IBM FlashSystem 840

Accelerate business with the extreme performance of a data center-optimized, all-flash system

Highlights

- Support more concurrent users, improve query response times, shorten batch processes, accelerate backups and lower virtual desktop costs with all-flash storage
- Improve IT economics by improving server efficiency with IBM® MicroLatency™ data access
- Reduce IT waste with extreme-performance, high-density, Energy Star-certified flash storage
- Integrate with existing infrastructure with support for Fibre Channel, iSCSI, InfiniBand, and FCoE interfaces
- Expand capacity and performance incrementally to match changing requirements
- Improve availability with IBM Variable Stripe RAID™, redundant and hot-swappable components and concurrent code load

IBM FlashSystem™ 840 is data center-optimized to strategically harness the value of stored data. By providing extreme performance for the most demanding applications, including online-transaction processing and analytics databases, virtual desktop infrastructures, technical-computing applications, and cloud environments, FlashSystem 840 delivers a competitive advantage for today's organizations. The IBM system reduces response times with MicroLatency—that is, less than 135-microsecond access times. It is this consistent low latency that enables FlashSystem to deliver application performance improvements.

Explore new opportunities with highly efficient, flexible storage

Easy to deploy and manage, FlashSystem 840 delivers savings across the entire organization, from improved productivity of IT staff to energy efficiency within the data center. The efficiency benefits of FlashSystem 840 are a result of the high performance, high density, and low power consumption of the system's architecture. FlashSystem 840 is hardware accelerated, using energy-efficient IBM PowerPC® processors, field-programmable gate arrays (FPGAs) and large arrays of high-density enterprise multi-level cell (eMLC) flash.

FlashSystem 840 can scale usable capacity from as low as 2 TB to as much as 48 TB in its compact 2U enclosure. Many granular capacity points are possible due to the three choices in MicroLatency flash module capacity: 1 TB, 2 TB and 4 TB. Capacity is field upgradeable so IT personnel can expand capacity to support changing needs with minimal disruption to operations. FlashSystem 840 supports all industry-standard interfaces including 4/8/16 Gb Fibre Channel, 40 Gb InfiniBand, 10 Gb iSCSI and 10 Gb Fibre Channel over Ethernet (FCoE).

Count on enterprise-class reliability and superior data protection

A robust FlashSystem 840 architecture delivers the extreme reliability, availability and serviceability (RAS) required by today's enterprise applications. The system uses enterprise-class, two-dimensional flash RAID technology, comprising IBM Variable Stripe RAID™ and system-wide RAID 5. Variable Stripe RAID maintains system performance and capacity in the event of partial or full-flash chip failures, helping reduce downtime and forestall system repairs. System-wide RAID 5 also helps prevent data loss and improves availability. Additionally, all active components are fully redundant, hot-swappable and easily accessible via a tool-less modular design—enabling IT staff to spend more time working on strategic projects and initiatives, rather than resolving system failures.

To further minimize downtime, FlashSystem 840 supports concurrent code load and maintenance for nondisruptive firmware upgrades. And to provide advanced security for data at rest—without compromising application performance—FlashSystem 840 also supports hardware-accelerated AES-XTS 256 encryption.

Accelerate applications with consistently low latency

FlashSystem 840 is designed with MicroLatency to significantly speed application response times, so organizations can rely upon real-time data to effectively gain actionable insight. The low-latency design improves CPU efficiency, lowering software licensing costs and maximizing the use of existing resources. In addition, by virtually eliminating wait times and enabling more transactions to occur, FlashSystem 840 can help applications scale to support more concurrent users, helping improve the end-user experience, enhance productivity and increase revenue.

Experience extreme performance and ease of use

To deliver extreme performance coupled with efficient management, FlashSystem 840 features an easy-to-use, web-based graphical user interface and a scriptable command-line interface. The intuitive design can help streamline installation and management tasks. In addition, historical and in-depth performance monitoring and reporting can improve system management capabilities.

IBM FlashSystem 840 at a glance											
Model	9840-AE1, 9843-AE1										
Flash type	eMLC										
Flash module configuration	4 x 1 TB	6 x 1 TB	8 x 1 TB	10 x 1 TB	12 x 1 TB	8 x 2 TB	10 x 2 TB	12 x 2 TB	8 x 4 TB	10 x 4 TB	12 x 4 TB
Raw capacity (TB/TiB)	5.50 TB/ 5.00 TiB	8.25 TB/ 7.50 TiB	11.00 TB/ 10.00 TiB	13.74 TB/ 12.50 TiB	16.49 TB/ 15.00 TiB	21.99 TB/ 20.00 TiB	27.49 TB/ 25.00 TiB	32.99 TB/ 30.00 TiB	43.98 TB/ 40.00 TiB	54.98 TB/ 50.00 TiB	65.97 TB/ 60.00 TiB
RAID 0 usable capacity (TB/TiB)	4.12 TB/ 3.75 TiB	6.18 TB/ 5.63 TiB	8.25 TB/ 7.50 TiB	10.31 TB/ 9.38 TiB	12.37 TB/ 11.25 TiB	16.49 TB/ 15.00 TiB	N/A	24.74 TB/ 22.50 TiB	32.99 TB/ 30.00 TiB	N/A	49.48 TB/ 45.00 TiB
RAID 5 usable capacity (TB/TiB)	2.06 TB/ 1.88 TiB	4.12 TB/ 3.75 TiB	6.18 TB/ 5.63 TiB	8.25 TB/ 7.50 TiB	10.31 TB/ 9.38 TiB	12.37 TB/ 11.25 TiB	16.49 TB/ 15.00 TiB	20.62 TB/ 18.75 TiB	24.74 TB/ 22.50 TiB	32.99 TB/ 30.00 TiB	41.23 TB/ 37.50 TiB
Minimum latency											
Write	90 µs										
Read	135 µs										
Maximum IOPS 4 KB											
Read (100%, random)	1,100,000										
Read/write (70%/ 30%, random)	775,000										
Write (100%, random)	600,000										
Maximum bandwidth 256 KB											
Read (100%, sequential)	8 GB/s										
Write (100%, sequential)	4 GB/s										
RAS features	• Two-dimensional flash RAID – Module-level Variable Stripe RAID – System-level RAID 5 across modules • Hot-swappable IBM MicroLatency flash modules • Tool-less module installation/replacement • Concurrent code load • Redundant and hot-swappable controllers, interface cards, power supplies, batteries and fans										

IBM FlashSystem 840 at a glance (continued)	
Encryption	AES-XTS 256
Connectivity options	16 x 8 Gb Fibre Channel 8 x 16 Gb Fibre Channel 8 x 40 Gb quad data rate (QDR) InfiniBand 16 x 10 Gb FCoE 16 x 10 Gb iSCSI
Power	625 Watts (nominal)
Dimensions (H x W x D)	2U x 445 mm x 761 mm (2U x 17.5 in. x 29.96 in.)
Weight	34 kg (75 lb) fully loaded

Take the next step. Click here.
See the full list of specifications.

Why IBM?

As part of the IBM Smarter Storage initiative, FlashSystem 840 is data center-optimized to enable organizations to harness the value of a data. The IBM system can empower enterprise organizations to build a compelling and sustainable competitive advantage. From real-time transactions to data analytics, cloud and virtual infrastructures, FlashSystem 840 can provide organizations with the application performance they need to compete, innovate and grow.

For more information

To learn more about IBM FlashSystem 840, please contact your IBM representative or IBM Business Partner, or visit the following website: **ibm.com**/storage/flash

IBM Systems
Route 100
Somers, NY 10589

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