

Scalable, high-capacity SATA disk storage solution.



IBM System Storage DS4200 Express Model 7V



Highlights

- **4 Gbps Fibre Channel interface technology**
- **Up to 1550 MBps bandwidth for high throughput applications**
- **SATA-only hard disk drives supported**
- **Includes IBM System Storage® DS4000™ Storage Manager to help centrally manage the DS4000 Series**
- **Four total host channels with dual controllers for increased connectivity**

4Gb Fibre Channel interface technology

The IBM System Storage DS4200 disk storage system supports a high-performance 4 Gbps Fibre Channel interface for increased host connectivity to deliver necessary bandwidth for high throughput applications. Designed for data-intensive applications that demand increased connectivity provided by four 4 Gbps host channels designed to provide up to 1600 MBps of sustained bandwidth for high throughput applications through the four channels directly attached to the host servers or connected to a Fibre Channel storage area network (SAN).

Designed to help lower your Total Cost of Ownership (TCO)

The IBM System Storage DS4200 Disk Storage System offers customers a SAN solution to take advantage of the

performance offered by 4 Gbps technology. The IBM DS4200 4 Gbps SAN product is designed to offer up to 1600 MBps throughput with up to 121,500 IOPS (input/output per second). A 4 Gbps storage array requires as few as half the number of ports compared to a 2 Gbps storage array to deliver equal throughput. This frees up ports in the SAN for each array.

On the host side, if a server requires more than two 2 Gbps host bus adapters (HBAs) to attain the required performance (a server should have at least two HBAs for availability), then that number can be halved with 4 Gbps. Fewer HBAs help lower the number of switch ports used.

Business Continuity

The IBM System Storage DS4200 Disk Storage System offers the latest innovation in storage infrastructure performance and management, helping enable you to develop storage environments for unprecedented data availability. High availability and reliability with a choice of

multiple RAID levels and redundant, hot-swappable components—the DS4200 Disk Storage System can help you maintain data availability and security.

Resiliency features—The DS4200 Disk Storage System is designed to deliver powerful, dynamic capabilities that help protect data and prevent failure—not just respond and recover. Disaster recovery—Point-in-time copying with IBM FlashCopy®, VolumeCopy and remote mirroring with Enhanced Remote Mirroring can provide enterprise-class disaster recovery strategies.

One of the key advantages of the DS4200 4 Gbps technology is that it is backward compatible with 2Gb and even 1Gb host side connections. That means you need not replace your entire SAN with 4Gb technology, but you can add the new technology incrementally. Of course, 4Gb products will slow down to the 2Gb or 1Gb speed if they are connected, but zoning can allow a rolling upgrade strategy with minimal disruption.

Not too big. Not too small.

Designed for mid-sized business, the IBM Express Portfolio™ of offerings is just right. Each and every offering that's part of the IBM Express Portfolio is certified to ensure three simple features:

- 1. Easy to install and deploy**
- 2. Easy to manage**
- 3. Competitively priced**

The IBM Express Portfolio includes offerings that are scalable and have the features and functionality you'll need to meet your technology needs, including hardware, software, services and financing. Since they are priced just right for mid-sized businesses, you know you'll get more out of your investment.

Information Lifecycle Management (ILM)

Information is the lifeblood of an on demand business. With the DS4200 offering 4 Gbps technology, the DS4000 Series can allow flexible access and a broad range of scale and performance options, providing structure and context to your enterprise information. As a result, you have the freedom to build data management strategies that align with your evolving information demands. The IBM DS4200 is designed to accommodate the changing value of data over time while maintaining data availability.

IBM System Storage DS4000

The IBM System Storage DS4000 Series is well known for its exceptional performance, robust functionality and unparalleled ease of use. Building on this successful heritage, the new DS4200 adds next-generation 4 Gbps Fibre Channel (FC) technologies while retaining compatibility with 1 Gbps and 2 Gbps infrastructure. The DS4000 Series proven storage technology is designed to allow you to create a system to handle some of the most compute-intensive workloads and provide robust functionality while maintaining availability.

The DS4200 controller is a great fit for both transaction-oriented and bandwidth-intensive applications and is designed to easily satisfy some of the most performance-hungry workloads.

The combination of the DS4200 Express Model 7V and the EXP420 can provide you with an affordable, high-capacity, high-performance, SATA disk only storage solution. This DS4000 series model is designed to provide an economical alternative storage solution that supports data archiving, reference data, and near-line storage applications.

The DS4200 has four independent 4 Gbps FC host ports for direct-attachment to host (FC-AL) or fabric attachment to storage area networks (FC-SW). Based on 4 Gbps FC technologies, the DS4200 is designed to enable customers to prepare for the future while fully utilizing their present infrastructure. It is designed with the ability to auto-negotiate FC connection speeds, allowing it to integrate into an existing 1 Gbps or 2 Gbps infrastructure, helping enable these environments to immediately benefit while helping to protect investment as the SANs transition to 4 Gbps.

The DS4200 storage system's four 4 Gbps drive connections support up to 112 disk drives with the attachment of six DS4000 EXP420 storage expansion units, making it a great choice for performance-oriented or capacity-oriented storage requirements. The system is designed to support over 56TB of Serial ATA (SATA) physical storage capacity and 2GB of physical cache memory (1GB per controller).

The DS4200 fits seamlessly into the DS4000 Series. It runs the same robust, yet intuitive, storage management software—designed to allow maximum utilization of your storage capacity and complete control over your rapidly growing storage environment.

Wide range of storage consolidation and clustering applications

The IBM System Storage DS4200 is designed to be an affordable, scalable storage server for storage consolidation and clustering applications. Its modular architecture—which includes Dynamic Capacity Addition and Dynamic Volume Expansion—can support highly variable on demand business environments by helping to enable storage to grow as

demands increase. Autonomic features such as online firmware upgrades and DS4000 Service Alert also help enhance the system's usability.

The DS4200 is designed to help consolidate direct-attached storage into a centrally managed, shared or storage area network (SAN) environment. With built-in support for four Fibre Channel-attached servers, the need for additional switches is reduced or eliminated, helping to make server clustering more cost-effective.

The 4 Gbps-ready IBM System Storage EXP420 Storage Expansion Unit offers a new 16-bay disk enclosure for attachment to the DS4200, with up to 8 terabytes (TB) physical capacity per expansion unit using sixteen 500GB disk drives. The EXP420 Storage Expansion Unit is designed to accommodate the new 4 Gbps capable 500GB SATA Enhanced Value Disk Drive Modules (EV-DDMs) and contains redundant (AC or DC) power and cooling modules and ESM interfaces. The DS4000 EXP420 is available in a 19-inch rack mount package.

Each ESM CRU contains two 4 Gbps Fibre Channel host connections utilizing Small Form Factor Pluggable (SFP)

connectors. The DS4000 EXP420 ESM designs will support a 4 Gbps Fibre Channel loop. The 500GB SATA II drive is a 3 Gbps drive that supports capability to run at 4 Gbps connections speeds through the use of an interface card

Part of the DS4000 Series

The DS4200 is part of the DS4000 series, which uses common storage management software and expansion enclosures. The DS4200 can be used with the DS4000 EXP420 Expansion Unit utilizing Fibre Channel technology.

500GB SATA disk drives are supported, helping to address the requirements of various fixed content and data reference applications, which require large amounts of storage capacity but do not have the high utilization and access characteristics satisfied by Fibre Channel disk drives.

Scalability throughout the series

Because the DS4200 is highly scalable—supporting up to 112 Serial ATA disk drives—it can be upgraded from a workgroup SAN to an enterprise network storage system, offering extraordinary flexibility to grow with your business. In addition, by using the IBM System Storage DS4000 Storage Manager software, multiple DS4200s

can be combined to help address additional performance and capacity requirements—further enhancing your scalability options.

Another scalability feature of the DS4200 is Dynamic Capacity Expansion (DCE), which is designed to provide the ability to add DS4000 EXP420 storage expansion units to an existing DS4200 without stopping operations. By adding these enclosures, the DS4200 can help bring unused storage online for a new host group or an existing volume to provide additional capacity on demand.

The DS4200 also supports online controller firmware upgrades to help provide better performance and functionality. Events such as upgrades to support the latest version of DS4000 Storage Manager or to add services such as DS4000 Service Alert or DS4000 Alert Manager can often be executed without stopping operations.

Centralized administration through DS4000 Storage Manager

The System Storage DS4000 Storage Manager software included with the DS4200 is designed to support centralized management of all local and networked DS4000 series systems.

DS4000 Storage Manager is designed to allow administrators to quickly configure and monitor storage from a Java™ technology-based Web browser interface. It is also designed to allow them to customize and change settings as well as configure new volumes, define mappings, handle some routine maintenance operations and dynamically add new enclosures and capacity to existing volumes—without interrupting user access to data. Failover drivers, performance-tuning routines and cluster support are also standard features of the DS4000 Storage Manager.

By providing these features and an intuitive user interface, the DS4000 Storage Manager is designed to help reduce the complexity of storage management and the amount of time spent managing storage.

Enhanced storage management capabilities

The IBM System Storage DS4200 has several features designed to improve data management and storage system performance. The DS4000 Storage Manager software is designed to allow administrators to partition the DS4200 into as many as 64 virtual servers. This

capability allows IT organizations to strategically allocate storage capacity, helping to optimize the utilization of storage space and helping reduce hardware and storage management costs. Instead of purchasing multiple RAID controllers with their own dedicated disks and management, organizations can attach multiple servers to one central system—the DS4200—which is designed to provide hardware failover with dual controllers and common management.

Other DS4200 features that can help enhance data management and protection include FlashCopy, Dynamic Volume Expansion, VolumeCopy and Enhanced Remote Mirroring.

The FlashCopy feature is designed to take point-in-time copies of logical volumes, which may be used for file restoration, backups, application testing or data mining.

Dynamic Volume Expansion is designed to allow administrators to resize logical volumes without disrupting users. This feature can work well for applications with rapidly growing data requirements, such as IBM Lotus Notes® and Microsoft® Exchange.

The VolumeCopy feature is designed to provide full replication of one logical volume (source) to another (target) within the DS4200. VolumeCopy is designed to allow read-only access to the source volume during the copy process and suspend writes to support point-in-time integrity.

Enhanced Remote Mirror 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.

Multiple DS4200s can use a common pool of hot-spare disk drives as a cost-effective way to help improve availability, even if the DS4200s are attached to different servers. IT administrators can determine the number of drives to allocate as spares.

Additional tools to help manage storage

The DS4200 is supported by a variety of IBM Tivoli® software products, including IBM Tivoli Storage Manager and IBM Tivoli Storage Resource Manager, as well as many other third-party hardware and software products.

These applications can add to the capabilities of the DS4200 by enabling backup and storage reporting.

The IBM System Storage Proven™ program is designed to identify and test many of these products for interoperability with the DS4200 and other IBM disk products. Products in this program have been tested to help reduce or eliminate time-consuming installation and support issues. For more information, please visit ibm.com/storage/proven

Service and support

The DS4200 has a three-year 9x5 next business day upgradeable to 24x7 4 hour response hardware warranty.

Additional services for hardware installation, DS4000 Storage Manager configuration and advanced storage management are also available from IBM Global Services (IGS). IBM Support Line services can assist with using DS4000 Storage Manager, helping to enable customers to self-maintain their DS4000 system.

The optional DS4000 Service Alert and the new DS4000 Alert Manager services are designed to enable the DS4200 to quickly notify the IBM Support Center when the system detects a problem, helping to reduce or eliminate the need for the customer to place a service call. This feature is capable of forwarding error alert messages (via e-mail) from DS4000 Storage

Manager to IBM to help expedite diagnosis and repair of failed hardware and software problems.

Competitive financing options from IBM Global Financing

IBM Global Financing offers some of the industry's most competitive rates for a wide range of IBM products and services, including the DS4200, for the duration of the financing term. IBM provides faster, simpler and more responsive IT financing with highly competitive rates, flexible terms, predictable costs and fast approval process for DS4200 systems and associated software and services. For more information, please visit ibm.com/financing.

IBM System Storage DS4200 Express Model 7v at a glance

Characteristics

Model	1814-7VA
RAID controller	Dual active
Cache	2GB battery-backed
Host interface	4 host ports, Fibre Channel (FC) Switched and FC Arbitrated Loop (FC-AL) standard, Auto-sensing 1 Gbps/2 Gbps/4 Gbps
Drive interface	4 drive ports—Fibre Channel (FC) Switched and FC Arbitrated Loop (FC-AL) standard, 4 Gbps
Supported drives	Supports 4 Gbps capable SATA 7,200 rpm 500 GB EV-DDM
RAID levels	0, 1, 3, 5, 10
Storage partitions	4, 8, 16 or 64 storage partitions
Maximum drives supported	112 SATA drives (using 6 DS4000 EXP420 Expansion Units)
Fans and power supplies	Dual redundant, hot-swappable
Rack support	19-inch, industry-standard rack
Management software	IBM System Storage DS4000 Storage Manager version 9.16
SAN support	Supported IBM FC switches and directors (product numbers 2005, 2006, 2109, 3534, 2031, 2032, 2034, 2042, 2061 and 2062, and IBM BladeCenter®)
Warranty	Three year parts and labor warranty, 9x5 next business day, upgradeable to 24x7 with four hour response

Physical characteristics

Dimensions	H - 130.3 mm (5.13 in) W - 447.0 mm (17.6 in) D - 563.8 mm (22.2 in)
Supported systems ^a	For a list of currently supported servers, operating systems, host bus adapters, clustering applications and SAN switches and directors, refer to the DS4200 Interoperability Matrix available at ibm.com/storage/disk/ds4200 . For availability dates, configuration options, and attachment capabilities, refer to: ibm.com/storage/disk/ds4200 The DS4200 is supported only in rack installations. Up to six DS4000 EXP420 Expansion Units can be attached to the DS4200 supporting a maximum of 112 drives.

For more information

Contact your IBM representative or IBM Business Partner or visit:

ibm.com/storage/disk/ds4200

ibm.com/servers/eserver/express



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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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^a For specific details and configuration availability, please visit ibm.com/storage/disk/ds4200