

IBM FlashSystem A9000R

A grid-scale, all-flash storage platform designed to drive your business into the cognitive era

Highlights

- Accelerate access to data at scale with IBM FlashCore technology
 - Scale-out linearly with consistently high-performing grid
 - Optimize economics with deduplication, compression and pattern removal
 - Protect data with new multi-site high-availability and disaster recovery
 - New entry level configuration that is smaller by 50 percent capacity
 - Build multi-tenant clouds with enterprise-grade capabilities
 - Integrate with IBM Cloud Private, VMware, MS PowerShell & OpenStack
 - Achieve cloud economics with Kubernetes-based Spectrum Access blueprint
 - Intelligent capacity management for deduplicated data
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Enterprises looking to gain competitive advantage need IT solutions with less complexity, easier scalability and better data economics. Today, you need a data storage system that can keep pace with highly virtualized environments; cloud computing; mobile and social systems of engagement; and in-depth, real-time analytics.

IBM FlashSystem A9000R provides the consistent, reliable, efficient performance needed for dynamic data at scale. The systems integrate the microsecond latency and high availability of IBM FlashCore technology with the grid architecture, comprehensive data reduction and industry-leading IBM software that can transform technology infrastructure into business innovation.

Consistent, extreme speed for data at scale

IBM FlashSystem A9000R is a rack-based, grid-scale system intended to address the needs of enterprises with diverse and rapidly growing environments. It comes as a preconfigured solution designed for simplified deployment. The system provides an excellent platform for industry leaders with rapidly growing cloud storage and mixed workload environments. IBM software-defined storage capabilities and IBM FlashCore technology combine to produce the extreme performance and scalability required in enterprise-class storage solutions. And thanks to the grid architecture, the system maintains this performance autonomously by evenly distributing every workload's data across all the system's resources, in real time. When it's time to add performance and capacity, the grid architecture will let you linearly scale-out performance and capacity.

Accelerated data economics

IBM FlashSystem A9000R utilizes IBM MicroLatency modules that leverage IBM-enhanced 3D triple-level cell (3D TLC) flash to provide exceptional density, low latency, extremely high input/output (I/O) and greater reliability. Flash-optimized data reduction lowers costs with minimal performance impacts. Structured data workloads benefit from enhanced inline data compression, while unstructured data workloads benefit from inline data deduplication. Along with pattern removal and thin provisioning, these capabilities enable extraordinarily high storage capacity that can easily scale to more than three petabytes in a single array. For better capacity planning and fair charge-back of deduplicated data, IBM FlashSystem A9000R provides intelligent capacity management that analyzes system metadata in real-time, producing accurate estimates of reclaimable physical capacity, and attributed (fair share) physical capacity, per volume, without any performance impact.

High availability

IBM FlashSystem A9000R delivers the confidence you require in your infrastructure with greater than 99.999 percent availability.¹ The underlying IBM FlashCore technology provides enterprise-grade reliability and high availability with advanced flash management features, such as IBM Variable Stripe RAID, innovative IBM-engineered error correction codes, overprovisioning and wear leveling. IBM FlashSystem A9000R integrates IBM Spectrum Accelerate technology, which provides redirect-on-write, space-efficient snapshots and asynchronous and synchronous replication to enable granular data protection without increasing costs. For maximum data protection and business continuity, the system leverages multi-site high-availability and disaster recovery, with HyperSwap between two primary sites, and disaster recovery via simultaneous asynchronous replication from the primary sites to a third site, delivering active-active data access and transparent failover, per volume or consistency group (CG), across arrays and data centers.

Easy scalability for business on the move

IBM Hyper-Scale Manager allows orchestration of private and hybrid multi-tenant cloud environments at very large scales. It provides the ability to manage multiple IBM FlashSystem A9000R, IBM FlashSystem A9000, XIV and IBM Spectrum Accelerate solutions from a single pane of glass. Hyper-Scale Manager provides simplified cross-generation asynchronous replication with XIV Gen3 systems, allowing you to leverage your XIV Gen3 investment and lower the cost of data protection and disaster recovery. IBM Hyper-Scale Mobility enables you to simply and nondisruptively consolidate XIV Gen3 systems into fewer IBM FlashSystem A9000R systems with minimal operational impact. Multi-tenancy features simplify delegation and segregate storage management access among storage administrators and tenants, while QoS features help ensure that tenant service levels aren't compromised.

These capabilities, paired with consistent high performance and optimized economics, make IBM FlashSystem A9000R an ideal storage platform for industry leaders.

Choice of licensing models

IBM offers a variety of licensing models that adjust to the different client needs providing business flexibility, investment protection and significant savings in acquisition and operating costs. The Licensing models are:

Standard licensing

This license is ordered with and attached to the specific FlashSystem A9000 and FlashSystem A9000R systems, it offers all the features and functions, so there is no need for separate licenses for specific capabilities.

Utility licensing

The Utility Offering models are provided for customers who can benefit from a variable capacity system where billing is based on actual provisioned space above the base. The base subscription is covered by a three-year lease that entitles the customer to utilize the base capacity at no additional cost. If storage needs increase beyond the base capacity, usage is billed based on the average daily provisioned capacity per terabyte, per month, on a quarterly basis.

IBM Spectrum Storage Suite software or IBM Spectrum Accelerate licensing

As part of IBM's efforts to build a storage portfolio that supports the movement to software-defined infrastructure, customers can purchase either IBM Spectrum Storage Suite software or IBM Spectrum Accelerate software and apply that license to a FlashSystem A9000 or FlashSystem A9000R. That software is licensed to the customer and not to the storage system, so a customer can re-use the licensed capacity on different storage systems and storage software offerings by moving those licenses from old solutions to new solutions, removing a concern about stranded licenses.



IBM FlashSystem A9000R

¹ Based on IBM internal measurements.

IBM FlashSystem A9000R Spec Table

IBM FlashSystem A9000R at a glance												
Model	9835-425 (1-year warranty), 9837-425 (3-year enterprise-class warranty), 9837-U25 (1-year warranty)											
Controllers	Up to 8 active grid controllers, each containing: <ul style="list-style-type: none"> • Two Intel Xeon E5 v4 12-core 2.2 GHz processors • 384 GB DDR4 memory • Redundant battery backup units and power supply units 											
Software	IBM FlashSystem A9000 and IBM FlashSystem A9000R software v12											
Flash type	IBM-enhanced 3D TLC											
	720 TB configuration				1,700 TB configuration				3,600 TB configuration			
Effective capacity* (TB)	180	360	540	720	425	850	1,275	1,700	900	1,800	2,700	3,600
Maximum capacity† (TB)	1,200	2,400	3,600	4,800	1,200	2,400	3,600	4,800	1,200	2,400	3,600	4,800
Physical capacity‡ (TB)	36	72	108	144	85	170	255	340	180	360	540	720
Raw capacity (TB)	55.3	110.6	166.1	221.2	129	258	387	516	258	516	774	1,032
Grid controllers	3	4	6	8	3	4	6	8	3	4	6	8
Flash enclosures	1	2	3	4	1	2	3	4	1	2	3	4
IBM MicroLatency modules per flash enclosure	12 x 3.6 TB				12 x 8.5 TB				12 x 18 TB			
Performance: Scaled-out configuration 8 grid elements												
IOPS	2,400,000											
Maximum bandwidth	26 GB/s											
Minimum latency	250 µs											
Data reduction and efficiency	<ul style="list-style-type: none"> • Pattern removal • Global, inline deduplication • Inline compression • Space-efficient snapshots • Thin provisioning 											
Encryption	Hardware-based AES-XTS 256-bit with centralized key management											
Host connectivity options	Per grid controller: 4 x 16 Gb Fibre Channel + 2 x 10 Gb iSCSI, or 4 x 10 Gb iSCSI											
Backplane interconnect	InfiniBand											
Power	Entry configuration: 1.914 KW (typical); 2.806 KW (max) Scaled out configuration: 5.13 KW (typical); 8.57 KW (max)											

IBM FlashSystem A9000R at a glance	
Rack dimensions (H x W x D)	201.5 cm (42U) x 64.4 cm x 129.7 cm (79.3 in x 25.4 in x 51.1 in)
Weight	Entry configuration: 550 kg (1,212 lb) Scaled out configuration: 774 kg (1,706 lb)
Client operating system support	For a current list of platforms supported, please visit the IBM System Storage Interoperation Center (SSIC) .

* Typical effective capacity is the available capacity after system overhead (including flash media over-provisioning and RAID protection) and after the data reduction benefits of pattern removal, deduplication and compression. This assumes data reduction of 5 to 1.

†Maximum capacity refers to the effective capacity provisioning limit.

‡Physical capacity is the available capacity after system overhead, including flash media over-provisioning and RAID protection.

Why IBM?

Building on decades of storage leadership, IBM offers a comprehensive portfolio of flash-optimized storage solutions that can propel organizations into the next era of IT. These proven 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. IBM flash storage solutions provide businesses of all sizes with the application performance they need to compete, innovate and grow.

For more information

To learn more about IBM FlashSystem A9000R, please contact your IBM representative or IBM Business Partner, or visit: ibm.com/us-en/marketplace/large-cloud-storage

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

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