IBM FlashSystem 900

Gain faster insights with extreme performance, enterprise reliability and operational efficiency

Highlights

- Accelerate critical applications, support more concurrent users, speed batch processes and lower virtual desktop costs with the extreme performance of IBM® FlashCore™ technology

- Harness the power of data with the ultra-fast response times of IBM MicroLatency™

- Leverage macro efficiency for high storage density, low power consumption and improved resource utilization

- Protect critical assets and boost reliability with IBM Variable Stripe RAID™, redundant components and concurrent code loads

- Power faster insights with hardware-accelerated architecture, MicroLatency modules and advanced flash management capabilities of FlashCore technology

All types of organizations are turning to flash storage for its ability to deliver fast, reliable and consistent access to critical data. Now, with IBM FlashSystem® 900, they can make faster decisions based on real-time insights and unleash the power of the most demanding applications, including online transaction processing and analytics databases, virtual desktop infrastructures, technical computing applications, and cloud environments. Plus, FlashSystem 900 can lower operating costs and increase the efficiency of IT infrastructure by using much less power and space than traditional hard disk drive (HDD) and solid-state disk (SSD) solutions.

Easy to deploy and manage, FlashSystem 900 is designed to accelerate the applications that drive business. Powered by FlashCore technology, FlashSystem 900 delivers the high performance, MicroLatency, enterprise reliability and operational efficiencies required for gaining competitive advantage in today's dynamic marketplace.

Power insights in real time

At the heart of FlashSystem 900 lies FlashCore technology. Hardware-accelerated input/output (I/O) means that data paths involve redundant non-blocking crossbar backplanes and hardware-based RAID controllers separated from the system management functionality that allows concurrent code loading. Advanced flash management features include

Variable Stripe RAID technology, IBM-engineered error correction codes, overprovisioning capabilities, ultra-fast write buffers and hardware-based data offloads. Features also include proprietary garbage collection, relocation and block-picking algorithms that not only increase flash endurance, but also increase performance and decrease latency.

In addition, FlashSystem 900 is composed of up to 12 MicroLatency modules—massively parallel flash arrays that can provide nearly 40 percent higher storage capacity densities than previous FlashSystem models. In fact, FlashSystem 900 can scale usable capacity from as low as 2 TB to as much as 57 TB in a single system. MicroLatency modules also support an offload AES-256 encryption engine, high-speed internal interfaces, and full hot-swap and storage capacity scale-out capabilities, enabling organizations to achieve lower cost per capacity with the same enterprise reliability.

Accelerate data access with confidence

FlashSystem 900 uses enterprise-class, two-dimensional flash RAID technology, leveraging both Variable Stripe RAID and system-level RAID 5 to deliver 99.999 percent availability.[1] 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.

Boost efficiency for today's critical workloads

The system helps improve storage efficiency in VMware environments by supporting the VMware vStorage APIs for Array Integration (VAAI) UNMAP command, which improves performance and reclaims storage space. FlashSystem 900 also supports VMware vSphere APIs for Storage Awareness (VASA), fully integrating into VMware's physical storage topology monitor, centralizing daily storage operations.

IBM FlashSystem 900 at a glance

Model	9840-AE2, 9843-AE2												
Flash type	IBM-enhanced MLC												
Feature code	AF23					AF24				AF25			
IBM MicroLatency module type	1.2 TB					2.9 TB				5.7 TB			
Modules quantity	4	6	8	10	12	6	8	10	12	6	8	10	12
Usable capacity (TB)	2.2	4.5	6.8	9.1	11.4	11.4	17.1	22.8	28.5	22.8	34.2	45.6	57
Usable capacity (TiB)	2	4.1	6.2	8.3	10.4	10.3	15.5	20.7	25.9	20.7	31	41.4	51.8
Raw capacity (TB)	7.1	10.7	14.3	17.9	21.4	26.4	35.2	44	52.8	52.8	70.4	88	105.6
Raw capacity (TiB)	6.5	9.7	13	16.3	19.5	24	32	40	48	48	64	80	96

Minimum latency	
Write	90 µs
Read	155 µs

Maximum IOPS 4 KB	
Read (100%, random)	1,100,000
Read/write (70%/30%, random)	800,000
Write (100%, random)	600,000

Maximum bandwidth 256 KB	
Read (100%, sequential)	10 GB/s
Write (100%, sequential)	4.5 GB/s

RAS features	• Two-dimensional flash RAID
	  – Module-level Variable Stripe RAID
	  – System-level RAID 5 across modules
	• Hot-swappable MicroLatency flash modules
	• Tool-less module installation/replacement
	• Concurrent code load
	• Redundant and hot-swappable controllers, interface cards, power supplies, batteries and fans
	• 99.999% availability*

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 Fibre Channel over Ethernet (FCoE) 16 x 10 Gb iSCSI
Power	625 Watts (nominal), 1300 Watts (max)
Dimensions (H x W x D)	2U x 445.00 mm x 761.00 mm (2U x 17.50 in. x 29.96 in.)
Weight	34 kg (75 lb) fully loaded

Why IBM?

Building on decades of storage leadership, IBM offers a comprehensive portfolio of integrated, flash-optimized storage solutions that can propel organizations into the next era of IT. These proven, easily integrated flash solutions accelerate critical applications for faster decision making, come with best-in-class reliability and deliver new efficiencies across the entire business environment for a faster return on investment. All-flash storage arrays from IBM provide organizations with the superior economics and endurance they need for long-term business success.

For more information

To learn more about IBM FlashSystem 900, please contact your IBM representative or IBM Business Partner, or visit the following website: **ibm.com**/storage/flash/900

Additionally, IBM Global Financing provides numerous payment options to help you acquire the technology you need to grow your business. We provide full lifecycle management of IT products and services, from acquisition to disposition. For more information, visit: **ibm.com**/financing