] Remove drives from base config.	\$1,062.00	Incl.
3.10	One 15K RPM 73.4GB Drive (2Gb/s) [1740-5213] Add drives to 3560-1RU (EXP500) or 1749-1RU (DS4000 EXP700)	\$1,710.00	Incl.

Category
SAN 3

Disk Technology



IBM DS4400
(FAStT700)
1742-1RU

- Superior performance and bandwidth of the 2Gbps technology provides faster access to your data
- Attaches to AIX, HP-UX, Solaris, Windows NT, Windows 2000, Novell NetWare, VMWare and Red Hat Linux servers
- Offers business continuance with FlashCopy and Remote Mirroring functions
- Offers enhanced management functions such as Dynamic Volume Expansion with DS4000 Storage Manager
- Scales from 36GB to 32.8TB of storage
- Provides broad range of RAID levels (0, 1, 3, 5, 10).

The IBM TotalStorage DS4400 (formerly known as FAST700) Storage Server delivers superior performance with 2Gbps Fibre Channel technology. It is designed to offer investment protection with advanced functions and flexible features. Its high scalability supports growing storage requirements created by e-business applications. FAST700 offers advanced replication services to support business continuance.

For more information - ibm.com/servers/storage/disk/ds4000/ds4400

Switching Technology



IBM TotalStorage San Switch F16
2109-F16

Provides 16-port, 2 Gigabit per second, high availability core-to-edge SAN fabrics for UNIX and Intel-based servers and storage, scalable from small workgroups to large enterprise SANs with a common management system.



IBM TotalStorage San Switch F32
2109-F32

Provides 32-port, 2 Gigabit per second, high availability core-to-edge SAN fabrics for UNIX and Intel-based servers and storage, scalable from small workgroups to large enterprise SANs with a common management system.

For more information - ibm.com/storage/san

Sample Solutions

- 1TB of raw DS4400 capacity (14 X 73 GB Drives)
- Two 16-port switches to connect up to 15 dual-ported servers

1	Group 1.1 Rackmount Cabinet / Enclosure	4,302
1	Group 1.2 Power Distribution Units	3,220
1	Group 1.3 Storage Controllers	56,121
1	Group 3.10 DS4000 FAST700 drive expansion drwr	9,432
14	Group 3.5 10K RPM 72.8GB Disk Drive	15,960
2	Group 2.1 16-port Fibre Channel switch	66,176
2	Group 3.25 5m Fibre Channel cable	446
Solution TOTAL		\$ 155,657

- Provides 1TB of raw DS4400 capacity to an existing SAN for up to 64 servers
- Includes FlashCopy

1	Group 1.1 Rackmount Cabinet / Enclosure	4,302
1	Group 1.2 Power Distribution Units	3,220
1	Group 1.3 Storage Controllers	56,121
1	Group 2.7 Snapshot software	8,450
2	Group 3.9 FAST500 drive expansion drwr	11,002
14	Group 3.5 10K RPM 72.8GB Disk Drive	15,960
Solution TOTAL		\$ 99,055

Benefits

- Includes unlimited Load Balancing / Failover client licenses for Windows and Unix servers.
- Prices include installation
- 3 year, 7/24 warranty
- 2Gb/s Fibre Channel throughout (server and disk sides)

Category details

SAN Category 3

Item	Description	HW & Inst Unit Price	7/24 Warr Upg Price
1.0 Storage Platform			
1.1	Rackmount Cabinet / Enclosure [7014] 19 inch Rack, one single-phase PDUs and mounting hardware	\$4,302.01	\$0.01
1.2	Power Distribution Units One PDUs pair Included in 1.1 - this is for two additional pair	\$3,220.01	\$0.01
1.3	Storage Controller(s) DS4400 (FAST700) 1742-1RU High Availability Controller Shelf, with ShortWave 8 GBICs, eight Fibre Channel cables, Storage Manager 9.1 (management software), LUN masking, Load Balancing Software	\$55,104.01	\$1,017.00
1.4	Disk Shelving Twelve EXP500 3560-1RU Disk Shelf (3EIA) for up to 120 drives, with 44 GBICs and twenty short Fibre Channel cables	\$62,316.01	\$2,025.00
1.5	Hard Disk Drives One-Hundred and Twenty 36.4GB 1Gb/s FC 10K RPM Disk Drives	\$50,400.01	\$0.01
1.6	Power system Power system included in 1.3	Incl.	Incl.
1.7	Management Software Management software included in 1.3	Incl.	Incl.
1.8	LUN Masking Software Storage Subsystem based LUN Masking included in 1.3	Incl.	Incl.
1.9	Installation Installation charges included in 1.1, 1.3, 1.4 and 1.5	\$0.01	Incl.
2.0 Evaluated Options			
2.1	2Gb 16 port Fibre Channel SAN Switch 2109-F16 2Gb sixteen-port Fibre Channel SAN switch with 16 SW transceivers (total)	\$33,088.00	\$0.01
2.2	2Gb 32 port Fibre Channel SAN Switch 2109-F32 2Gb thirty-two-port Fibre Channel SAN switch with 32 SW transceivers (total)	\$70,676.00	\$0.01
2.3	2Gb PCI Host Bus Adapter 2Gb Fibre Channel PCI Host Bus Adapter including firmware, driver and 25m LC-LC Fibre Channel cable	\$1,788.00	\$0.01
2.4	Load Balancing Software for Windows 2000 Load Balancing (RDAC) software is included in 1.3 for all Windows 2000 hosts attached to this storage platform	Incl.	Incl.
2.5	Load Balancing Software for Windows NT4 Load Balancing (RDAC) software is included in 1.3 for all Windows NT4 hosts attached to this storage platform	Incl.	Incl.
2.6	Remote replication software FAST RemoteCopy License for mirroring LUNs to a secondary FAST located in the same or at a remote location.	\$26,800.00	\$0.01
2.7	Snapshot software FAST FlashCopy License for instant T-zero LUN copy within a FAST subsystem	\$8,450.00	\$0.01
3.0 Platform Options			
3.1	One 10K RPM 36.4GB Drive (1Gb/s) [3560-5005] Add or Remove drives to 3560-1RU (EXP500) or 3542-2RU (FAST200)	\$420.00	Incl.
3.2	One 10K RPM 72.8GB Drive (1Gb/s) [3560-5006] Add drives to 3560-1RU (EXP500) or 3542-2RU (FAST200)	\$975.00	Incl.
3.3	One 15K RPM 18.2GB Drive (1Gb/s) [3560-5011] Add drives to 3560-1RU (EXP500) or 3542-2RU (FAST200)	\$530.00	Incl.
3.4	One 10K RPM 36.4GB Drive (2Gb/s)	\$570.00	Incl.

	[1740-5205] Add drives to 3560-1RU (EXP500) or 1740-1RU (DS4000 EXP700)		
3.5	One 10K RPM 72.8GB Drive (2Gb/s)	\$1,140.00	Incl.
	[1740-5206] Add drives to 3560-1RU (EXP500) or 1740-1RU (DS4000 EXP700)		
3.6	One 10K RPM 145.6GB Drive (2Gb/s)	\$2,280.00	Incl.
	[1740-5207] Add drives to 3560-1RU (EXP500) or 1740-1RU (DS4000 EXP700)		
3.7	One 15K RPM 18.2GB Drive (2Gb/s)	\$531.00	Incl.
	[1740-5211] Add drives to 3560-1RU (EXP500) or 1740-1RU (DS4000 EXP700)		
3.8	One 15K RPM 73.4GB Drive (2Gb/s)	\$1,710.00	Incl.
	[1740-5213] Add drives to 3560-1RU (EXP500) or 1740-1RU (DS4000 EXP700)		
3.9	One 3560-1RU (EXP500) Drive Expansion Drawer	\$5,332.00	\$169.00
	[3560-1RU] Remove or add 1Gb/s disk shelves from base config. Each EXP500 can accommodate up to 10 drives. Includes four SW GBICs and two SC-SC 1m cables.		
3.10	One 1740-1RU(DS4000 EXP700) Drive Expansion Drawer	\$8,584.00	\$848.00
	[1740-1RU] Add 2Gb/s disk shelves to the base config. Each EXP700 can accommodate up to 14 drives. Includes four SW SFPs, two LC-LC 1m cables and two SC-LC coupling cables.		
3.11	DS4400 FASiT700 Mini-Hub (2Gb/s)	\$1,891.00	Incl.
	[1742-3507] Add/Remove dual-port Mini-Hub to the FASiT700 Controller drawer (host side or drive side)		
3.12	pSeries Host Bus Adapter (2Gb/s)	\$3,710.00	Incl.
	[7026-6228] Add 2Gb/s Fibre Channel HBA to qualified pSeries and RS/6000 Servers		
3.13	One ShortWave SFP Transceiver (2Gb/s)	\$316.00	Incl.
	[2109-2210] Remove/add ShortWave SFP Transceiver (FASiT, EXP or switches)		
3.14	One LongWave SFP Transceiver (2Gb/s)	\$897.00	Incl.
	[2109-2220] Add LongWave SFP Transceiver (FASiT, EXP or switches)		
3.15	2109-F16 Performance Bundle Activation	\$8,580.00	Incl.
	[2109-7421] Enables ISL trunking and performance monitoring tools		
3.16	2109-F16 Remote Switch Activation	\$7,150.00	Incl.
	[2109-7302] Enables connectivity through gateways (FC over ATM, ...)		
3.17	2109-F16 Extended Fabric Activation	\$7,150.00	Incl.
	[2109-7303] Provides a license for added buffer credits which enables ISL at distances greater than 10km		
3.18	2109-F32 Fabric Manager	\$11,935.00	Incl.
	[2109-7202] Provides a license for FabricManager		
3.19	2109-F32 Remote Switch Activation	\$11,845.00	Incl.
	[2109-7502] Enables connectivity through gateways (FC over ATM, ...)		
3.20	2109-F32 Extended Fabric Activation	\$11,845.00	Incl.
	[2109-7503] Provides a license for added buffer credits which enables ISL at distances greater than 10km		
3.21	AToP upgrade 16 to 24 port Chasis	\$44,827.00	Incl.
	[F16-S2031-224] At Time of Purchase switch upgrade from 2.1, 16 to 24 ports (McData), including 24 SW SFPs, Spheron Element Manager, Management Server and EFC Fabric Manager		
3.22	AToP substitute 32 port chasis	\$32,592.00	Incl.
	[F32-S2031-232] At Time of Purchase switch substitution from 2.2, to 32 ports (McData), including 32 SW SFPs, Product Manager and EFC Management software		
3.23	AToP substitute 16 to 20 port chasis	\$9,766.00	Incl.
	[2061-020] At Time of Purchase swithc upgrade from 2.1, 16 to 20-port (CISCO MDS 9120) including 20 SW SFP transceivers and MDS 9000 Enterprise Package		
3.24	FC SW Cable LC-LC 1m	\$131.00	Incl.
	[19K1247] Fibre Channel Cable, 1 meter		
3.25	FC SW Cable LC-LC 5m	\$223.00	Incl.
	[19K1248] Fibre Channel Cable, 5 meters		
3.26	FC SW Cable LC-LC 25m	\$347.00	Incl.
	[19K1249] Fibre Channel Cable, 25 meters		
3.27	FC SW Adapter SC female-LC Male	\$296.00	Incl.
	[19K1250] Fibre Channel Adapter SC Female / LC Male		

3.28	NAS Gateway	\$41,877.00	\$4,250.00
	[5196-G27] Add NAS model G27 Gateway to the FASiT, allowing CIFS, NFS, FTP and HTTP connection to the FASiT over the LAN. Dual engine configuration with 1 FC and 1 Gb Ethernet on each engine.		
3.29	AToP EFC HW/SW from McData switch	\$15,033.00	Incl.
	[2032-3750/3755] Use for removing EFC HW and SW feature from a McData switch At Time of Purchase		
3.30	AToP 2032-C40 Rack	\$8,865.00	Incl.
	[2032-C40] Use for McData Rack At Time of Purchase		
3.31	Additional SAN Management Software	\$1,451.00	Incl.
	[5698-SRM] Storage Resource Manager per Client/Processor		
3.32	Additional SAN Management Software	\$1,607.00	Incl.
	[5698-SRD] SRM for Databases per Client/Processor		
3.33	One Loop Switch	\$10,718.00	Incl.
	[2031-L00] Add Loop Switch to 2031/2032 switch in order to support FC-AL devices		

Category
SAN 3 alt

Disk Technology

IBM DS4500 (FAStT900)
1742-90U

- Superior performance and bandwidth of the 2Gbps technology provides faster access to your data
- Attaches to AIX, HP-UX, Solaris, Windows NT, Windows 2000, Novell NetWare, VMWare and Red Hat Linux servers
- Offers business continuance with FlashCopy and Remote Mirroring functions
- Offers optional advanced replication functions such as FlashCopy, Volume Copy and Remote Mirroring
- Scales up to 32 TB of storage
- Provides broad range of RAID levels (0, 1, 3, 5, 10).



The IBM TotalStorage DS4500 (formerly known as FAStT900) Storage Server delivers superior performance with 2Gbps Fibre Channel connectivity and exceeds the performance capabilities of the other DS4000 storage. SAN ready, the DS4500 is designed to facilitate storage consolidation for Storage Area Network (SAN), Network Attached Storage (NAS) and direct attach storage environments. The DS4500 is well suited for high performance OLTP applications, data mining and digital media.

For more information - ibm.com/servers/storage/disk/ds4000/ds4500

* Also available in this category – FAStT700

Sample Solutions

- 1.4 TB of raw DS4500 capacity (20 X 72 GB Drives)
- Two 32-port switches to connect up to 15 dual-ported servers

1	Group 1.1 Rackmount Cabinet / Enclosure	4,302
1	Group 1.2 Power Distribution Units	3,220
1	Group 1.3 Storage Controllers	56,121
2	Group 3.10 EXP700 drive expansion drwr	18,864
20	Group 3.5 10K RPM 72.8GB Disk Drive	22,800
2	Group 2.2 32-port Fibre Channel switch	141,352
2	Group 3.25 5m Fibre Channel cable	446
Solution TOTAL		\$ 247,105

Switching Technology



IBM TotalStorage San Switch F16
2109-F16

Provides 16-port, 2 Gigabit per second, high availability core-to-edge SAN fabrics for UNIX and Intel-based servers and storage, scalable from small workgroups to large enterprise SANs with a common management system.



IBM TotalStorage San Switch F32
2109-F32

Provides 32-port, 2 Gigabit per second, high availability core-to-edge SAN fabrics for UNIX and Intel-based servers and storage, scalable from small workgroups to large enterprise SANs with a common management system.

For more information - ibm.com/storage/san

- Provides 4.4 TB of raw DS4500 capacity to an existing SAN for up to 64 servers (30 X 145 GB Drives)
- Includes FlashCopy

1	Group 1.1 Rackmount Cabinet / Enclosure	4,302
1	Group 1.2 Power Distribution Units	3,220
1	Group 1.3 Storage Controllers	56,121
1	Group 2.7 Snapshot software	8,450
3	Group 3.10 EXP700 drive expansion drwr	28,296
30	Group 3.6 10K RPM 145 GB Disk Drive	68,400
Solution TOTAL		\$ 168,789

Benefits

- Includes unlimited Load Balancing / Failover client licenses for Windows and Unix servers.
- Prices include installation
- 2Gb/s Fibre Channel throughout (server and disk sides)

Category details

SAN Category 3-alternate

Item	Description	HW & Inst Unit Price	7/24 Warr Upg Price
1.0 Storage Platform			
1.1	Rackmount Cabinet / Enclosure [7014] 19 inch Rack, one single-phase PDUs and mounting hardware	\$4,302.01	\$0.01
1.2	Power Distribution Units One PDUs pair Included in 1.1 - this is for two additional pair	\$3,220.01	\$0.01
1.3	Storage Controller(s) FASiT 900 1742-90U High Availability Controller Shelf, with ShortWave 8 GBICs, eight Fibre Channel cables, Storage Manager 8 (management software), LUN masking and Load Balancing Software	\$55,104.01	\$1,017.00
1.4	Disk Shelving Twelve EXP500 3560-1RU Disk Shelf (3EIA) for up to 120 drives, with 44 GBICs and twenty short Fibre Channel cables	\$62,316.01	\$2,025.00
1.5	Hard Disk Drives One-hundred and twenty 36.4GB 2Gb/s FC 15K RPM Disk Drives	\$127,440.01	\$0.01
1.6	Power system Power system included in 1.3	Incl.	Incl.
1.7	Management Software Management software included in 1.3	Incl.	Incl.
1.8	LUN Masking Software Storage Subsystem based LUN Masking included in 1.3	Incl.	Incl.
1.9	Installation Installation charges included in 1.1, 1.3, 1.4 and 1.5	\$0.01	Incl.
2.0 Evaluated Options			
2.1	2Gb 16 port Fibre Channel SAN Switch 2109-F16 2Gb sixteen-port Fibre Channel SAN switch with 16 SW transceivers (total)	\$33,088.00	\$0.01
2.2	2Gb 32 port Fibre Channel SAN Switch 2109-F32 2Gb thirty-two-port Fibre Channel SAN switch with 32 SW transceivers (total)	\$70,676.00	\$0.01
2.3	2Gb PCI Host Bus Adapter 2Gb Fibre Channel PCI Host Bus Adapter including firmware, driver and 25m LC-LC Fibre Channel cable	\$1,788.00	\$0.01
2.4	Load Balancing Software for Windows 2000 Load Balancing (RDAC) software is included in 1.3 for all Windows 2000 hosts attached to this storage platform	Incl.	Incl.
2.5	Load Balancing Software for Windows NT4 Load Balancing (RDAC) software is included in 1.3 for all Windows NT4 hosts attached to this storage platform	Incl.	Incl.
2.6	Remote replication software FASiT RemoteCopy License for mirroring LUNs to a secondary FASiT located in the same or at a remote location.	\$26,800.00	\$0.01
2.7	Snapshot software FASiT FlashCopy License for instant T-zero LUN copy within a FASiT subsystem	\$8,450.00	\$0.01
3.0 Platform Options			
3.1	One 10K RPM 36.4GB Drive (1Gb/s) [3560-5005] Add drives to 3560-1RU (EXP500)	\$420.00	Incl.
3.2	One 10K RPM 72.8GB Drive (1Gb/s) [3560-5006] Add drives to 3560-1RU (EXP500)	\$975.00	Incl.
3.3	One 15K RPM 18.2GB Drive (1Gb/s) [3560-5011] Add drives to 3560-1RU (EXP500)	\$530.00	Incl.
3.4	One 10K RPM 36.4GB Drive (2Gb/s)	\$570.00	Incl.

	[1740-5205] Add drives to 3560-1RU (EXP500) or 1740-1RU (EXP700)		
3.5	One 10K RPM 72.8GB Drive (2Gb/s)	\$1,140.00	Incl.
	[1740-5206] Add drives to 3560-1RU (EXP500) or 1740-1RU (EXP700)		
3.6	One 10K RPM 145.6GB Drive (2Gb/s)	\$2,280.00	Incl.
	[1740-5207] Add drives to 3560-1RU (EXP500) or 1740-1RU (EXP700)		
3.7	One 15K RPM 18.2GB Drive (2Gb/s)	\$531.00	Incl.
	[1740-5211] Add drives to 3560-1RU (EXP500) or 1740-1RU (EXP700)		
3.8	One 15K RPM 36.4GB Drive (2Gb/s)	\$1,062.00	Incl.
	[1740-5212] Add or remove drives from base config.		
3.9	One 3560-1RU (EXP500) Drive Expansion Drawer	\$5,332.00	\$169.00
	[3560-1RU] Remove or add 1Gb/s disk shelves from base config. Each EXP500 can accommodate up to 10 drives. Includes four SW GBICs and two SC-SC 1m cables.		
3.10	One 1740-1RU(EXP700) Drive Expansion Drawer	\$8,584.00	\$848.00
	[1740-1RU] Add 2Gb/s disk shelves to the base config. Each EXP700 can accommodate up to 14 drives. Includes four SW SFPs, two LC-LC 1m cables and two SC-LC coupling cables.		
3.11	FAST700 Mini-Hub (2Gb/s)	\$1,891.00	Incl.
	[1742-3507] Add/Remove dual-port Mini-Hub to the FAST700 Controller drawer (host side or drive side)		
3.12	pSeries Host Bus Adapter (2Gb/s)	\$3,710.00	Incl.
	[7026-6228] Add 2Gb/s Fibre Channel HBA to qualified pSeries and RS/6000 Servers		
3.13	One ShortWave SFP Transceiver (2Gb/s)	\$316.00	Incl.
	[2109-2210] Remove/add ShortWave SFP Transceiver (FAST, EXP or switches)		
3.14	One LongWave SFP Transceiver (2Gb/s)	\$897.00	Incl.
	[2109-2220] Add LongWave SFP Transceiver (FAST, EXP or switches)		
3.15	2109-F16 Performance Bundle Activation	\$8,580.00	Incl.
	[2109-7421] Enables ISL trunking and performance monitoring tools		
3.16	2109-F16 Remote Switch Activation	\$7,150.00	Incl.
	[2109-7302] Enables connectivity through gateways (FC over ATM, ...)		
3.17	2109-F16 Extended Fabric Activation	\$7,150.00	Incl.
	[2109-7303] Provides a license for added buffer credits which enables ISL at distances greater than 10km		
3.18	2109-F32 Fabric Manager	\$11,935.00	Incl.
	[2109-7202] Provides a license for FabricManager		
3.19	2109-F32 Remote Switch Activation	\$11,845.00	Incl.
	[2109-7502] Enables connectivity through gateways (FC over ATM, ...)		
3.20	2109-F32 Extended Fabric Activation	\$11,845.00	Incl.
	[2109-7503] Provides a license for added buffer credits which enables ISL at distances greater than 10km		
3.21	AToP upgrade 16 to 24 port Chasis	\$44,827.00	Incl.
	[F16-S2031-224] At Time of Purchase switch upgrade from 2.1, 16 to 24 ports (McData), including 24 SW SFPs, Spheron Element Manager, Management Server and EFC Fabric Manager		
3.22	AToP substitute 32 port chasis	\$32,592.00	Incl.
	[F32-S2031-232] At Time of Purchase switch substitution to 32 ports (McData), including 32 SW SFPs, Element Manager and EFC Fabric Manager		
3.23	AToP substitute 16 port chasis	\$9,766.00	Incl.
	[2061-020] At Time of Purchase switch upgrade from 2.1, to 20-port (CISCO MDS 9120) including 20 SW SFP transceivers and MDS 9000 Enterprise Package		
3.24	FC SW Cable LC-LC 1m	\$131.00	Incl.
	[19K1247] Fibre Channel Cable, 1 meter		
3.25	FC SW Cable LC-LC 5m	\$223.00	Incl.
	[19K1248] Fibre Channel Cable, 5 meters		
3.26	FC SW Cable LC-LC 25m	\$347.00	Incl.
	[19K1249] Fibre Channel Cable, 25 meters		
3.27	FC SW Adapter SC female-LC Male	\$296.00	Incl.
	[19K1250] Fibre Channel Adapter SC Female / LC Male		

3.28	NAS Gateway	\$41,877.00	\$4,250.00
	[5196-G27/] Add NAS model G27 Gateway to the FASiT, allowing CiFS, NFS, FTP and HTTP connection to the FASiT over the LAN. Dual engine configuration with 1 FC and 1 Gb Ethernet on each engine.		
3.29	AToP EFC HW/SW from McData switch	\$15,033.00	Incl.
	[2032-3750/3755] Use for removing EFC HW and SW feature from a McData switch At Time of Purchase		
3.30	AToP 2032-C40 Rack	\$8,865.00	Incl.
	[2032-C40] Use for McData Rack At Time of Purchase		
3.31	Additional SAN Management Software	\$1,451.00	Incl.
	[5698-SRM] Storage Resource Manager per Client/Processor		
3.32	Additional SAN Management Software	\$1,607.00	Incl.
	[5698-SRD] SRM for Databases per Client/Processor		
3.33	One Loop Switch	\$10,718.00	Incl.
	[2031-L00] Add Loop Switch to 2031/2032 switch in order to support FC-AL devices		

**Category
SAN 4**

Disk Technology



IBM TotalStorage Enterprise Server model 800
2105-800

- Provides storage sharing for the full range of IBM as well as non-IBM servers.
- Outstanding performance with dual cluster RISC SMP processors, large cache, and serial disk attachments
- State-of-the-art copy services including FlashCopy and Peer-to-Peer Remote Copy for rapid backup and disaster recovery

- Low cost-of-ownership and ease-of-use with the IBM TotalStorage Enterprise Storage Server Specialist
- Redundant hardware and RAID 5 and RAID 10 disk arrays for high availability of mission-critical business applications
- Fast data transfer rates with attached hosts via Fibre Channel, Ultra SCSI, ESCON, 2Gb FICON or FICON interfaces.

The IBM Total Storage Enterprise Server Model 800 (ESS) is designed to meet - and exceed - the performance requirements of most of today's demanding applications.

The IBM TotalStorage Enterprise Storage Server is designed for e-business and other applications. It provides scalability (up to 55.9TB) while maintaining excellent performance. Support for 24x7 operations is built into the IBM Enterprise Storage Server. Intermixable RAID 5 and RAID 10 disk arrays help provide data protection, while remote copy technologies allow fast data backup and disaster recovery. The IBM ESS features dual active processing clusters with fail-over switching, hot spares, hot swappable disk drives, nonvolatile fast write cache and redundant power and cooling.

For more information - ibm.com/storage/ess

Switching Technology



IBM TotalStorage San Switch F16 and F32
2109-F16 and 2109-F32

Provides 16-port, 2 Gigabit per second, high availability core-to-edge SAN fabrics for UNIX and Intel-based servers and storage, scalable from small workgroups to large enterprise SANs with a common management system.



McDATA Intrepid 6064 Director
2032-064

Provides up to 64-port, 2 Gigabit per second high availability, data center class fibre channel switching with 1 to 2 Gigabit per second Director and switch blade upgrades. Supports: IBM S/390 G5/G6 and zSeries 900 servers and IBM storage with FICON adapters; IBM and non-IBM UNIX-based and Intel-based servers and IBM and non-IBM storage with Fibre Channel adapters; IBM FC-AL attached tape devices with the McDATA ES-1000 Loop Switch; and IBM Ultra-SCSI-attached tape devices with gateways and routers.

For more information - ibm.com/storage/san

Sample Solution

- Provides 2.3TB of raw ESS Capacity to an existing SAN or to existing hosts
- Four 2Gb Fibre ports (4 Fibre Channel -OR- 2 Fibre Channel and 2 FICON -OR- 4 FICON, ...)
- 8GB Cache

1	Group 1.1 Rackmount Cabinet / Enclosure	59,360
1	Group 1.2 Power Distribution Units	56,000
1	Group 1.3 Storage Controllers	116,200
1	Group 1.7 Management Software	13,746
-4	Group 3.5 Fibre Channel / FICON adapter	-35,560
-1	Group 3.11 8GB of cache	-45,080
32	Group 3.2 72.8GB Disk Drive Module	68,098
1	Group 3.36 ESS Expert 1TB Lic	7,473
Solution TOTAL		\$ 240,237

Benefits

- Includes unlimited Load Balancing / Failover client licenses for Windows and Unix servers.
- Prices include installation, 3 years 7/24 warranty

Category details

SAN Category 4

Item	Description	Unit Price
1.0 Storage Platform		
1.1	Rackmount Cabinet / Enclosure 2105 ESS Base frame	\$59,360.01
1.2	Power Distribution Units Two three-phase 50/60 Hz 60 Amp power distribution units	\$56,000.01
1.3	Storage Controller(s) 2105-800 Enterprise Storage Server with 8 SW Fibre Channel ports and cables, standard processor, 16GB cache and remote support	\$116,200.01
1.4	Disk Shelving Disk shelves included in 1.3	Incl.
1.5	Hard Disk Drives Six 15K RPM 36.4GB disk Eight-packs	\$51,072.01
1.6	Power system Power system included in 1.3	Incl.
1.7	Management Software [2105-2717/5648-TSE] ESS Master Console and TotalStorage Expert v2.1	\$13,746.01
1.8	LUN Masking Software Storage Subsystem based LUN Masking included in 1.3	Incl.
1.9	Installation Installation charges included in 1.1, 1.3, 1.4 and 1.5	\$0.01
2.0 Evaluated Options		
2.1	2Gb 16 port Fibre Channel SAN Switch 2109-F16 2Gb sixteen-port Fibre Channel SAN switch with 16 SW transceivers (total)	\$33,088.00
2.2	2Gb 32 port Fibre Channel SAN Switch 2109-F32 2Gb thirty-two-port Fibre Channel SAN switch with 32 SW transceivers (total)	\$69,783.00
2.3	2Gb 32 port Director class Fibre Channel SAN Switch 2032-064 McData ED-6064 Fibre Channel Director with 32 SW ports, EFC management and cabinet	\$157,984.00
2.4	2Gb PCI Host Bus Adapter 2Gb Fibre Channel PCI Host Bus Adapter including firmware, driver and 25m LC-LC Fibre Channel cable	\$1,788.00
2.5	Load Balancing Software for Windows 2000 Load Balancing (SDD) software is included in 1.3 for all Windows 2000 hosts attached to this storage platform	Incl.
2.6	Load Balancing Software for Windows NT4 Load Balancing (SDD) software is included in 1.3 for all Windows NT4 hosts attached to this storage platform	Incl.
2.7	Topology mapping software Tivoli Storage Area Network Manager for up to 1.8TB of RAW capacity	\$21,889.00
2.8	Remote replication software ESS PPRC License for up to 2TB RAW capacity	\$8,450.00
2.9	Snapshot software ESS FlashCopy license for up to 2TB RAW capacity	\$5,650.00
3.0 Platform Options		
3.1	One 15K RPM 36.4GB Drive Module [2105-2143/8] Add or Remove drives the base configuration	\$1,064.00
3.2	One 15K RPM 72.8GB Drive Module [2105-2144/8] Add drives to the base configuration	\$2,128.00
3.3	One 10K RPM 145.6GB Drive Module	\$3,404.00

	[2105-2125/8] Add drives to the base configuration	
3.4	One 2105 Expansion Rack	\$41,210.00
	[2105-2110] Required for drives # 129 through 384	
3.5	One Fibre Channel/FICON Adapter	\$8,890.00
	[2105-3025] Add/Remove Fibre Channel/FICON HBA to the 2105	
3.6	One dual SCSI Adapter	\$3,036.00
	[2105-3002] Add dual ported SCSI DBA to the 2105	
3.7	One dual ESCON Adapter	\$5,395.00
	[2105-3012] Add dual ported ESCON HBA to the 2105	
3.8	pSeries Host Bus Adapter (2Gb/s)	\$3,710.00
	[7026-6228] Add Fibre Channel HBA to qualified pSeries Server	
3.11	8GB of cache	\$45,080.00
	[2105-40xx] Add/Remove Cache capacity by increments of 8GB	
3.12	FlashCopy Activation per TB of capacity	\$5,650.00
	[2240-83xx] Additional FlashCopy licence, per TB of capacity	
3.13	PAV Activation per TB of 2105 capacity	\$8,526.00
	[2240-80xx] Add PAV licence, per TB of capacity	
3.14	PPRC Activation per TB of 2105 capacity	\$8,450.00
	[2240-82xx] Additional PPRC licence, per TB of capacity	
3.15	XRC Activation per TB of 2105 capacity	\$16,385.00
	[2240-81xx] Add XRC licence, per TB of capacity	
3.16	Two 2-way Controllers Processor Upgr	\$77,070.00
	[2105-3606] Adds 2-way processor card to each cluster	
3.17	FC SW Cable LC-LC 1m	\$131.00
	[19K1247] Fibre Channel Cable, 1 meter	
3.18	FC SW Cable LC-LC 5m	\$223.00
	[19K1248] Fibre Channel Cable, 5 meters	
3.19	FC SW Cable LC-LC 25m	\$347.00
	[19K1249] Fibre Channel Cable, 25 meters	
3.20	FC SW Adapter SC female-LC Male	\$296.00
	[19K1250] Fibre Channel Adapter SC Female / LC Male	
3.21	AToP Substitute 32 Port Chasis	\$32,592.00
	[F32-S2031-232] At Time of Purchase switch substitution from 2.2, to 32 ports (McData), including 32 SW SFPs, Management Server, Element Manager, EFC Fabric Manager and cabinet.	
3.22	AToP substitute 16 to 20 port chasis	\$9,766.00
	[2061-020] At Time of Purchase switich upgrade from 2.1, to 20-port (CISCO MDS 9120) including 20 SW SFP transceivers and MDS 9000 Enterprise Package	
3.23	AToP Substitute 64 Port Chasis	\$46,047.00
	[064/32-S2042-001] At time of Purchase switch substitution to 64-port Inrange (32 SFPs)	
3.24	AToP Substitute 128 Port Switch Chasis	\$74,297.00
	[064/32-S2109-M12] At time of Purchase switch substitution to 128 port Brocade (32 SFPs)	
3.25	AToP upgrade 16 to 24 Port Chasis	\$44,827.00
	[F16-S2031-224] At Time of Purchase switch upgrade from 2.1, 16 to 24 ports McData (24 SFPs)	
3.26	One Loop Switch	\$10,718.00
	[2031-L00] Add Loop Switch to 2031/2032 switch in order to support FC-AL devices	
3.27	One ShortWave SFP Transceiver (2Gb/s)	\$316.00
	[2109-2210] Remove/add ShortWave SFP Transceiver to 2109	
3.28	One LongWave SFP Transceiver (2Gb/s)	\$897.00
	[2109-2220] Remove/add LongWave SFP Transceiver to 2109	
3.29	2109-F16 Performance Bundle Activation	\$8,580.00
	[2109-7421] Add Performance Bundle to 2109-F16	
3.30	2109-F16 Remote Switch Activation	\$7,150.00

	[2109-7302] Add Remote Switch feature to 2109-F16	
3.31	2109-F16 Extended Fabric Activation	\$7,150.00
	[2109-7303] Add Extended Fabric feature to 2109-F16	
3.32	2109-F32 Fabric Manager	\$11,935.00
	[2109-7202] Add Fabric Manager to 2109-F32	
3.33	2109-F32 Remote Switch Activation	\$11,845.00
	[2109-7502] Add Remote Switch feature to 2109-F32	
3.34	2109-F32 Extended Fabric Activation	\$11,845.00
	[2109-7503] Add Extended Fabric feature to 2109-F32	
3.35	SAN Topology Software Licence per TB	\$22,588.00
	[5698-SRS1] Add licence for Topology SW, per TB of 2105 Capacity	
3.36	TotalStorage ESS Expert per TB on 2105	\$7,473.00
	[5648-TSE] Licence for ESS Expert per RAW TB of capacity	
3.37	Removing EFC HW/SW from McData	\$15,033.00
	[2032-3750/3755] Removing EFC HW and SW features from McData	
3.38	2032-064 Removing 4 port modules	\$5,625.00
	[2032-6210] Removing 2Gb four-ports modules from 2032	
3.40	NAS Gateway	\$41,877.00
	[5196-G27] Add NAS Gateway to the ESS	

Category
SAN 4 alt

Disk Technology



IBM TotalStorage Enterprise Server model 800 2105-800

- Provides storage sharing for the full range of IBM as well as non-IBM servers.
- Outstanding performance with dual cluster RISC SMP processors, large cache, and serial disk attachments
- Performance levels of the Model 800 with the Turbo processor are 2.5 times faster than it's predecessor, the 2105-F20

- State-of-the-art copy services including FlashCopy and Peer-to-Peer Remote Copy for rapid backup and disaster recovery
- Low cost-of-ownership and ease-of-use with the IBM TotalStorage Enterprise Storage Server Specialist
- Redundant hardware and RAID 5 and RAID 10 disk arrays for high availability of mission-critical business applications
- Fast data transfer rates with attached hosts via Fibre Channel, Ultra SCSI, ESCON, 2Gb FICON or FICON interfaces.

The IBM Total Storage Enterprise Server Model 800 (ESS) is designed to meet - and exceed - the performance requirements of most of today's demanding applications.

The IBM TotalStorage Enterprise Storage Server is designed for e-business and other applications. It provides scalability (now up to 55.9TB) while maintaining excellent performance.

Support for 24x7 operations is built into the IBM Enterprise Storage Server. Intermixable RAID 5 and RAID 10 disk arrays help provide data protection, while remote copy technologies allow fast data backup and disaster recovery. The IBM ESS features dual active processing clusters with fail-over switching, hot spares, hot swappable disk drives, nonvolatile fast write cache and redundant power and cooling.

For more information - ibm.com/storage/ess

Sample Solution

- Provides 2.3 TB of raw ESS Capacity to an existing SAN or to existing hosts
- 16 GB Cache

Benefits

- Includes unlimited Load Balancing / Failover client licenses for Windows and Unix servers.
- Prices include installation, 3 years 7/24 warranty

Switching Technology



McData Sphereon 3232 Fabric Switch
2031-232

Provides 32-port, 2 Gigabit per second, high availability enterprise-to-edge SAN fabric switching for UNIX and Intel-based servers. Scalable for departmental SANs.



CNT FC/9000 Directors
2042-001

Provides 1 and 2 Gigabit per second FICON connectivity for IBM zSeries and Fibre Channel connectivity for IBM xSeries and pSeries servers. Features N+1 redundancy for all active components. This Ultra-scalable, high availability fabric switch is suitable for large enterprise SANs.

For more information - ibm.com/storage/san

1	Group 1.1 Rackmount Cabinet / Enclosure	Incl
1	Group 1.2 Power Distribution Units	Incl
1	Group 1.3 Storage Controllers with Turbo I	309,527
1	Group 1.7 Management Software	10,883
32	Group 3.2 72.8GB Disk Drive Module	68,096
Solution TOTAL		\$ 388,506

Category details

SAN Category 4-alternate

Item	Description	Unit Price
1.0 Storage Platform		
1.1	Rackmount Cabinet / Enclosure 2105 ESS Base frame - Included in 1.3	Incl.
1.2	Power Distribution Units Two three-phase 50/60 Hz 60 Amp power distribution units - Included in 1.3	Incl.
1.3	Storage Controller(s) 2105-800 Enterprise Storage Server with 8 SW Fibre Channel ports and cables, Turbo I processor, 16GB cache and remote support	\$309,527.01
1.4	Disk Shelving Disk shelves included in 1.3	Incl.
1.5	Hard Disk Drives Six 15K RPM 36.4GB disk Eight-packs	\$51,072.01
1.6	Power system Power system included in 1.3	Incl.
1.7	Management Software [2105-2717/5648-TSE] ESS Master Console and TotalStorage Expert v2.1	\$10,883.01
1.8	LUN Masking Software Storage Subsystem based LUN Masking included in 1.3	Incl.
1.9	Installation Installation charges included in 1.3,1.5 and 1.7	\$0.01
2.0 Evaluated Options		
2.1	2Gb 16 port Fibre Channel CISCO MDS 9120 SAN Switch [2061-020] 16-port CISCO Switch, including 16 SW SFPs, MDS 9000 Enterprise package	\$39,742.00
2.2	2Gb 32 port Fibre Channel SAN Switch [2031-232] 32 port McData Switch, including 32 SW SFPs, Product Manager and EFC Management software and cabinet	\$95,297.00
2.3	2Gb 32 port Director class INRANGE Fibre Channel SAN Switch [2042-001] INRANGE Fibre Channel Director with 32 SW ports, EFC management and cabinet	\$234,583.00
2.4	2Gb PCI Host Bus Adapter 2Gb Fibre Channel PCI Host Bus Adapter including firmware, driver and 25m LC-LC Fibre Channel cable	\$1,788.00
2.5	Load Balancing Software for Windows 2000 Load Balancing (SDD) software is included in 1.3 for all Windows 2000 hosts attached to this storage platform	Incl.
2.6	Load Balancing Software for Windows NT4 Load Balancing (SDD) software is included in 1.3 for all Windows NT4 hosts attached to this storage platform	Incl.
2.7	Topology mapping software Tivoli Storage Area Network Manager for up to 1.8TB of RAW capacity	\$21,889.00
2.8	Remote replication software ESS PPRC License for up to 2TB RAW capacity	\$32,200.00
2.9	Snapshot software ESS FlashCopy license for up to 2TB RAW capacity	\$21,451.00
3.0 Platform Options		
3.1	One 15K RPM 36.4GB Drive Module [2105-2143/8] Add or Remove drives the base configuration	\$1,064.00
3.2	One 15K RPM 72.8GB Drive Module	\$2,128.00

[2105-2144/8] Add drives to the base configuration

3.3 One 10K RPM 145.6GB Drive Module

\$3,404.00

[2105-2125/8] Add drives to the base configuration

Category SAN 5

Disk Technology



IBM TotalStorage Enterprise Server model 800
2105-800 Standard Processor

- Provides storage sharing for the full range of IBM as well as non-IBM servers.
- Outstanding performance with dual cluster RISC SMP processors, large cache, and serial disk attachments
- State-of-the-art copy services including FlashCopy and Peer-to-Peer Remote Copy for rapid

backup and disaster recovery

- Low cost-of-ownership and ease-of-use with the IBM TotalStorage Enterprise Storage Server Specialist
- Redundant hardware and RAID 5 and RAID 10 disk arrays for high availability of mission-critical business applications
- Fast data transfer rates with attached hosts via Fibre Channel, Ultra SCSI, ESCON, 2Gb FICON or FICON interfaces.

The IBM Total Storage Enterprise Server Model 800 (ESS) is designed to meet the performance requirements of most of today's demanding applications.

The IBM TotalStorage Enterprise Storage Server is designed for e-business and other applications with unpredictable growth requirements. It provides scalability (up to 55.9TB) while maintaining excellent performance.

Support for 24x7 operations is built into the IBM Enterprise Storage Server. Intermixable RAID 5 and RAID 10 disk arrays help provide data protection, while remote copy technologies allow fast data backup and disaster recovery. The IBM ESS features dual active processing clusters with fail-over switching, hot spares, hot swappable disk drives, nonvolatile fast write cache and redundant power and cooling.

For more information - ibm.com/storage/ess

Sample Solution

- 11TB of raw ESS Capacity
- Four 2Gb Fibre ports (Fibre Channel or FICON)
- two 32 ports switches
- 16GB of cache

Benefits

- Includes unlimited Load Balancing / Failover client licenses for Windows and Unix servers.
- Prices include installation, 3 years 7/24 warranty

Switching Technology



IBM TotalStorage San Switch F32
2109-F32

Provides 32-port, 2 Gigabit per second, high availability core-to-edge SAN fabrics for UNIX and Intel-based servers and storage, scalable from small workgroups to large enterprise SANs with a common management system.



McDATA Intrepid 6064 Director
2032-064

Provides 64-port, 2 Gigabit per second high availability, data center class fibre channel switching with 1 to 2 Gigabit per second Director and switch blade upgrades. Supports: IBM S/390 G5/G6 and zSeries 900 servers and IBM storage with FICON adapters; IBM and non-IBM UNIX-based and Intel-based servers and IBM and non-IBM storage with Fibre Channel adapters; IBM FC-AL attached tape devices with the McDATA ES-1000 Loop Switch; and IBM Ultra-SCSI-attached tape devices with gateways and routers.

For more information - ibm.com/storage/san

1	Group 1.1 Rackmount Cabinet / Enclosure	59,360
1	Group 1.2 Power Distribution Units	56,000
1	Group 1.3 Storage Controllers	277,445
1	Group 1.7 Management Software	13,746
-12	Group 3.5 Fibre Channel / FICON adapter	-106,680
-2	Group 3.11 8GB of cache	-90,160
80	Group 3.3 145.6GB Disk Drive Module	272,320
2	Group 2.1 32-port Fibre Channel switch	139,566
Solution TOTAL		\$ 621,597

Category details

SAN Category 5

Item	Description	Unit Price
1.0 Storage Platform		
1.1	Rackmount Cabinet / Enclosure 2105 ESS Base frame	\$59,360.01
1.2	Power Distribution Units Two three-phase 50/60 Hz 60 Amp power distribution units	\$56,000.01
1.3	Storage Controller(s) 2105-800 Enterprise Storage Server with 16 SW Fibre Channel ports and cables, standard processor, 32GB cache and remote support	\$277,445.01
1.4	Disk Shelving Disk shelves included in 1.3	Incl.
1.5	Hard Disk Drives Twelve 15K RPM 36.4GB disk Eight-packs	\$102,144.01
1.6	Power system Power system included in 1.3	Incl.
1.7	Management Software [2105-2717/5648-TSE] ESS Master Console and TotalStorage Expert v2.1	\$13,746.01
1.8	LUN Masking Software Storage Subsystem based LUN Masking included in 1.3	Incl.
1.9	Installation Installation charges included in 1.1, 1.3, 1.4 and 1.5	\$0.01
2.0 Evaluated Options		
2.1	2Gb 32 port Fibre Channel SAN Switch 2109-F32 2Gb thirty-two-port Fibre Channel SAN switch with 32 SW transceivers (total)	\$69,783.00
2.2	2Gb 32 port Director class Fibre Channel SAN Switch 2032-064 McData ED-6064 Fibre Channel Director with 64 SW ports, EFCM Fabric Manager and cabinet	\$202,984.00
2.3	2Gb PCI Host Bus Adapter 2Gb Fibre Channel PCI Host Bus Adapter including firmware, driver and 25m LC-LC Fibre Channel cable	\$1,788.00
2.4	Load Balancing Software for Windows 2000 Load Balancing (SDD) software is included in 1.3 for all Windows 2000 hosts attached to this storage platform	Incl.
2.5	Load Balancing Software for Windows NT4 Load Balancing (SDD) software is included in 1.3 for all Windows NT4 hosts attached to this storage platform	Incl.
2.6	Topology mapping software Tivoli Storage Area Network Manager for up to 3.6TB of RAW capacity	\$42,897.00
2.7	Remote replication software ESS PPRC License for up to 4TB RAW capacity	\$13,740.00
2.8	Snapshot software ESS FlashCopy license for up to 4TB RAW capacity	\$9,160.00
3.0 Platform Options		
3.1	One 15K RPM 36.4GB Drive Module [2105-2143/8] Add or Remove drives the base configuration	\$1,064.00
3.2	One 15K RPM 72.8GB Drive Module [2105-2144/8] Add drives to the base configuration	\$2,128.00
3.3	One 10K RPM 145.6GB Drive Module [2105-2125/8] Add drives to the base configuration	\$3,404.00
3.4	One 2105 Expansion Rack	\$41,210.00

	[2105-2110] Required for drives # 129 through 384	
3.5	One Fibre Channel/FICON Adapter	\$8,890.00
	[2105-3025] Add/Remove Fibre Channel/FICON HBA to the 2105	
3.6	One dual SCSI Adapter	\$3,036.00
	[2105-3002] Add dual ported SCSI DBA to the 2105	
3.7	One dual ESCON Adapter	\$5,395.00
	[2105-3012] Add dual ported ESCON HBA to the 2105	
3.8	pSeries Host Bus Adapter (2Gb/s)	\$3,710.00
	[7026-6228] Add Fibre Channel HBA to qualified pSeries Server	
3.11	8GB of cache	\$45,080.00
	[2105-40xx] Add/Remove Cache capacity by increments of 8GB	
3.12	FlashCopy Activation per TB of capacity	\$5,650.00
	[2240-83xx] Additional FlashCopy licence, per TB of capacity	
3.13	PAV Activation per TB of 2105 capacity	\$8,526.00
	[2240-80xx] Add PAV licence, per TB of capacity	
3.14	PPRC Activation per TB of 2105 capacity	\$8,450.00
	[2240-82xx] Additional PPRC licence, per TB of capacity	
3.15	XRC Activation per TB of 2105 capacity	\$16,385.00
	[2240-81xx] Add XRC licence, per TB of capacity	
3.16	Two 2-way Controllers Processor Upgr	\$77,070.00
	[2105-3606] Adds 2-way processor card to each cluster	
3.17	FC SW Cable LC-LC 1m	\$131.00
	[19K1247] Fibre Channel Cable, 1 meter	
3.18	FC SW Cable LC-LC 5m	\$223.00
	[19K1248] Fibre Channel Cable, 5 meters	
3.19	FC SW Cable LC-LC 25m	\$325.00
	[19K1249] Fibre Channel Cable, 25 meters	
3.20	FC SW Adapter SC female-LC Male	\$296.00
	[19K1250] Fibre Channel Adapter SC Female / LC Male	
3.21	AToP Substitute 32 Port Chasis	\$32,592.00
	[F32-S2031-232] At Time of Purchase switch substitution from 2.1, to 32 ports (McData), including 32 SW SFPs, Product Manager and EFC Management software	
3.22	AToP Substitute 64 Port Chasis	\$102,587.00
	[064/64-S2042-001] At time of Purchase switch substitution from 2.2, to 64-port Inrange	
3.23	AToP Substitute 64 Port Switch Chasis	\$117,542.00
	[064/64-S2109-M12] At time of Purchase switch substitution from 2.2, to 64 port Brocade	
3.24	One Loop Switch	\$10,718.00
	[2031-L00] Add Loop Switch to 2031/2032 switch in order to support FC-AL devices	
3.25	One ShortWave SFP Transceiver (2Gb/s)	\$316.00
	[2109-2210] Remove/add ShortWave SFP Transceiver to 2109	
3.26	One LongWave SFP Transceiver (2Gb/s)	\$897.00
	[2109-2220] Remove/add LongWave SFP Transceiver to 2109	
3.27	2109-F32 Fabric Manager	\$11,935.00
	[2109-7202] Add Fabric Manager to 2109-F32	
3.28	2109-F32 Remote Switch Activation	\$11,845.00
	[2109-7502] Add Remote Switch feature to 2109-F32	
3.29	2109-F32 Extended Fabric Activation	\$11,845.00
	[2109-7503] Add Extended Fabric feature to 2109-F32	
3.30	SAN Topology Software Licence per TB	\$22,588.00
	[5698-SRS1] Add licence for Topology SW, per TB of 2105 Capacity	
3.31	TotalStorage ESS Expert per TB on 2105	\$7,473.00
	[5648-TSE] Licence for ESS Expert per RAW TB of capacity	

Storage NMSO

PWGSC Contract # E60EJ-020005/001/EJ

3.32	Removing EFC HW/SW from McData	\$15,033.00
	[2032-3750/3755] Removing EFC HW and SW features from McData	
3.33	2032-064 Removing 4 port modules	\$5,625.00
	[2032-6210] Removing 2Gb four-ports modules from 2032	
3.35	NAS Gateway	\$41,877.00
	[5196-G27] Add NAS Gateway to the ESS	
3.36	Remove 2042 IN VSN Management SW	\$16,000.00
	[2042-7600] At Time of Purchase Remove IN/VSN Management software	
3.37	Remove 2042 HA Option	\$15,950.00
	[2042-5020] At Time of Purchase Remove High Availability option	
3.38	Remove 2042 16 port Module and 16 SPF	\$26,868.00
	[2042-2210-5210-5910] At Time of Purchase remove 2G Port cart and 16 Xceivers	
3.40	Remove 2042 C40 Rack	\$3,455.00
	[2042-C40] At Time of Purchase Remove rack - 2 x 2042 fit in each rack	

Category
SAN 5 alt

Disk Technology



IBM TotalStorage Enterprise Server model 800 with Turbo II Processor 2105-800

- Provides storage sharing for the full range of IBM as well as non-IBM servers.
- Features the Turbo II processor
- Outstanding performance with dual cluster RISC SMP processors, large cache, and serial disk attachments
- State-of-the-art copy services including FlashCopy and Peer-to-Peer Remote Copy for rapid backup and disaster recovery

Peer Remote Copy for rapid backup and disaster recovery

- Low cost-of-ownership and ease-of-use with the IBM TotalStorage Enterprise Storage Server Specialist
- Redundant hardware and RAID 5 and RAID 10 disk arrays for high availability of mission-critical business applications
- Fast data transfer rates with attached hosts via Fibre Channel, Ultra SCSI, ESCON, 2Gb FICON or FICON interfaces.

The IBM Total Storage Enterprise Server Model 800 (ESS) with the Turbo II processor offers up to 12% performance improvement over the Turbo I and up to 30% over the standard ESS processor for high capacity clients.

The IBM TotalStorage Enterprise Storage Server is designed for e-business and other applications. It provides scalability (up to 55.9TB) while maintaining excellent performance. Support for 24x7 operations is built into the IBM Enterprise Storage Server. Intermixable RAID 5 and RAID 10 disk arrays help provide data protection, while remote copy technologies allow fast data backup and disaster recovery. The IBM ESS features dual active processing clusters with fail-over switching, hot spares, hot swappable disk drives, nonvolatile fast write cache and redundant power and cooling.

For more information - ibm.com/storage/ess

Switching Technology



McData Sphereon 3232 Fabric Switch 2031-232

Provides 32-port, 2 Gigabit per second, high availability enterprise-to-edge SAN fabric switching for UNIX and Intel-based servers. Scalable for departmental SANs.



McDATA Intrepid 6064 Director 2032-064

Provides 64-port, 2 Gigabit per second high availability, data center class fibre channel switching with 1to 2 Gigabit per second Director and switch blade upgrades. Supports: IBM S/390 G5/G6 and zSeries 900 servers and IBM storage with FICON adapters; IBM and non-IBM UNIX-based and Intel-based servers and IBM and non-IBM storage with Fibre Channel adapters; IBM FC-AL attached tape devices with the McDATA ES-1000 Loop Switch; and IBM Ultra-SCSI-attached tape devices with gateways and routers.

For more information - ibm.com/storage/san

Sample Solution

- Provides 8.7 TB of raw ESS Capacity to an existing SAN or to existing hosts
- 32 GB Cache

1	Group 1.1 Rackmount Cabinet / Enclosure	Incl
1	Group 1.2 Power Distribution Units	Incl
1	Group 1.3 Storage Controller with Turbo II	548,022
1	Group 1.7 Management Software	10,883
60	Group 3.3 145.6GB Disk Drive Module	204,240
Solution TOTAL		\$ 763,145

Benefits

- Includes unlimited Load Balancing / Failover client licenses for Windows and Unix servers.
- Prices include installation, 3 years 7/24 warranty

Category details

SAN Category 5-alternate

Item	Description	Unit Price
1.0 Storage Platform		
1.1	Rackmount Cabinet / Enclosure 2105 ESS Base frame - Included in 1.3	Incl.
1.2	Power Distribution Units Two three-phase 50/60 Hz 60 Amp power distribution units - Included in 1.3	Incl.
1.3	Storage Controller(s) 2105-800 Enterprise Storage Server with Turbo II feature. 16 SW Fibre Channel ports and cables, 32GB cache and remote support	\$548,022.01
1.4	Disk Shelving Disk shelves included in 1.3	Incl.
1.5	Hard Disk Drives Twelve 15K RPM 36.4GB disk Eight-packs	\$102,144.01
1.6	Power system Power system included in 1.3	Incl.
1.7	Management Software [2105-2717/5648-TSE] ESS Master Console and TotalStorage Expert v2.1	\$10,883.01
1.8	LUN Masking Software Storage Subsystem based LUN Masking included in 1.3	Incl.
1.9	Installation Installation charges included in 1.3, 1.5 and 1.7	\$0.01
2.0 Evaluated Options		
2.1	2Gb 32 port Fibre Channel SAN Switch [2031-232] 32 port McData Switch, including 32 SW SFPs, Product Manager and EFC Management software and cabinet	\$95,297.00
2.2	2Gb 64 port Director class Fibre Channel SAN Switch 2032-064 McData ED-6064 Fibre Channel Director with 64 SW ports, EFC management and cabinet	\$202,984.00
2.3	2Gb PCI Host Bus Adapter 2Gb Fibre Channel PCI Host Bus Adapter including firmware, driver and 25m LC-LC Fibre Channel cable	\$1,788.00
2.4	Load Balancing Software for Windows 2000 Load Balancing (SDD) software is included in 1.3 for all Windows 2000 hosts attached to this storage platform	Incl.
2.5	Load Balancing Software for Windows NT4 Load Balancing (SDD) software is included in 1.3 for all Windows NT4 hosts attached to this storage platform	Incl.
2.6	Topology mapping software Tivoli Storage Area Network Manager for up to 3.6TB of RAW capacity	\$42,897.00
2.7	Remote replication software ESS PPRC License for up to 4TB RAW capacity	\$48,300.00
2.8	Snapshot software ESS FlashCopy license for up to 4TB RAW capacity	\$32,200.00
3.0 Platform Options		
3.1	One 15K RPM 36.4GB Drive Module [2105-2143/8] Add or Remove drives the base configuration	\$1,064.00
3.2	One 15K RPM 72.8GB Drive Module [2105-2144/8] Add drives to the base configuration	\$2,128.00
3.3	One 10K RPM 145.6GB Drive Module	\$3,404.00

Category

NAS 1

Network Attached Storage Technology

IBM NAS 200

5194-226



- **Scalable – Designed to provide a non-disruptive path for capacity upgrades and helps provide investment protection by allowing you to “pay as you grow”.**
- **Scales from from 109GB to 6.6TB of capacity. Using three 5194-EXPs.**
- **Secure – Multiple levels of RAID (0,1,5 and 10) and advanced software support data protection for business continuance.**
- **Flexible – Cross-platform file sharing helps reduce network complexity and maintenance expense and allows data to be used across the organization.**
- **Manageable — Advanced systems diagnostic and management tools help you minimize downtime.**
- **Data consolidation — Centralized data management helps increase operational efficiency.**
- **Simple – Simple installation via setup tutorial**
- **Ease of Use – Intuitive design helps simplify installation and administration.**

IBM, NAS and Storage Networking

The IBM TotalStorage™ Network Attached Storage (NAS) 200 provides a powerful building block to increase the flexibility, efficiency and effectiveness of storage networking deployments. Additionally, because NAS products are designed for interoperability, they can typically be integrated into existing IT infrastructures. IBM NAS products also scale, accommodating the quickly growing storage needs and changing technology demands of today's enterprises, easing the administrative burden on strained IT personnel.

Task-optimized storage appliances

The IBM NAS 200 provides affordable and scalable workgroup or departmental support for customers that require network-attached storage because of server consolidation or file sharing. Its support of multiple protocols allows file sharing in Microsoft® Windows, UNIX or mixed environments and helps eliminate the need for a separate storage arrangement for each protocol.

High-reliability design

Hot-swappable and redundant hard disk drives and power supplies mean the IBM NAS 200 is designed to deliver reliability. IT staff typically do not have to take the systems off-line when replacing power supplies or hard drives or when adding additional storage

Multi-layered data protection

The IBM NAS 200 provides a variety of features to help safeguard your most valuable asset — your data. By providing a choice of RAID levels, the NAS 200 helps protect against the failure of any individual disk. The IBM NAS 200 also provides the user with a variety of backup methods, including support for the most popular backup software such as Tivoli® Storage Manage™ (TSM). The TSM agent and client are preinstalled on the product. The IBM NAS 200 provides on-disk data protection. Using Columbia Data Products® Persistent Storage Manage™ (PSM), up to 250 persistent True Image™ views of data can be created. These point-in-time views can be created on a scheduled basis, and with the proper permissions, users can usually restore previous file levels without administrator involvement. Administrators can typically restore entire drives and volumes in a single step, eliminating the need to drag and drop thousands of files back to the original location. During backup, the PSM open file manager helps to reduce system access issues, supporting 24x7 availability to data.

For more information - ibm.com/storage/nas

* Also available in this category – NAS300G and FAST200

Category Details

NAS Category 1

Item	Description	HW & Inst Unit Price	7/24 Warr Upg Price
1.0 Storage Platform			
1.1	Rackmount Cabinet / Enclosure [2101] 19 inch Rack, two single-phase PDUs and mounting hardware	\$4,577.01	\$0.01
1.2	NAS Processor TotalStorage NAS200 5194-226 Includes pre-loaded NAS operating system and management software, 2 10/100 Ethernet Adapters, 1 PCI SCSI LVD/SE adapter	\$15,620.01	\$2,197.00
1.3	Disk Shelving Two 5194-EXP NAS200 Disk Shelves (3E1A) for up to 14 drives, cables to connect to NAS200 processor and power included.	\$10,264.01	\$1,586.00
1.4	Hard Disk Drives Thirty 36.4GB Ultra160SCSI 10K RPM Disk Drives	\$20,520.01	\$0.01
1.5	Cooling System Cooling system included in 1.2 and 1.3	Incl.	Incl.
1.6	Power system Power system included in 1.2 and 1.3	Incl.	Incl.
1.7	Management Software Management software included in 1.2	Incl.	Incl.
1.8	Installation Installation charges included in 1.1, 1.2, 1.3 and 1.4	\$0.01	Incl.
1.9	Other	Incl.	Incl.
2.0 Evaluated Options			
No evaluated options listed.			
3.0 Platform Options			
3.1	One 10K RPM 36.4GB Ultra160SCSI Drive [5194-3121] Add or Remove drives to 5194-EXP or 5194-226 (NAS200)	\$684.00	Incl.
3.2	One 10K RPM 72.8GB Ultra160SCSI Drive [5194-3124] Add drives to 5194-EXP or 5194-226 (NAS200)	\$1,134.00	Incl.
3.3	One 5194-EXP Drive Expansion Drawer [5194-EXP] Add or Remove disk shelves from base config. Each 5194-EXP can accommodate up to 14 drives. Includes cables to connect to NAS200 and power cables.	\$5,132.00	\$1,586.00
3.4	One 10/100 Ethernet Adapter [5194-3301] Add or Remove a 10/100 Ethernet Adapter from the base config.	\$238.00	Incl.
3.5	One 1Gigabit Ethernet SX Adapter [5194-3302] Add a 1Gigabit Ethernet SX Adapter to the base config.	\$934.00	Incl.
3.6	One 10/100/1000 Copper Ethernet Adapter [5194-3303] Add a 10/100/1000 Copper Ethernet Adapter to the base config.	\$346.00	Incl.
3.7	One Quad Port 10/100 Ethernet Adapter [5194-3304] Add a Quad port 10/100 Ethernet Adapter to the base config.	\$1,598.00	Incl.
3.8	One PCI LVD SCSI Adapter for Tape [5194-3702] Add or Remove a PCI LVD SCSI Adapter from the base config.	\$498.00	Incl.
3.9	One PCI Fibre Channel (FC) Adapter for Tape [5194-3703] Add or Remove a PCI FC Adapter from the base config.	\$2,022.00	Incl.

3.10	One RSA Adapter for Remote Management [5194-3821] Add RSA Adapter to the base config.	\$754.00	Incl.
3.14	One Memory Upgrade from 1GB to 2GB for the NAS200. [5194-3551] Add one memory upgrade from 1GB to 2GB for the NAS200 to the base config.	\$1,422.00	Incl.
3.15	One Memory Upgrade from 2GB to 3GB for the NAS200. [5194-3551] Add one memory upgrade from 2GB to 3GB for the NAS200 to the base config.	\$2,702.00	Incl.
3.19	One 10K RPM 146.8GB Ultra 160SCSI Drive. [5194-3128] Add drives to 5194-EXP or 5194-226 (NAS200)	\$2,166.00	Incl.

Category NAS 1 alt

Network Attached Storage Technology

IBM NAS 300G 5196-G27

■ **Available** — Dual node configuration for continuous availability

■ **Performance** — Processor speed is twice the speed of it's G26 predecessor, with dual engines per processor.

■ **Scalable** — Non-disruptive capacity for growth; disk capacities for NAS300G provided by fibre channel attached storage

■ **Flexible** — Cross-platform file sharing (CIFS [Microsoft Windows®], NFS [UNIX®], NFS [UNIX®], HTTP, FTP, AppleTalk® and NetWare®) helps reduce network complexity and expense, allowing data to be used across the organization.

■ **Manageable** — Integrated system diagnostics and management tools help minimize downtime

■ **Data consolidation** — Centralized data management helps increase operational efficiency.

The NAS Gateway 300 series consists of cost-effective, innovative appliances that connect clients and servers on an IP network to a SAN or directly to disk, bridging the gap between LAN and SAN. These dedicated appliances perform high-speed block and file protocol conversions to enable the transfer of data to clients in a distributed environment. They use standard network protocols such as CIFS and NFS to make the integration and management of information easier. Access to SAN storage is more available to IP users when using the NAS Gateway 300 series. The NAS Gateway 300 series can reduce the requirement for direct Fibre Channel connections to servers and clients that require SAN access, resulting in significant cost savings.



IBM FAStT 200 3542-2RU

■ **A full-fibre, compact, entry-level storage system to provide disk storage for the NAS300G**

■ **Scales from 18GB to a system capacity of 9.6TB using five EXP500s or 9.6TB using four EXP700s**

■ **Offers business continuance with FlashCopy option.**

■ **Offers a wide range of data protection options with RAID levels 0, 1, 3, 5 and 10.**



The FAStT200 provides flexible and affordable storage for the NAS 300G through dual fibre channel connections to the disk. The FAStT200 High Availability (HA) model features a fully redundant configuration with dual-active controllers.

The IBM TotalStorage FAStT Storage Manager provides remote management capabilities and the ability to share storage resources among servers through storage partitioning. It supports up to 128 logical units (LUNs) and up to 16 storage partitions.

For more information - ibm.com/storage/fast200

For more information - ibm.com/storage/nas

Category details

NAS Category 1-alternate

Item	Description	HW & Inst Unit Price	7/24 Warr Upg Price
1.0 Storage Platform			
1.1	Rackmount Cabinet / Enclosure [2101] 19 inch Rack, two single-phase PDUs and mounting hardware	\$4,577.01	\$0.01
1.2	NAS Processor TotalStorage NAS300G/FASiT200 [5196-G27/3542-2RU]. Includes dual NAS nodes, pre-loaded NAS operating system and management software, 2 Gigabit Ethernet Adapters, 2 Fibre Channel Adapters and two 1m cables to connect to FASiT200 Disk Controllers, OS Mirroring for each node, 2 LVD SCSI Adapter for Tape Backup. The FASiT200 High Availability Controller Shelf for up to 10 drives (3EIA) with 4 GBICs.	\$48,785.01	\$4,659.00
1.3	Disk Shelving Two EXP500 3560-1RU Disk Shelves (3EIA) for up to 20 drives with 6 GBICs, six 1m Fibre Channel cables.	\$10,036.01	\$338.00
1.4	Hard Disk Drives Thirty 36.4GB 2Gb/s FC 15K RPM Disk Drives	\$31,860.01	\$0.01
1.5	Cooling System Cooling system included in 1.2 and 1.3	Incl.	Incl.
1.6	Power system Power system included in 1.2 and 1.3	Incl.	Incl.
1.7	Management Software Management software included in 1.2	Incl.	Incl.
1.8	Installation Installation charges included in 1.1, 1.2, 1.3 and 1.4	\$0.01	Incl.
1.9	Other	Incl.	Incl.
2.0 Evaluated Options			
No evaluated options listed.			
3.0 Platform Options			
3.1	One 10K RPM 36.4GB Drive (1Gb/s) [3560-5005] Add or Remove drives to 3560-1RU (EXP500) or 3542-2RU (FASiT200)	\$420.00	Incl.
3.2	One 10K RPM 72.8GB Drive (1Gb/s) [3560-5006] Add drives to 3560-1RU (EXP500) or 3542-2RU (FASiT200)	\$975.00	Incl.
3.3	One 15K RPM 18.2GB Drive (1Gb/s) [3560-5011] Add drives to 3560-1RU (EXP500) or 3542-2RU (FASiT200)	\$530.00	Incl.
3.4	One 10K RPM 36.4GB Drive (2Gb/s) [1740-5205] Add drives to 3560-1RU (EXP500) or 1740-1RU (EXP700)	\$570.00	Incl.
3.5	One 10K RPM 72.8GB Drive (2Gb/s) [1740-5206] Add drives to 3560-1RU (EXP500) or 1740-1RU (EXP700)	\$1,140.00	Incl.
3.6	One 10K RPM 145.6GB Drive (2Gb/s) [1740-5207] Add drives to 3560-1RU (EXP500) or 1740-1RU (EXP700)	\$2,280.00	Incl.
3.7	One 15K RPM 18.2GB Drive (2Gb/s) [1740-5211] Add drives to 3560-1RU (EXP500) or 1740-1RU (EXP700)	\$531.00	Incl.
3.8	One 15K RPM 36.4GB Drive (2Gb/s) [1740-5212] Add drives to 3560-1RU (EXP500) or 1740-1RU (EXP700)	\$1,062.00	Incl.
3.9	One 15K RPM 36.4GB Drive (2Gb/s)	\$1,062.00	Incl.

[1740-5212] Remove drives from base config.

3.10 One 15K RPM 73.4GB Drive (2Gb/s)

\$1,710.00

Incl.

[1740-5213] Add drives to 3560-1RU (EXP500) or 1740-1RU (EXP700)

Category

NAS 2

Network Attached Storage Technology

IBM NAS 300G 5196-G27



■ **Available** — Dual node configuration for continuous availability

■ **Performance** — Processor speed is twice the speed of its G26 predecessor, with dual engines per processor.

■ **Scalable** — Non-disruptive capacity for growth; disk capacities for NAS300G provided by fibre channel attached storage

■ **Flexible** — Cross-platform file sharing (CIFS [Microsoft Windows®], NFS [UNIX®], NFS [UNIX®], HTTP, FTP, AppleTalk® and NetWare®) helps reduce network complexity and expense, and allows data to be used across the organization.

■ **Manageable** — Integrated system diagnostics and management tools help minimize downtime

■ **Data consolidation** — Centralized data management helps increase operational efficiency.

The NAS Gateway 300 series consists of cost-effective, innovative appliances that connect clients and servers on an IP network to a SAN or directly to disk, bridging the gap between LAN and SAN. These dedicated appliances perform high-speed block and file protocol conversions to enable the transfer of data to clients in a distributed environment. They use standard network protocols such as CIFS and NFS to make the integration and management of information easier. Access to SAN storage is more available to IP users when using the NAS Gateway 300 series. The NAS Gateway 300 series can reduce the requirement for direct Fibre Channel connections to servers and clients that require SAN access, resulting in significant cost savings.

For more information - ibm.com/storage/nas

IBM FAST 200 3542-2RU



■ **A full-fibre, compact, entry-level storage system to provide disk storage for the NAS300G**

■ **Scales from 18GB to a system capacity of 9.6TB using five EXP500s or 9.6TB using four EXP700s**

■ **Offers business continuance with FlashCopy option.**

■ **Offers a wide range of data protection options with RAID levels 0, 1, 3, 5 and 10.**

The FAST200 provides flexible and affordable storage for the NAS 300G through dual fibre channel connections to the disk. The FAST200 High Availability (HA) model features a fully redundant configuration with dual-active controllers.

The IBM TotalStorage FAST Storage Manager provides remote management capabilities and the ability to share storage resources among servers through storage partitioning. It supports up to 128 logical units (LUNs) and up to 16 storage partitions.

For more information - ibm.com/storage/fast200

Category Details

NAS Category 2

Item	Description	HW & Inst Unit Price	7/24 Warr Upg Price
1.0 Storage Platform			
1.1	Rackmount Cabinet / Enclosure [2101] 19 inch Rack, four single-phase PDUs and mounting hardware	\$6,142.01	\$0.01
1.2	NAS Processor TotalStorage NAS300G/FAST200 [5196-G27/3542-2RU]. Includes dual NAS nodes, pre-loaded NAS operating system and management software, 2 Gigabit Ethernet Adapters, 2 Fibre Channel Adapters and two 1m cables to connect to FAST200 Disk Controllers, OS Mirroring for each node, 2 LVD SCSI Adapter for Tape Backup.The FAST200 High Availability Controller Shelf for up to 10 drives (3EIA) with 4 GBICs	\$48,785.01	\$4,659.00
1.3	Disk Shelving Five EXP500 3560-1RU Disk Shelf (3EIA) for up to 50 drives with 18 GBICs,nine 1m Fibre Channel cables and one 5m Fibre Channel cable.	\$26,005.01	\$821.00
1.4	Hard Disk Drives Sixty 36.4GB 1Gb/s FC 10K RPM Disk Drives	\$25,200.01	\$0.01
1.5	Cooling System Cooling system included in 1.2	Incl.	Incl.
1.6	Power system Power system included in 1.2	Incl.	Incl.
1.7	Management Software Management software included in 1.2	Incl.	Incl.
1.8	Installation Installation charges included in 1.1, 1.2, 1.3 and 1.4	\$0.01	Incl.
1.9	Other	Incl.	Incl.
2.0 Evaluated Options			
No evaluated options listed.			
3.0 Platform Options			
3.1	One 10K RPM 36.4GB Drive (1Gb/s) [3560-5005] Add or Remove drives to 3560-1RU (EXP500) or 3542-2RU (FAST200)	\$420.00	Incl.
3.2	One 10K RPM 72.8GB Drive (1Gb/s) [3560-5006] Add drives to 3560-1RU (EXP500) or 3542-2RU (FAST200)	\$975.00	Incl.
3.3	One 15K RPM 18.2GB Drive (1Gb/s) [3560-5011] Add drives to 3560-1RU (EXP500) or 3542-2RU (FAST200)	\$530.00	Incl.
3.4	One 10K RPM 36.4GB Drive (2Gb/s) [1740-5205] Add drives to 3560-1RU (EXP500) or 1740-1RU (EXP700)	\$570.00	Incl.
3.5	One 10K RPM 72.8GB Drive (2Gb/s) [1740-5206] Add drives to 3560-1RU (EXP500) or 1740-1RU (EXP700)	\$1,140.00	Incl.
3.6	One 10K RPM 145.6GB Drive (2Gb/s) [1740-5207] Add drives to 3560-1RU (EXP500) or 1740-1RU (EXP700)	\$2,280.00	Incl.
3.7	One 15K RPM 18.2GB Drive (2Gb/s) [1740-5211] Add drives to 3560-1RU (EXP500) or 1740-1RU (EXP700)	\$531.00	Incl.
3.8	One 15K RPM 73.4GB Drive (2Gb/s) [1740-5213] Add drives to 3560-1RU (EXP500) or 1740-1RU (EXP700)	\$1,710.00	Incl.
3.9	One 3560-1RU (EXP500) Drive Expansion Drawer	\$5,332.00	\$169.00

	[3560-1RU] Remove or add 1Gb/s disk shelves from base config. Each EXP500 can accommodate up to 10 drives. Includes four SW GBICs and two SC-SC 1m cables.		
3.10	One 1740-1RU(EXP700) Drive Expansion Drawer	\$8,584.00	\$848.00
	[1740-1RU] Add 2Gb/s disk shelves to the base config. Each EXP700 can accommodate up to 14 drives. Includes four SW SFPs, two LC-LC 1m cables and two SC-LC coupling cables.		
3.11	FAStT200 Upgrade to Storage Manager 8	\$3,412.00	Incl.
	[3542-7108] Upgrade from SM7 to SM8. Pre-requisite to FlashCopy		
3.12	FAStT200 FlashCopy Activation	\$12,680.00	Incl.
	[3542-7201] Add FlashCopy licence to FAStT200/SM8		
3.16	One 10/100 Ethernet Adapter	\$257.00	Incl.
	[5187-0005] Add or Remove a 10/100 Ethernet Adapter from the base config. Minimum two per NAS 300G cluster.		
3.17	One 1Gigabit Ethernet SX Adapter	\$1,013.00	Incl.
	[5187-0006] Add a 1Gigabit Ethernet SX Adapter to the base config. Minimum two per NAS 300G cluster.		
3.18	One 10/100/1000 Copper Ethernet Adapter	\$397.00	Incl.
	[5187-0018] Add a 10/100/1000 Copper Ethernet Adapter to the base config. Minimum two per NAS 300G cluster.		
3.19	One Quad Port 10/100 Ethernet Adapter	\$1,874.00	Incl.
	[5187-0015] Add a Quad port 10/100 Ethernet Adapter to the base config. Minimum two per NAS 300G cluster.		
3.20	One PCI LVD SCSI Adapter for Tape	\$536.00	Incl.
	[5187-0013] Add or Remove a PCI LVD SCSI Adapter from the base config. Minimum two per NAS 300G cluster.		
3.21	One PCI Fibre Channel (FC) Adapter for Tape	\$2,128.00	Incl.
	[5187-3705] Add or Remove a PCI FC Adapter from the base config. Minimum two per NAS 300G cluster.		
3.22	One RSA Adapter for Remote Management	\$819.00	Incl.
	[5187-0010] Add RSA Adapter to the base config.		
3.23	One Dual Port Fibre Channel (FC) Adapter	\$4,121.00	Incl.
	[5187-3706] Add PCI Dual Port FC adapter to the base config. Minimum two per NAS 300G cluster.		
3.24	One OS Mirroring Feature	\$761.00	Incl.
	[5187-3121] Add or Remove the OS Mirroring Feature from the base config. Minimum two per NAS 300G cluster.		
3.25	One 1GB Memory Upgrade NAS 300G	\$1,768.00	Incl.
	[5187-0301] Add one 1GB memory upgrade to the base config. Minimum two per NAS 300G cluster.		

Category NAS 2 alt

Network Attached Storage Technology

IBM NAS 300G 5196-G27



■ **Available** — Dual node configuration for continuous availability

■ **Performance** — Processor speed is twice the speed of its G26 predecessor, with dual engines per processor.

■ **Scalable** — Non-disruptive capacity for growth; disk capacities for NAS300G provided by fibre channel attached storage

■ **Flexible** — Cross-platform file sharing (CIFS [Microsoft Windows®], NFS [UNIX®], NFS [UNIX®], HTTP, FTP, AppleTalk® and NetWare®) helps reduce network complexity and expense, and allows data to be used across the organization.

■ **Manageable** — Integrated system diagnostics and management tools help minimize downtime

■ **Data consolidation** — Centralized data management helps increase operational efficiency.

The NAS Gateway 300 series consists of cost-effective, innovative appliances that connect clients and servers on an IP network to a SAN or directly to disk, bridging the gap between LAN and SAN. These dedicated appliances perform high-speed block and file protocol conversions to enable the transfer of data to clients in a distributed environment. They use standard network protocols such as CIFS and NFS to make the integration and management of information easier. Access to SAN storage is more available to IP users when using the NAS Gateway 300 series. The NAS Gateway 300 series can reduce the requirement for direct Fibre Channel connections to servers and clients that require SAN access, resulting in significant cost savings.



IBM FAST600 with Turbo Feature 1722-60U

■ **Scales to 16.4 TB using seven EXP700 Expansion Units**

■ **Dual controller with 2 GB of cache**

■ **Supports from 8 to 64 storage partitions**

■ **Increased cache size of 2GB**

■ **Copy services include VolumeCopy**

The FAST600 with Turbo feature provides affordable and scalable storage for the NAS 300G featuring a fully redundant configuration with dual-active 2 GB RAID controllers.

The Turbo option comes with auto-sensing capability to assist in the detection of host connectivity speed of either 1 Gbps or 2 Gbps. With VolumeCopy, the Turbo feature allows for the full replication of logical volumes for enhanced data management and protection

For more information - ibm.com/storage/fast600

Category Details

NAS Category 2-alternate

Item	Description	HW & Inst Unit Price	7/24 Warr Upg Price
1.0 Storage Platform			
1.1	Rackmount Cabinet / Enclosure [2101] 19 inch Rack, four single-phase PDUs and mounting hardware	\$6,142.01	\$0.01
1.2	NAS Processor TotalStorage NAS300G/FASiT600 [5196-G27/1722-60U]. Includes dual NAS nodes, pre-loaded NAS operating system and management software, 2 Gigabit Ethernet Adapters, 2 Fibre Channel Adapters and two 1m cables to connect to FASiT500 Disk Controllers, OS Mirroring for each node, 2 LVD SCSI Adapter for Tape Backup. The FASiT600 High Availability Controller with Turbo Feature and 4 Shortwave GBICs, LUN masking and Load Balancing Software. Configuration also includes one exp700 1740-1RU disk shelf with 4 GBIC and two LC-LC fibre cables	\$76,299.01	\$4,659.00
1.3	Disk Shelving Three EXP700 1740-1RU Disk Shelf (3EIA) for up to 42 drives with 12 GBICs, six 1m Fibre Channel cables and six 5m Fibre Channel cable.	\$24,672.01	\$986.00
1.4	Hard Disk Drives Sixty 36.4GB 2Gb/s FC 15K RPM Disk Drives	\$63,720.01	\$0.01
1.5	Cooling System Cooling system included in 1.2	Incl.	Incl.
1.6	Power system Power system included in 1.2	Incl.	Incl.
1.7	Management Software Management software included in 1.2	Incl.	Incl.
1.8	Installation Installation charges included in 1.1, 1.2, 1.3 and 1.4	Incl.	Incl.
1.9	Other	Incl.	Incl.
2.0 Evaluated Options			
No evaluated options listed.			
3.0 Platform Options			
3.1	One 10K RPM 36.4GB Drive (1Gb/s) [3560-5005] Add or Remove drives to 3560-1RU (EXP500)	\$420.00	Incl.
3.2	One 10K RPM 72.8GB Drive (1Gb/s) [3560-5006] Add drives to 3560-1RU (EXP500)	\$975.00	Incl.
3.3	One 15K RPM 18.2GB Drive (1Gb/s) [3560-5011] Add drives to 3560-1RU (EXP500)	\$530.00	Incl.
3.4	One 10K RPM 36.4GB Drive (2Gb/s) [1740-5205] Add drives to 3560-1RU (EXP500) or 1740-1RU (EXP700) or 1722-60U (FASiT600)	\$570.00	Incl.
3.5	One 10K RPM 72.8GB Drive (2Gb/s) [1740-5206] Add drives to 3560-1RU (EXP500) or 1740-1RU (EXP700) or 1722-60U (FASiT600)	\$1,140.00	Incl.
3.6	One 10K RPM 145.6GB Drive (2Gb/s) [1740-5207] Add drives to 3560-1RU (EXP500) or 1740-1RU (EXP700) or 1722-60U (FASiT600)	\$2,280.00	Incl.
3.7	One 15K RPM 18.2GB Drive (2Gb/s) [1740-5211] Add drives to 3560-1RU (EXP500) or 1740-1RU (EXP700) or 1722-60U (FASiT600)	\$531.00	Incl.
3.8	One 15K RPM 36.4GB Drive (2Gb/s)	\$1,062.00	Incl.

	[1740-5212] Add drives to 3560-1RU (EXP500) or 1740-1RU (EXP700) or 1722-60U (FASt600)		
3.9	One 15K RPM 36.4GB Drive (2Gb/s)	\$1,062.00	Incl.
	[1740-5212] Remove drives from the base config.		
3.10	One 15K RPM 73.4GB Drive (2Gb/s)	\$1,710.00	Incl.
	[1740-5213] Add drives to 3560-1RU (EXP500) or 1740-1RU (EXP700) or 1722-60U (FASt600)		

Category
NAS 3

Network Attached Storage Technology

NAS500 Gateway



- File server function in LAN to SAN / Fibre Channel storage applications
- Based on IBM eServer pSeries product line
- Client File I/O includes CIFS, NFS (V2 and V3), HTTP, FTP

The IBM TotalStorage NAS Gateway 500 is IBM's next generation "Enterprise Class" NAS offering. This innovative NAS device is designed to connect clients and servers on an IP network to Fibre Channel storage, to help efficiently bridging the gap between LAN storage needs and SAN storage capacities

For more information – ibm.com/servers/storage/nas/500

IBM DS4300 (FAStT600) Turbo
1722-60U



- Scales to 16.4 TB using seven EXP700 Expansion Units
- Dual controller with 2 GB of cache
- Supports from 8 to 64 storage partitions
- Increased cache size of 2GB
- Copy services include VolumeCopy

The IBM TotalStorage DS4300 Turbo (formerly FAStT600) Storage Server, is the storage of choice for those wanting the ultimate in midrange storage consolidation and data sharing on multiple or heterogeneous server platforms. The DS4300 Storage Server connects to the NAS500 Gateway allowing for fast data access to data, perfectly suited for all computing environments. The DS4300 solution is highly available, providing security against component failures.

For more information - ibm.com/servers/storage/disk/ds4000/ds4300

Sample Solutions

- NAS 500 Gateway with 3.6TB of raw capacity on the DS4300 (FAStT600) disk system (50 x 73GB drives)
- Cables to connect NAS to FAStT
- OS2 Mirroring and Cluster Interconnect Kit
- 2port GB Ethernet Tx Adapter 10/100/1000 Mbps Included (qty=2)

1	Group 1.1 Rack	10,556
1	Group 1.2 NAS/FAStT 600 Unit	94,999
1	Group 1.7 NAS Management Software	97,076
3	Group 3.10 Add FAStT700 Expansion Dwr	28,296
50	Group 3.2 Add 72.8GB drives	48,750
Solution TOTAL		\$ 279,677

Installation and three year 24-hour 7-days warranty included!!

Benefits

- Cross-platform file sharing (CIFS [Microsoft® Windows®], NFS [UNIX®], HTTP, and FTP) can help reduce network complexity and expense, and allow data to be shared across the organization

Category Details

NAS Category 3

Item	Description	HW & Inst Unit Price	7/24 Warr Upg Price
1.0 Storage Platform			
1.1	Rackmount Cabinet / Enclosure Two [7014] 19 inch Rack, five single-phase PDUs and mounting hardware	\$10,556.01	\$0.01
1.2	NAS Processor NAS 500 Gateway & DS4300 Turbo (FASi600) [5198-001/1722-60U]. Includes dual NAS nodes. Each node has: 2GB of memory, processor card with 2 power 4+ Processors and 2-port Gigabit Ethernet TX Adapter 10/100/1000 Mbps. The DS4300 FASi600 High Availability Controller with Turbo Option has 4 Shortwave GBICs, LUN masking and Load Balancing Software	\$93,977.01	\$1,022.00
1.3	Disk Shelving Seven EXP700 1740-1RU Disk Shelf (3EIA) for up to 98 drives with 28 GBICs, seven - 1m Fibre Channel cables and seven 5m Fibre Channel cable.	\$52,670.01	\$1,688.00
1.4	Hard Disk Drives One-hundred 36.4GB 2Gb/s FC 10K RPM Disk Drives	\$57,000.01	\$0.01
1.5	Cooling System Cooling system included in 1.2 and 1.3	Incl.	Incl.
1.6	Power system Power system included in 1.2 and 1.3	Incl.	Incl.
1.7	Management Software Includes [5729-NS1] IBM NAS 500 Gateway System Software, CIFS File Serving and clustering software.	\$97,076.01	\$0.01
1.8	Installation Installation charges included in 1.1, 1.2, 1.3 and 1.4	\$0.01	Incl.
1.9	Other	Incl.	Incl.
2.0 Evaluated Options			
No evaluated options listed.			
3.0 Platform Options			
3.1	One 10K RPM 36.4GB Drive (1Gb/s) [3560-5005] Add or Remove drives to 3560-1RU (EXP500)	\$420.00	Incl.
3.2	One 10K RPM 72.8GB Drive (1Gb/s) [3560-5006] Add drives to 3560-1RU (EXP500)	\$975.00	Incl.
3.3	One 15K RPM 18.2GB Drive (1Gb/s) [3560-5011] Add drives to 3560-1RU (EXP500)	\$530.00	Incl.
3.4	One 10K RPM 36.4GB Drive (2Gb/s) [1740-5205] Add drives to 3560-1RU (EXP500) or 1740-1RU (EXP700)	\$570.00	Incl.
3.5	One 10K RPM 72.8GB Drive (2Gb/s) [1740-5206] Add drives to 3560-1RU (EXP500) or 1740-1RU (EXP700)	\$1,140.00	Incl.
3.6	One 10K RPM 145.6GB Drive (2Gb/s) [1740-5207] Add drives to 3560-1RU (EXP500) or 1740-1RU (EXP700)	\$2,280.00	Incl.
3.7	One 15K RPM 18.2GB Drive (2Gb/s) [1740-5211] Add drives to 3560-1RU (EXP500) or 1740-1RU (EXP700)	\$531.00	Incl.
3.8	One 15K RPM 73.4GB Drive (2Gb/s) [1740-5213] Add drives to 3560-1RU (EXP500) or 1740-1RU (EXP700)	\$1,710.00	Incl.
3.9	One 3560-1RU (EXP500) Drive Expansion Drawer	\$5,332.00	\$169.00

	[3560-1RU] Remove or add 1Gb/s disk shelves from base config. Each EXP500 can accommodate up to 10 drives. Includes four SW GBICs and two SC-SC 1m cables.		
3.10	One 1740-1RU(EXP700) Drive Expansion Drawer	\$8,584.00	\$848.00
	[1740-1RU] Add 2Gb/s disk shelves to the base config. Each EXP700 can accommodate up to 14 drives. Includes four SW SFPs, two LC-LC 1m cables and two SC-LC coupling cables.		
3.11	DS4300 FAStT600 Short Wave GBIC	\$1,306.00	Incl.
	[1722-2210] Add two FAStT600 Fibre Channel Shortwave GBICs.		
3.13	DS4300 FAStT600 FlashCopy Activation	\$10,989.00	Incl.
	[1722-7351] Add FlashCopy licence to DS4300 FAStT600		

Category
NAS 3 alt

Network Attached Storage Technology

NAS500 Gateway

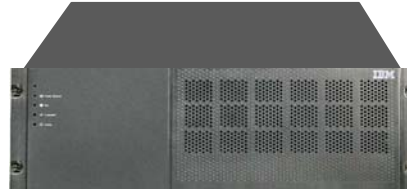


- File server function in LAN to SAN / Fibre Channel storage applications
- Based on IBM eServer pSeries product line
- Client File I/O includes CIFS, NFS (V2 and V3), HTTP, FTP

The IBM TotalStorage NAS Gateway 500 is IBM's next generation "Enterprise Class" NAS offering. This innovative NAS device is designed to connect clients and servers on an IP network to Fibre Channel storage, to help efficiently bridging the gap between LAN storage needs and SAN storage capacities

For more information – ibm.com/servers/storage/nas/500

IBM DS4400 (FAStT700)
1742-1RU



- Superior performance and bandwidth of the 2Gbps technology provides faster access to your data
- Attaches to AIX, HP-UX, Solaris, Windows NT, Windows 2000, Novell NetWare, VMWare and Red Hat Linux servers
- Offers business continuance with FlashCopy and Remote Mirroring functions
- Offers enhanced management functions such as Dynamic Volume Expansion with FAStT Storage Manager
- Scales from 36GB to 32.8TB of storage
- Provides broad range of RAID levels (0, 1, 3, 5, 10).

The IBM TotalStorage DS4400 (FAStT700) Storage Server is an excellent platform, offering maximized price-to-performance ratios. The IBM TotalStorage DS4400 Storage Server delivers superior performance with 2Gbps Fibre Channel technology. It is designed to offer investment protection with advanced functions and flexible features. Its high scalability supports growing storage requirements created by e-business applications. DS4400 offers advanced replication services to support business continuance.

For more information - ibm.com/servers/storage/disk/ds4000/ds4300

Sample Solution

- NAS500 Gateway with 3.6TB of raw capacity on the DS4400 (FAStT700) disk system (50 x 73GB drives)
- Cables to connect NAS to FAStT
- OS2 Mirroring and Cluster Interconnect Kit
- 2port GB Ethernet Tx Adapter 10/100/1000 Mbps Included (qty=2)

1	Group 1.1 Rack	10,556
1	Group 1.2 NAS/FAStT 700 Unit	113,785
1	Group 1.7 NAS Management Software	97,076
1	Group 1.3 Add EXP500 Expansion Dwr (Q=10)	54,358
50	Group 3.2 Add 72.8GB drives	48,750
Solution TOTAL		\$ 324,525

Installation and three year 24-hour 7-days warranty included!!

Benefits

- Cross-platform file sharing (CIFS [Microsoft® Windows®], NFS [UNIX®], HTTP, and FTP) can help reduce network complexity and expense, and allow data to be shared across the organization.

Category Details

NAS Category 3-alternate

Item	Description	HW & Inst Unit Price	7/24 Warr Upg Price
1.0 Storage Platform			
1.1	Rackmount Cabinet / Enclosure Two [7014] 19 inch Rack, five single-phase PDUs and mounting hardware	\$10,556.01	\$0.01
1.2	NAS Processor NAS 500 Gateway & DS4400 (FAST700) [5198-001/1742-1RU]. Includes dual NAS nodes. Each node has: 2GB of memory, processor card with 2 power 4+ Processors and 2-port Gigabit Ethernet TX Adapter 10/100/1000 Mbps. The FAST700 High Availability Controller with 4 Shortwave GBICs, LUN masking, Load Balancing Software and FAST Storage Manager 9.1.	\$113,163.01	\$622.00
1.3	Disk Shelving Ten EXP500 3560-1RU Disk Shelf (3EIA) for up to 100 drives with 38 GBICs, 19 - 1m Fibre Channel cables and one 5m Fibre Channel cables.	\$52,670.01	\$1,688.00
1.4	Hard Disk Drives One-hundred 36.4GB 2Gb/s FC 15K RPM Disk Drives	\$106,200.01	\$0.01
1.5	Cooling System Cooling system included in 1.2.	Incl.	Incl.
1.6	Power system Power system included in 1.2.	Incl.	Incl.
1.7	Management Software Includes [5729-NS1] IBM NAS 500 Gateway System Software, CIFS File Serving and clustering software.	\$97,076.01	\$0.01
1.8	Installation Installation charges included in 1.1, 1.2, 1.3 and 1.4	\$0.01	Incl.
1.9	Other	Incl.	Incl.
2.0 Evaluated Options			
No evaluated options listed.			
3.0 Platform Options			
3.1	One 10K RPM 36.4GB Drive (1Gb/s) [3560-5005] Add or Remove drives to 3560-1RU (EXP500)	\$420.00	Incl.
3.2	One 10K RPM 72.8GB Drive (1Gb/s) [3560-5006] Add drives to 3560-1RU (EXP500)	\$975.00	Incl.
3.3	One 15K RPM 18.2GB Drive (1Gb/s) [3560-5011] Add drives to 3560-1RU (EXP500)	\$530.00	Incl.
3.4	One 10K RPM 36.4GB Drive (2Gb/s) [1740-5205] Add drives to 3560-1RU (EXP500) or 1740-1RU (EXP700)	\$570.00	Incl.
3.5	One 10K RPM 72.8GB Drive (2Gb/s) [1740-5206] Add drives to 3560-1RU (EXP500) or 1740-1RU (EXP700)	\$1,140.00	Incl.
3.6	One 10K RPM 145.6GB Drive (2Gb/s) [1740-5207] Add drives to 3560-1RU (EXP500) or 1740-1RU (EXP700)	\$2,280.00	Incl.
3.7	One 15K RPM 18.2GB Drive (2Gb/s) [1740-5211] Add drives to 3560-1RU (EXP500) or 1740-1RU (EXP700)	\$531.00	Incl.
3.8	One 15K RPM 36.4GB Drive (2Gb/s) [1740-5212] Add drives to 3560-1RU (EXP500) or 1740-1RU (EXP700)	\$1,062.00	Incl.
3.9	One 15K RPM 36.4GB Drive (2Gb/s)	\$1,062.00	Incl.

[1740-5212] Remove drives to 3560-1RU (EXP500) or 1740-1RU (EXP700)

3.10 One 15K RPM 73.4GB Drive (2Gb/s)

\$1,710.00

Incl.

[1740-5213] Add drives to 3560-1RU (EXP500) or 1740-1RU (EXP700)

Definition of Terms

Extended Fabric Activation IBM 3534/2109 SAN fibre channel switch feature that extends SAN fabrics beyond the Fibre Channel standard 10 km by optimizing the internal switch buffers to maintain performance on Inter-Switch Links at distances up to 70 kilometers.

FC (Fibre Channel) Protocol commonly used in Storage Area Networks.

Full Fabric IBM 3534/2109 SAN fibre channel switch feature that enables hardware zoning controlled at the port level, software zoning controlled at the worldwide name level and connection to more than one other IBM SAN Switches via ISL.

GBIC (GigaBit Interface Converter) Light to electrical signal converter that accepts fibre cables with an SC connector.

HBA (Host Bus Adapter) Fibre Channel adapter card.

ISL (Inter-Switch Link) Fibre channel connection between two switches.

LC Type of optical connector typically used in 2Gb fibre channel.

LW (Long Wave) Optical modulation used over 9µm single mode fibre for long distance fibre channel links.

Performance Bundle IBM 3534/2109 SAN fibre channel switch feature that adds support for Inter-Switch Link ISL-Trunking with up to four links, and up to 8 gigabits

per second bandwidth; and performance monitoring tools for measuring end-to-end activities.

Quickloop IBM 3534/2109 feature that allows private loop devices to connect to the switch.

Remote Switch Activation IBM 3534/2109 SAN fibre channel switch feature that extends distance of SAN fabric by enabling two Fibre Channel switches to interconnect over link extenders and asynchronous transfer mode (ATM) wide area network.

RPM (Rotations Per Minute) Speed at which the drive platter rotates. Example: 10K RPM = 10,000 rotations per minute.

SC Type of optical connector typically used in 1Gb fibre channel.

SFP (Small Formfactor Pluggable) Light to electrical signal converter that accepts fibre cables with a LC connector.

Storage Manager IBM 3542/3552/1722/1742 management software.

SW (Short Wave) Optical modulation used over 50µm to 62.5µm multimode fibre for short distance fibre channel links.