IBM System Storage DCS3700

Maximise performance, scalability and storage density at an affordable price

Highlights

- Gain fast, highly available, dense storage capabilities at an affordable price

- Deliver simplified data protection management and automated recovery with Dynamic Disk Pooling (DDP)

- Improve backup and restore capabilities with enhanced IBM® FlashCopy technology

- Achieve solid uptime, massive scalability and green efficiencies

- Help optimise the flow of large, file-based data while retaining simple data access

- Leverage multi-level data protection using a mix of replication features

- Ensure data integrity with support for the T10 Protection Information (T10-PI) standard.

The era of big data is here, driven by the need for more data and faster data access. Low-latency performance in applications such as real-time business analytics, life sciences research, rich-media entertainment, weather forecasting, social media feeds and stock market transactions require high-performance storage architectures. In addition, today's organisations need ways to improve operational efficiency while maintaining the same data centre (DC) footprint, quality of service (QoS) and high availability (HA).

The IBM System Storage DCS3700 storage system is ready to meet the challenge. Designed for applications with high-performance streaming data requirements, the DCS3700 system offers optimal space utilisation, low power consumption and high performance. By combining proven IBM storage controllers with up to 60 drives in just 4U of rack space, the DCS3700 system can reduce operational costs for capacity-intensive applications. The DCS3700 storage system can act as a cost-effective, fully integrated complement to IBM Power Systems servers for a wide variety of intensive computing environments.

Increased performance

The DCS3700 system provides a simple, efficient and flexible approach to storage that is based on eight generations of design knowledge and firmware development. Key design features include increased processor speeds and larger cache memory capacities for use in both general-purpose and high-performance computing environments.

Provides intuitive storage management without sacrificing control

IBM System Storage DS Storage Manager software combines robustness with ease of use – two attributes not commonly found together in entry to midrange storage systems. With its extraordinary dynamic capabilities and intuitive graphical user interface (GUI), System Storage DS Storage Manager supports on-the-fly reconfigurations without interrupting storage system input/output (I/O). For highly secure implementations, administrators can also use password settings to designate the users who can monitor the system, but who are unauthorised to make any changes.

With DDP technology, System Storage DS Storage Manager dramatically simplifies data protection setup and can virtually eliminate the need for unscheduled drive maintenance. DDP is a self-healing data protection technology that eliminates the need for complex Redundant Array of Independent Disks (RAID) calculations, fully utilises all of the disk drives (DDs) in the array and delivers consistent system performance.

In addition to DDP, System Storage DS Storage Manager has fully integrated features that allow administrators to choose the method that best meets their data utilisation and protection requirements:

- **IBM Enhanced FlashCopy** creates near-instantaneous, capacity-efficient, point-in-time volume images that provide logical volume for such uses as file restoration and backup
- **Volume Copy** creates a complete physical copy – or clone – of a volume within a storage system and can be assigned to any host and used for application testing or development, information analysis or data mining
- **Thin provisioning with DDP** helps to create the appearance of more disk space than is actually available, which helps to consume less space; it also offers the flexibility to increase disk space as data grows
- **Support for up to 512 partitions** enables effective consolidation and virtualisation.

Optional premium features deliver enhanced capabilities for the DCS3700 system:

- **Disaster recovery (DR) option** – Provides 16 enhanced remote mirrors and 128 enhanced global mirrors and offers multiple options for DR deployment to support replication over IP or Fibre Channel (FC)
- **Copy services option** – Allows 2,048 FlashCopy images
- **Super key option** – Combines all of these features into one single key for easy deployment and management.

Delivers unrelenting performance

The DCS3700 storage system delivers up to 2,100 megabyte per second (MBps) and 210,000 I/O operations per second (IOPS) in sustained drive reads. It's capable of delivering throughput to bandwidth-intensive applications providing IOPS to transactional applications such as databases and Microsoft Exchange. Using the multi-threaded Redundant Disk Array Controller failover feature, the DCS3700 system can also improve performance by removing the bottlenecks common on single-threaded systems.

Built on a powerful hardware platform, the DCS3700 system features a 2.13 gigahertz (GHz) dual-core processor and supports 16 gigabyte (GB) cache/controller pairs with four 12 gigabytes per second (Gbps) serial attached SCSI (SAS) ports, an additional four or eight 12 Gbps SAS ports, four or eight 16 Gbps FC host ports and four or eight 10 Gbps Internet small computer system interface (iSCSI). Drive density increases with up to 180 drives per system allowing up

to 1.44 petabytes (PB) of raw capacity in only 12U. In addition, the DCS3700 system can be cost-effectively configured to match drives to data requirements using nearline-SAS drives.

Enables uptime all the time

The DCS3700 storage system ensures not only high-speed data access, but continuous access to the data as well. It carries on the IBM legacy of HA system design with redundant components, automated path failover and extensive online administration capabilities that maximise computational efficiency and productivity, ensuring there is virtually no single point of failure. This design helps keep these environments universally productive. DDP technology is standard on the DCS3700 system and virtually eliminates maintenance worries by self-tuning, rebalancing data and maintaining consistent performance even during drive failures.

Scales to meet high-capacity demand

Today's storage demands not only call for performance and uptime, but also require solutions to keep up with continuous growth and meet the most demanding capacity requirements. The DCS3700 storage system can support an additional two DCS3700 expansion units for a total of 180 drives in just 12U rack space. With support for up 8 terabyte (TB) capacity-optimised nearline SAS drives, the DCS3700 system delivers up to 1.44 PB when storage requirements call for this additional scalability.

As energy costs continue to rise, so does the demand to reduce power consumption. The DCS3700 storage system was developed with green requirements in mind. It offers power supplies designed to meet multiple efficiency standards and variable speed fans to help lower overall energy expenditures. In addition, with 60 drives housed in just 4U of rack space, the DCS3700 storage system has been optimised for maximum storage density, reducing its overall storage footprint.

Includes VMware and heterogeneous operating system (OS) support

The DCS3700 storage system offers the scalability, availability and integration necessary to power VMware implementations of all sizes. Its heterogeneous OS support provides flexibility to manage a wide range of storage needs. It also includes support for VMware vSphere application programming interface (API) for array integration. Plus two application-aware plugins enable vCentre and Storage Replication Adapter for efficient management.

Enables T10 Protection Information

By enabling T10 PI between the storage controller and its DDs, administrators can help ensure data integrity at the drive level. T10 PI requires the use of PI-formatted DDs. The drives are formatted at 520 bytes per sector, with 512 bytes for user data and 8 bytes for integrity metadata. The drives can be used with or without the T10 PI function enabled and can be intermixed within a storage enclosure or across storage systems with non-PI formatted drives. T10 PI can be used with any RAID level. To use the T10 PI function, all drives within the RAID array must be PI-formatted drives.

Supports distributed, enterprise-wide and file-based storage

When combined with IBM Spectrum Scale, the DCS3700 system becomes a holistic, policy-driven, shared-disk file management solution that can provide faster, more reliable access to a common set of file-based data. IBM Spectrum Scale is designed for advanced business analytics, big data or technical computing applications that require application access to very large data files or very large numbers of data files. It's the ideal companion to the DCS3700 storage system.

IBM System Storage DCS3700 at a glance	
Models	DCS3700 storage system (1818-90C) DCS3700 expansion unit (1818-80E)
RAID controller	Dual-active, intelligent controllers
Cache per controller	8 GB cache (16 GB per system)
Host interface	Base DCS3700 storage system: • Four 12 Gbps SAS host ports per controller standard with the option to add a daughter card with additional connectivity Optional: • Four or eight 12 Gbps SAS ports per optional host interface card • Four or eight 16 Gbps FC ports per optional host interface card (includes four or eight 16 Gb shortwave small form-factor pluggable transceivers) • Four or eight 10 Gbps iSCSI ports per optional host interface card (includes four or eight 16 Gb shortwave small form-factor pluggable transceivers)

IBM System Storage DCS3700 at a glance

Drive interface	Two 6 Gbps SAS drive ports
Supported drives	6 Gbps SAS 3.5-inch drives: • 4 TB, 6 TB, 8 TB 7.2k revolutions per minute (rpm) nearline
Data protection levels	RAID levels 0, 1, 3, 5, 6, 10 or DDP
Software features	Enhanced FlashCopy Volume Copy Thin provisioning Enhanced Remote mirror Enhanced Global mirror Performance Read Cache
Maximum drives supported	Up to 180 drives per system with the attachment of two DCS3700 expansion units (60 drives per enclosure), 20 drives minimum drive quantity per enclosure
Fans and power supplies	Two each per enclosure
Rack support	Slim 4U, 19-inch rack mount enclosure
Management software	System Storage DS Storage Manager
Warranty	One-year warranty. On-site service 24x7, 6-hour average and same-day response.
Size	Fits in a standard 1,000 mm cabinet
Environment	Operating temperature range: 10°C – 35°C (50°F – 95°F)
Heat output	Storage system: 3,057 BTU/hr. Expansion unit: 2,736 British thermal unit (BTU)/hr.
Supported systems	Power Systems servers OS supported: Linux, IBM AIX, VIOS, Microsoft Windows

Why IBM?

IBM is committed to helping you achieve measurable business value with the right combination of storage products to meet your needs. A market leader in the storage industry, IBM offers innovative technology, open standards, excellent performance and a broad portfolio of storage-proven software, hardware and solution offerings. Technology and services from IBM help provide infrastructures to securely manage information and can open the door to new insights and innovation for your business.

For more information

To learn more about IBM System Storage DCS3700, please contact your IBM representative or IBM Business Partner (BP), or visit: **ibm.com**/systems/storage/disk/dcs3700

To learn more about IBM Spectrum Scale, the robust clustered file management solution from IBM, visit: **ibm.com**/systems/storage/spectrum/scale/