Scalable, high-performance storage for on demand computing environments

IBM TotalStorage DS4500

(formerly IBM TotalStorage FAStT900)

Highlights

- ***Uses 2Gb Fibre Channel connectivity (up to 795MB/sec throughput from disk) for fast, responsive access to data***
- ***Facilitates storage consolidation for storage area network, network attached storage and direct-attach storage environments***
- ***Offers optional, advanced replication functions such as IBM FlashCopy®, VolumeCopy and Enhanced Remote Mirror***
- ***Supports 2Gb Fibre Channel (FC) and Serial ATA disk drive modules***
- ***Supports 2 to 224 hard disk drives and provides more than 32TB of FC scalability or 56TB of Serial ATA scalability***
- ***Includes IBM TotalStorage DS4000 Storage Manager to help manage the storage subsystem***

Excellent performance and scalability

The IBM® TotalStorage® DS4500 (formerly FAStT900 Storage Server) is a member of the IBM TotalStorage DS4000 series. The DS4500 is an enterprise-class storage server that is designed to provide performance and flexibility for today's demanding data-intensive computing environments.

The DS4000 EXP710 switched disk expansion unit has an ESM-imbedded Fibre Channel "loop switch." The loop switch creates what is essentially point-to-point Fibre Channel communication, allowing the ESMs and drives to operate as though they were on a private Fibre Channel arbitrated loop, but with the performance and diagnostic advantages of Fibre Channel fabric. A great advantage of the DS4000 EXP710 is a significant reduction in the number of Fibre Channel nodes on the drive loops. The DS4000 EXP710 has far fewer nodes on the drive loop than the DS4000 EXP700.

The DS4500 offers up to 32TB of fibre channel disk storage capacity with the DS4000 EXP700 or DS4000 EXP710 or up to 56TB of Serial ATA storage capacity with DS4000 EXP100. The DS4500 is well-suited for high-performance applications such as online transaction processing (OLTP), data mining and digital media when attached to the DS4000 EXP700 or DS4000 EXP710.

The DS4500 builds on the capabilities of existing DS4000 series systems, using a common storage management interface and similar disk expansion tools. It attaches to DS4000 EXP700, DS4000 EXP710 and DS4000 EXP100 disk enclosures, and can support up to 224 Fibre Channel disk drives when using 16 DS4000 EXP700 or 16 DS4000 EXP710 disk enclosures. It can support up to 224 Serial ATA disk drives when using 16 DS4000 EXP100 disk enclosures. When combined with DS4000 EXP700 or DS4000 EXP710 disk enclosures and 2Gb IBM TotalStorage SAN Switches, the DS4500 can be used to help build a complete 2Gb SAN environment.

In addition, the performance capabilities of the DS4500 exceed those of other DS4000 series systems, with up to 795MB/sec disk throughput. It also uses advanced caching algorithms to help optimize disk performance.

The DS4500 supports IBM @server® pSeries®, xSeries® and BladeCenter™ servers as well as other popular Intel® processor-based, AIX® and UNIX®-based servers and operating systems.

Enhanced storage management capabilities

The IBM TotalStorage DS4500 has several features designed to facilitate data management and improve storage system performance. IBM TotalStorage DS4000 Storage Manager software is designed to centralize storage management, which can help allow administrators to be more productive. In addition, administrators can partition the DS4500 into as many as 64 virtual servers. This capability allows organizations to strategically allocate storage capacity, helping to maximize storage space and reduce hardware and storage management costs.

Another feature of the DS4500 is Dynamic Volume Expansion, which is designed to allow administrators to resize logical volumes without disrupting other services within the storage system. This feature can help administrators expand storage while maintaining high data availability.

Improved productivity through DS4000 Storage Manager

IBM TotalStorage DS4000 Storage Manager software is designed to provide centralized, online management of local or remote DS4000 series. DS4000 Storage Manager allows administrators to configure and monitor storage from a Java™-based Web browser interface. It is also designed to allow them to customize and change settings on the fly as well as configure new volumes, define mappings, tune performance, handle routine maintenance and dynamically add new enclosures, disk drives and capacity to existing data volumes.

By providing an intuitive user interface and reducing the complexity of storage management, this software tool can help reduce the amount of time spent managing storage, helping companies to lower costs.

Additional tools to help manage storage

Other IBM tools can be used in conjunction with DS4000 Storage Manager to help manage storage on the DS4500.

IBM FlashCopy® is an optional feature that is designed to create an immediate single-point-in-time copy of all stored data that requires only a fraction of the original disk space. The fully functional snapshot volume can be used for file restoration, backups, application testing or data mining—all while the primary volume is active.

Another optional feature supported with v9.1 is Enhanced Remote Mirror. It consists of Global Mirror with Asynchronous Write-order Consistency, which is critical for mirroring multi-LUN applications, Global Copy with Asynchronous, and Metro Mirror with Synchronous.

VolumeCopy is an optional feature designed to provide the ability to create a full VolumeCopy of a point-in-time logical drive generated by FlashCopy on a single DS4000. This option requires DS4000 Storage Manager version 8.4 or later.

IBM TotalStorage DS4500 at a glance

Characteristics	
Model	1742-90U
RAID controller	Dual active 2GB RAID controllers
Cache	2GB, battery-backed
Host interface	Fibre Channel (FC) Switched and FC Arbitrated Loop (FC-AL)
Connectivity	4 standard, up to 8 via additional mini-hubs
Drive interface	FC-AL
Supported drives	36.4GB, 73.4GB and 146.8GB 10,000 rpm (2Gb FC) 18.2GB, 36.4GB and 73.4GB 15,000 rpm (2Gb FC) 250GB 7200 rpm (SATA)
RAID levels	0, 1, 3, 5, 10
Storage partitioning	16, upgradeable to 64
Maximum drives supported	224 (using 16 DS4000 EXP100 or 16 DS4000 EXP700 or 16 DS4000 EXP710 Expansion Units)
Fans and power supplies	Dual redundant, hot-swappable
Rack support	19-inch, industry-standard rack
Management software[1]	IBM TotalStorage DS4000 Storage Manager version 8.3, 8.4, 8.41 or 9.1
SAN support	Supported IBM FC switches and directors (product numbers 2109, 3534, 2031, 2032, 2042 and 2062)
Optional copy services	FlashCopy, VolumeCopy
Availability features	Enhanced Remote Mirroring
Certifications	Microsoft® Cluster Server (MSCS), Novell Clustering, HACMP, VERITAS Cluster for Solaris and MC/Service Guard
Warranty	3-year parts and labor warranty, next-business-day response; upgradeable to 24x7 support with 4-hour response
Physical characteristics	
Dimensions	174.5 mm H x 482 mm W x 635 mm D (6.87 in x 18.97 in x 24 in)
Weight	43.9 kg (97 lbs)
Supported systems[2]	For a list of currently supported servers, operating systems, host bus adapters, clustering applications and SAN switches and directors, refer to the DS4500 interoperability matrix available at **ibm.com**/storage/ds4500. For availability dates, configuration options, and attachment capabilities, refer to: **ibm.com**/storage/ds4500
IBM DS4000 EXP100 Expansion Unit	
Model	1710-10U
Number of drives supported	Up to 14 Serial ATA 250GB, 7200 rpm
Fans and power supplies	Dual redundant, hot-swappable
Dimensions (with bezel)	13.23 cm H x 48.18 cm W x 59.74 cm D (5.21 in x 18.97 in x 23.52 in)
IBM DS4000 EXP700 Expansion Unit	
Model	1740-1RU
Number of drives supported	Up to 14 FC drives (18.2GB, 36.4GB, 73.4GB or 146.8GB)
Fans and power supplies	Dual redundant, hot-swappable
Dimensions (with bezel)	13.23 cm H x 48.18 cm W x 59.74 cm D (5.21 in x 18.97 in x 23.52 in)
IBM DS4000 EXP710 Expansion Unit	
Model	1740-710
Number of drives supported	Up to 14 FC drives (18.2GB, 36.4GB, 73.4GB or 146.8GB)
Fans and power supplies	Dual redundant, hot-swappable
Dimensions (with bezel)	13.23 cm H x 48.18 cm W x 59.74 cm D (5.21 in x 18.97 in x 23.52 in)

For more information

For more information, contact your IBM representative or IBM Business Partner. In the United States or Canada, you also can call IBM Direct: 1-800-IBM-CALL (1-800-426-2255). Or visit:

ibm.com/storage/ds4500

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IBM Systems and Technology Group
9000 Rita Road
Tucson, AZ 85744

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

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[1] IBM TotalStorage DS4000 Storage Manager v8.41 firmware is required for DS4000 EXP100 (SATA) support. For additional information and configuration details, please refer to **ibm.com**/storage/ds4500

[2] For specific details and configuration availability, please visit **ibm.com**/storage/ds4500.

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