

## IBM System Storage DS4200 Express Model 7V



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### Highlights

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- **High-performance 4 Gbps Fibre Channel interface technology**
- **Achieve up to 1550 MBps bandwidth for high throughput applications**
- **SATA-only hard disk drives supported**
- **Centrally manage your storage series with IBM System Storage™ DS4000™ Storage Manager**
- **Increase connectivity with four host channels with dual controllers**

### Advanced high-performance interface technology

The IBM System Storage DS4200 disk storage system supports a high-performance 4 Gbps Fibre Channel interface. Increased host connectivity delivers the necessary bandwidth for high throughput applications. Data-intensive applications that demand increased connectivity are supported by four 4 Gbps host channels that can provide up to 1550 MBps of sustained bandwidth, allowing for high throughput applications through the four channels directly attached to the host servers or connected to a Fibre Channel storage area network (SAN).

### A lower total cost of ownership

Take advantage of high-performance with the DS4200 disk storage system. The IBM DS4200 can offer up to 1550 MBps throughput with up to 121,500 IOPS (input/output per second) from cache. 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 the minimum of two 2 Gbps host bus adapters (HBAs) for availability to attain the required performance, then that number can be halved with 4 Gbps. Fewer HBAs help lower the number of switch ports used.

### **Enable business continuity**

Develop storage environments for unprecedented data availability with the help of DS4200. Also, maintain data availability and security with a choice of multiple RAID levels and redundant, hot-swappable components.

Deliver powerful, dynamic capabilities that help protect data and prevent failure—not just respond and recover. If you must recover, recover quickly with point-in-time copying with IBM FlashCopy®, VolumeCopy and remote mirroring with Enhanced Remote Mirroring.

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

### **Promote Information Lifecycle Management**

Information insights help your business achieve in an on-demand marketplace. Flexible access to information is crucial to success. The DS4000 series offers a broad range of scale and performance options, providing structure and context to your enterprise information. As a result, you can build data management strategies that align with your evolving information demands.

### **Part of the reputable IBM System Storage DS4000 series**

The IBM System Storage DS4000 Series provides exceptional performance, robust functionality and unparalleled ease of use. The DS4200, part of

the DS4000 series, allows 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.

Using common storage management software and expansion enclosures, the DS4200 can also be used with the DS4000 EXP420 Expansion Unit utilizing Fibre Channel technology. 500 GB, 750 GB and 1 TB 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.

The DS4200 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 112 TB of Serial ATA (SATA) physical storage capacity and 2 GB of physical cache memory (1 GB 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 DS4200 is 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 can help consolidate direct-attached storage into a centrally managed, shared or storage area network (SAN) environment. Reduce or eliminate the need for additional switches with built-in support for four Fibre Channel-attached servers and help make server clustering more cost-effective.

The IBM System Storage EXP420 Storage Expansion Unit offers a 16-bay disk enclosure for attachment to the DS4200, with up to 16 TB physical capacity per expansion unit using sixteen 1 TB disk drives. The EXP420

Storage Expansion Unit is designed to accommodate the new 4 Gbps capable 1 TB SATA Enhanced Value Disk Drive Modules (EV-DDMs) and contains redundant AC 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 1 TB 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.

### **Achieve 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 EXP Hot Add, which provides the ability to add DS4000 EXP420 storage expansion units to an existing DS4200 without stopping operations. By adding these enclosures and using Dynamic Capacity Expansion (DCE), 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 non-disruptive 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 Remote Support Manager can often be executed without stopping operations.

### **Centralize administration through DS4000 Storage Manager**

The System Storage DS4000 Storage Manager software included with the DS4200 supports centralized management of local and networked DS4000 series systems. DS4000 Storage Manager allows administrators to quickly configure and monitor storage from a Java™ technology-based Web

browser interface. It also allows 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.

The DS4000 Storage Manager software is designed to allow administrators to partition the DS4200 into as many as 128 partitions. 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 allows 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 provides 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.

The DS4200 can use a common pool of hot-spare disk drives as a cost-effective way to help improve availability, 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. IBM Tivoli Storage Manager and IBM Tivoli Storage Resource Manager, as well as many other third-party hardware and software products, can add to the capabilities of the DS4200 by enabling backup and storage reporting.

The IBM System Storage Proven™ program identifies and tests 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](http://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, implementation and configuration, including 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 Remote Support Manager for Storage service enables the DS4200 to quickly notify the IBM Support Center when the system detects a problem. This notification can help reduce or eliminate the need for a service call. To help expedite diagnosis and repair of failed hardware and software, error alert messages from DS4000 Storage Manager can be forwarded through email.

#### **Competitive financing options from IBM Global Financing**

IBM Global Financing offers 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 and associated software and services. For more information, please visit [ibm.com/financing](http://ibm.com/financing).

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## IBM System Storage DS4200 Express Model 7v at a glance

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### Characteristics

Model	1814-7VA
RAID controller	Dual active
Cache	2 GB 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/750 GB/1 TB EV-DDM
RAID levels	0, 1, 3, 5, 6, 10
Storage partitions	4, 8, 16, 64 or 128 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 10.10
SAN support	Supported IBM FC switches and directors (product numbers 2005, 2006, 2109, 2026, 2027, 2031, 2032, 2034, 2042, 2054, 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 <sup>a</sup>	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 <a href="http://ibm.com/storage/disk/ds4000/ds4200">ibm.com/storage/disk/ds4000/ds4200</a> . For availability dates, configuration options, and attachment capabilities, refer to: <a href="http://ibm.com/storage/disk/ds4000/ds4200">ibm.com/storage/disk/ds4000/ds4200</a> 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.

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## For more information

Contact your IBM representative or IBM Business Partner or visit:

[ibm.com/storage/disk/ds4000/ds4200](http://ibm.com/storage/disk/ds4000/ds4200)

[ibm.com/systems/express](http://ibm.com/systems/express)



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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<sup>a</sup> For specific details and configuration availability, please visit [ibm.com/storage/disk/ds4000/ds4200](http://ibm.com/storage/disk/ds4000/ds4200).

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