

Manage growth, complexity, and risk with scalable,  
high-performance storage



## IBM System Storage DS4800



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### Highlights

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- **4 Gbps Fibre Channel interface technology**
- **Up to 1724 MBps bandwidth for high-throughput applications**
- **Intermix of Fibre Channel and SATA hard disk drives supported in the EXP810 storage expansion unit**
- **Includes IBM System Storage™ DS4000® Storage Manager to help centrally manage the DS4000 series**
- **Eight host channels for increased connectivity**
- **Supports intermix of EXP810, EXP710, and EXP100**

### **4 Gbps Fibre Channel interface technology**

The IBM System Storage DS4800 disk storage system supports a high-performance 4 Gbps Fibre Channel interface. Increased host connectivity delivers the necessary bandwidth for high-throughput applications. Designed for data-intensive applications that demand increased connectivity, eight 4 Gbps host channels can help provide up to 1724 MBps of sustained bandwidth, allowing for high-throughput applications through eight 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**

The IBM DS4800 4 Gbps SAN can impressively offer up to 1724 MBps throughput with up to 575,000 input/output per second (IOPS) from cache. This frees up ports in the SAN for each array, which can help lower your cost of ownership.

On the host side, if a server requires more than two 2 Gbps host bus adapters (HBAs) for availability, that number can be halved with 4 Gbps. Fewer HBAs help lower the number of switch ports used and can help reduce overall cost.

IBM DS4800 4 Gbps technology is backward compatible with 2 Gbps and 1 Gbps. You can add new technology incrementally rather than replacing your entire SAN with 4 Gbps technology. Note: 4 Gbps products will slow down to 2 Gbps or 1 Gbps if they are connected, but zoning can allow a rolling upgrade strategy with minimal disruption.

#### **Business continuity**

Develop storage environments that can deliver unprecedented data availability with the help of IBM System Storage DS4800 disk storage system. Offering a choice of multiple redundant array of independent disks (RAID) levels and redundant, hot-swappable components, the DS4800 disk storage system can help you maintain data availability and security.

Enhance resiliency with IBM disk storage systems. Powerful dynamic capabilities go beyond respond and recover to help protect data and prevent failure. Benefit from enterprise-class disaster recovery strategies and point-in-time copying with IBM FlashCopy® solutions.

#### **Information life cycle management**

The IBM DS4000 series allows flexible access to data to enhance information insights. The series also provides a broader range of scale and performance options to provide structure and context to information. As a result, you can build data management strategies that align with your information requirements. IBM DS4800 can help accommodate the changing value of data over time while maintaining data availability.

#### **IBM System Storage DS4800**

The IBM System Storage DS4000—known for exceptional performance, robust functionality, and unparalleled ease of use—offers a foundation for the new DS4800. IBM DS4800 introduces next-generation 4 Gbps Fibre Channel (FC) technology. Proven storage technology is the basis for a system designed to handle compute-intensive workloads and provide robust functionality while maintaining availability.

The DS4800 controller is designed to deliver up to three times the throughput performance of the DS4500. Excelling at IOPS and MBps, the DS4800 is a great fit for both transaction-oriented and bandwidth-intensive applications. The DS4800 is also a great choice for environments with intense replication requirements, because it can efficiently handle the additional performance demands of FlashCopy, VolumeCopy and Enhanced Remote Mirroring.

The DS4800 has eight independent 4 Gbps FC host ports for direct-attachment to host (FC-AL) or fabric attachment to SANs (FC-SW). One of the first enterprise-class storage systems based on 4 Gbps FC technologies, the DS4800 can help you prepare for the future while making the most of your current infrastructure. It provides auto-negotiate FC connection speeds, allowing integration into an existing 1 Gbps or 2 Gbps infrastructure. The storage system can also deliver performance and connectivity improvements, while helping you prepare for when the SAN inevitably becomes 4 Gbps.

Eight 4 Gbps drive connections support up to 224 disk drives with the attachment of 14 DS4000 EXP810, 16 DS4000 EXP710, or 16 DS4000 EXP100 disk enclosures, making it a great choice for performance-oriented or capacity-oriented storage requirements. The DS4800 expands its predecessor's history of flexibility with another configuration option—cache size. The DS4800 Models 80 and 82:

- *Support more than 100.8 TB of FC physical storage capacity and 224 TB of Serial ATA (SATA) physical storage capacity with attachment of 14 EXP810 storage expansion units.*
- *Support 4 GB of physical cache memory (2 GB per controller).*

Additionally, support for high-performance Fibre Channel and high-capacity SATA disk drives enables a single DS4800 storage system to satisfy primary and secondary storage. Support for intermixing EXP810, EXP710, and EXP100 behind DS4800 expands your storage usage for greater flexibility.

The DS4800 runs the same robust, yet intuitive, storage management software as previous storage systems in the series and is designed to allow maximum utilization of storage capacity and complete control over a rapidly growing storage environment.

With a history of flexibility to manage growth, the DS4800 builds on the series with drive options that help manage complexity. In addition, the increased data protection of the DS4800 helps manage risk.

#### **Wide range of storage consolidation and clustering applications**

IBM DS4800 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 enable storage to grow as demands increase. Autonomic features such as online firmware upgrades and DS4000 Remote Support Manager also help enhance the system's usability.

The DS4800 can help consolidate direct-attached storage into a centrally managed, shared, or SAN environment. With built-in support for eight Fibre Channel-attached servers, the need for additional switches is reduced or eliminated, helping to make server clustering more cost-effective.

#### **Expansion unit supported on DS4800**

The DS4000 EXP810 is a 4 Gbps switched disk expansion unit supporting 16 Fibre Channel disk drives inside the enclosure and has an ESM-embedded Fibre Channel loop switch. The loop switch creates point-to-point Fibre Channel communication. This allows 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. The DS4000 EXP810 can allow for a significant reduction in the number of Fibre Channel nodes on the drive loops. Improved storage density provides more storage capacity than the 14 bay DS4000 EXP710. The DS4000 EXP810 supports 2 Gbps and 4 Gbps disk drive modules. Note: When configured with 2 Gbps drives, the 4 Gbps disk drive module will run at 2 Gbps speed.

**Scalability throughout the DS4000 series**

Because the DS4800 is scalable up to 224 Fibre Channel or 224 SATA disk drives, it can be upgraded from a work-group SAN to an enterprise network storage system to grow with your business. In addition, with the IBM DS4000 Storage Manager software, multiple DS4800 systems can be combined to help address additional performance and capacity requirements.

Dynamic Capacity Expansion (DCE) provides the ability to add DS4000 EXP810, DS4000 EXP710, or DS4000 EXP100 enclosures to an existing DS4800 without stopping operations. This can help you bring unused storage online for a new host group or an existing volume to provide additional capacity on demand. It also allows upgrades to higher performing DS4000 series systems while keeping data intact, helping to minimize disruptions during upgrades.

The DS4800 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 Remote Support Manager for Storage, can often be executed without stopping operations.

**Intermix capabilities**

The IBM DS4800 midrange disk system has the capability to support intermix attachment of the DS4000 EXP810 Fibre Channel and SATA Disk Expansion units, DS4000 EXP710 Fibre Channel Disk Expansion units, and DS4000 EXP100 SATA Disk Expansion units concurrently. Create and manage distinct array groups that are built from either FC or SATA disks. It also allocates logical drives to the appropriate applications utilizing a single DS4000 system. Applications that demand high performance and have high I/O rates could use the FC-based drives, while near-line or applications that do not demand the higher performance can be maintained on the SATA based-drives.

**Centralized administration through DS4000 Storage Manager software**

The IBM DS4000 Storage Manager software included with the DS4800 supports centralized management of local and networked DS4000 series systems. Administrators can quickly configure and monitor storage from a Java™ technology-based GUI. It also

allows them to customize and change settings, configure new volumes, define mappings, handle routine maintenance, and dynamically add new enclosures and capacity to existing volumes—all without interrupting user access to data. Failover drivers, performance-tuning routines and cluster support are also standard features of DS4000 Storage Manager. The DS4000 Storage Manager can help reduce the complexity of storage management and the amount of time spent managing storage.

**Enhanced storage management**

Using the DS4000 Storage Manager software, administrators can partition the DS4800 into as many as 512 virtual servers. Your IT organization can strategically allocate storage capacity, helping to optimize the utilization of storage space, and 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 DS4800—which is designed to provide hardware failover with dual controllers and common management.

Other DS4800 features that can help enhance data management and protection include:

- *FlashCopy, which enables point-in-time copies of logical volumes that may be used for file restoration, backups, application testing or data mining.*
- *Dynamic Volume Expansion, which allows administrators to resize logical volumes without disrupting users.*
- *VolumeCopy, which provides full replication of one logical volume (source) to another (target) within the DS4800.*
- *Enhanced Remote Mirror, which 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.*

#### **Additional tools to help manage storage**

The DS4800 is supported by a variety of IBM Tivoli® software products.

IBM Tivoli Storage Manager, IBM Tivoli Storage Resource Manager and many other third-party hardware and software products can add to the capabilities of the DS4800 by enabling backup and storage reporting.

The IBM System Storage Proven™ program identifies and tests many of these products for interoperability with the DS4800 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/systems/storage/solutions/proven/](http://ibm.com/systems/storage/solutions/proven/).

#### **Service, support, and financing**

The DS4800 has a three-year, 9x5, next-business-day hardware warranty. Additional services for hardware installation, DS4000 Storage Manager configuration, and advanced storage management are also available from IBM Global Services. IBM Support Line

services can assist with using DS4000 Storage Manager to help enable self-maintenance for the DS4000 system.

The optional DS4000 Remote Support Manager for Storage service enables the DS4800 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 e-mail.

IBM Global Financing offers competitive rates for a wide range of IBM products and services, including the DS4800, 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 DS4800 and associated software and services. For more information, please visit: [ibm.com/financing](http://ibm.com/financing).



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ds4000/ds4800](http://ibm.com/systems/storage/disk/ds4000/ds4800)

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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.

For specific details and configuration availability, please visit [ibm.com/systems/storage/disk/ds4000/ds4800](http://ibm.com/systems/storage/disk/ds4000/ds4800).



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