

# IBM FlashSystem portfolio

Secure, fast and intelligent data storage solutions

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**Highlights**

Simplifies application workload management with built-in AI

Enables proactive identification of cyber threats to speed response times

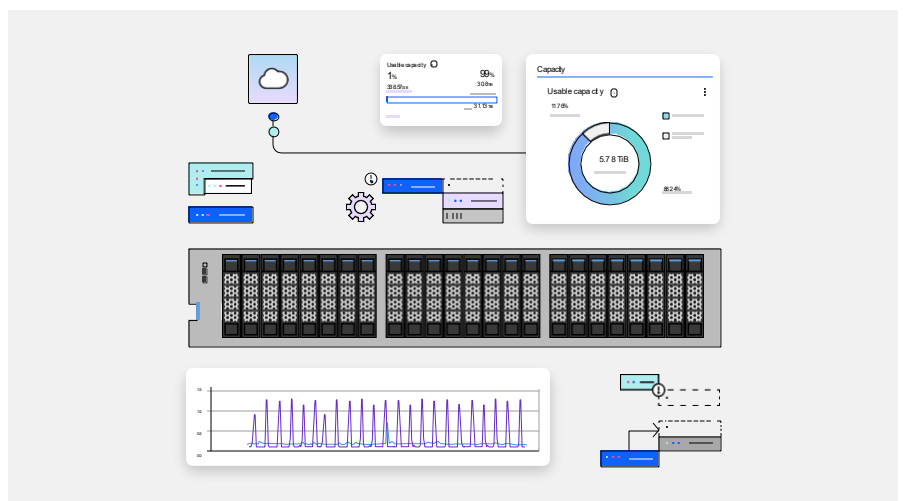
Store your data intelligently to enhance your overall performance

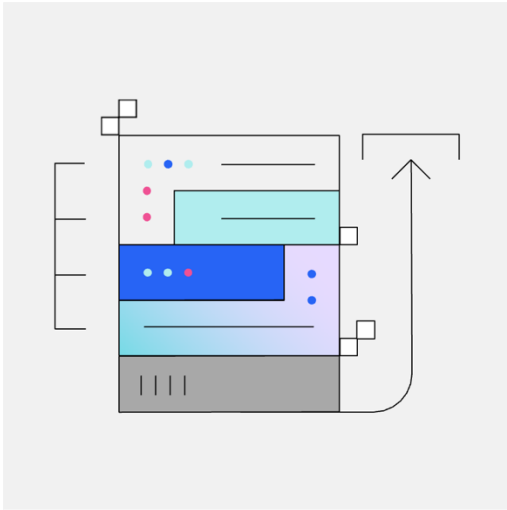
Helps reduce your data storage environmental impact

Achieve data mobility without disruption

In today's data-driven world, organizations' data storage requirements are actively increasing—and so are global cyber threats. A fragmented approach to storage needs typically involves manual procedures and organizational silos, resulting in a lack of cyber resilience, performance, and power efficiency to protect against threats and ransomware. Businesses require an integrated, simplified, and sustainable solution that unifies and speeds data management across core, cloud, and edge environments.

The [IBM FlashSystem® portfolio](#) offers a wide range of enterprise-grade, high-speed solutions to meet the ever-growing storage needs of businesses of all sizes. Combining advanced machine learning tools and data reduction features, the all-flash array platform helps maximize storage density, streamline IT operations, and reduce complexities. With IBM FlashSystem, you gain multifactor authentication, inline threat detection, hardware-assisted ransomware threat detection, encryption, and various replication capabilities to protect your business against cyber threat





### **Manage your data simply by leveraging AI-enabled application workload management.**

The FlashSystem grid architecture enables storage management in a highly available and scalable environment from a single control pane with AI-driven workload placement recommendations. IBM FlashSystem also supports storage virtualization for over 500 external systems and third-party integrations, reducing storage management time while ensuring availability, performance, and capacity. Its interoperability enables native integration with tools for IT service management (ITSM), IT lifecycle management (ITLM), and AI for IT operations (AIOps), including VMware vSphere Virtual Volumes.

### **Safeguard your data consistently by enabling proactive identification of cyber threats to speed response times**

IBM FlashSystem enables timely operational responses to breaches by providing built-in features such as ransomware threat detection, which detects possible cyber threats in less than a minute, leveraging IBM FlashCore® Module computational storage and machine learning from [IBM Storage Insights Pro](#) to identify abnormal data patterns. Additionally, it offers logical air-gapping with Safeguarded Copy, operational air-gapping through integrations with IBM Cyber Vault, and physical air-gapping by offloading data. It also features encryption, multifactor authentication, inline threat detection, and various replication capabilities. Backed by the IBM Cyber Resiliency Guarantee, IBM FlashSystem is designed to provide advanced data protection, allowing you to recover quickly after a cyberattack to minimize impact.

### **Store your data intelligently to improve overall performance**

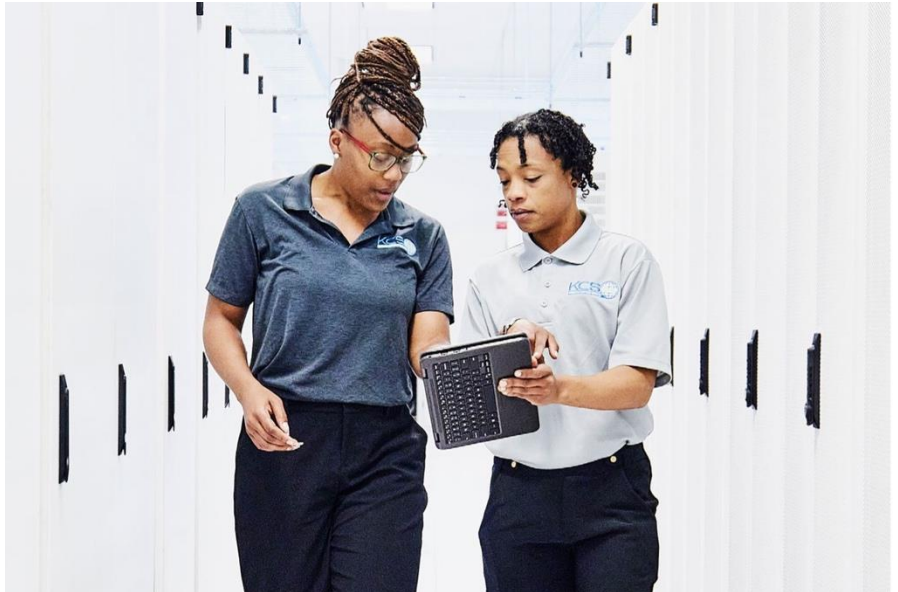
Build smart data centers with the advanced FlashCore Module computational storage technology that offloads advanced data services from the software and intelligently stores and safeguards critical data without impacting performance. Also, with the provision of your hardware support, IBM assures the replacement of any failed FCM drive, irrespective of the number of rewrites.<sup>2</sup>

### **Enhance your data energy efficiency by reducing the environmental impact of data storage.**

Lowering carbon emissions and addressing the environmental impact of your data storage is more important than ever. IBM FlashSystem helps reduce energy costs and provides a reliable data storage sustainability guarantee, with some configurations guaranteed as low as 1.7 W/TB.<sup>3</sup> Support your green IT initiatives across all IBM FlashCore Module configurations.

### **Optimize your data capacity and achieve data mobility without disruption**

The automated and seamless mobility of the FlashSystem grid architecture offers comprehensive control and insight over your entire data storage estate by allowing you to connect storage arrays across different servers and applications to optimize data storage capacity, achieve data mobility, and perform migrations without disruption and at scale to meet your business needs. This allows you to streamline your storage lifecycle management strategies while reducing management time and optimizing performance. Each FlashSystem model works with your current and future applications, empowering your teams to address workloads with additional applications, including containers and cloud architectures.



Furthermore, IBM offers the [IBM FlashSystem C200](#), a solution designed for less frequently accessed data; its high density and high capacity make it an ideal choice for media streaming, archives, backups, and other data repositories. And its optimal price-performance balance ensures you get the best value for your investment. IBM FlashSystem C200 offers 5.5 times more write cycles than industry-standard QLC drives.<sup>4</sup>

In addition, IBM offers multiple purchase-over-time options to enable you to quickly scale your data storage solutions as needed. The [IBM Storage Assurance perpetual consumption model](#) provides access to IBM FlashSystem hardware and software innovations. It offers all-inclusive software upgrades, full-system automatic hardware refreshes, SLA-based workload performance guarantees, premium support, and guaranteed zero downtime and non-disruptive migrations – no swing box required.<sup>5</sup> All this comes with flat and fair pricing aligned with flexible contract terms.

**Simplify your infrastructure further with IBM SAN Volume Controller (SVC)**

IBM SAN Volume Controller, also built with IBM Storage Virtualize software, is an enterprise-class software-defined storage solution that enhances data economics by supporting critical large-scale workloads. SVC streamlines IT infrastructure with a unified approach to storage management, , functionality, replication, and hybrid cloud operations regardless of storage type. SVC effectively manages massive data volumes from mobile and social applications and enables flexible hybrid cloud deployments, delivering the performance and scalability needed to get insights from the latest analytics technologies.

## IBM FlashSystem Technical Specifications

FlashSystem grid at a glance*	IBM FlashSystem C200	IBM FlashSystem 5300	IBM FlashSystem 7300	IBM FlashSystem 9500
Effective Maximum Capacity	27 PBe	12 PBe	27 PBe	52 PBe
Max I/O Ports	128	128	192	384
Max bandwidth (reads)	184GB/s	228GB/s	400GB/s	800GB/s

\*Assuming FlashSystem grid contains 8 devices with the same configuration. FlashSystem grids can contain a mix of different models and configurations.

Single enclosure product specifications	IBM FlashSystem 5000	IBM FlashSystem C200	IBM FlashSystem 5300	IBM FlashSystem 7300	IBM FlashSystem 9500
Maximum bandwidth (reads)	12 GB per second	23 GB per second	28 GB per second	50 GB per second	100 GB per second
Response times (reads)	< 70 microseconds	1-2 milliseconds	< 50 microseconds	< 50 microseconds	< 50 microseconds
Raw maximum capacity within single enclosure	737 TB	1.1PB	460 TB	921TB	1.8 PB
Effective maximum capacity within single enclosure*	573 TBe (2U enclosure)	3.3 PBe (2U enclosure)	1.5 PBe (1U enclosure)	3.3 PBe (2U enclosure)	6.6 PBe (4U enclosure)
Maximum I/O ports within a single enclosure	8	16	16	24	48
IBM FlashCore Module capacities supported	Not applicable (supports industry standard drives)	46 TB Raw**	4.8, 9.6, 19.2 and 38.4 TB	4.8, 9.6, 19.2 and 38.4 TB	4.8, 9.6, 19.2 and 38.4 TB
Use cases	Smaller mixed workloads, backup	Backup, sequential and archival workloads	Mixed workloads, smaller OLTP databases	Larger mixed and OLTP workloads	Consolidated mixed and critical OLTP workloads
	<a href="#">Explore IBM FlashSystem 5000</a>	<a href="#">Explore IBM FlashSystem C200</a>	<a href="#">Explore IBM FlashSystem 5300</a>	<a href="#">Explore IBM FlashSystem 7300</a>	<a href="#">Explore IBM FlashSystem 9500</a>

\*Assuming 5:1 data reduction

\*\* 46TB raw FCM is only available in FlashSystem C200 and it is the only drive supported on FlashSystem C200.

[Explore all technical specifications →](#)

## IBM SAN Volume Controller at a glance

SAN Volume Controller grid*	<b>IBM SAN Volume Controller SA2</b>	<b>IBM SAN Volume Controller SV3</b>
Maximum Managed Capacity	256PB	256PB
Max I/O Ports in a grid	192	384

\*Assuming SVC grid contains 8 systems with the same configuration. SVC grids can contain a mix of different models and configurations.

IBM SAN Volume Controllers	<b>IBM SAN Volume Controller SA2</b>	<b>IBM SAN Volume Controller SV3</b>
Maximum Managed Capacity	32PB	32PB
Max I/O Ports in a 2-node system	24	48
Storage system virtualization support	More than 500 flash, hybrid and disk storage systems from IBM and other vendors	More than 500 flash, hybrid and disk storage systems from IBM and other vendors
Use cases	Simplify infrastructure while delivering agility, tiering, resiliency and data reduction across large, mixed or OLTP workloads	Simplify infrastructure while delivering agility, tiering, resiliency and data reduction across consolidated mixed and critical OLTP workloads



### **Conclusion**

The high-speed IBM FlashSystem data storage platform provides enterprise-class data solutions for businesses, large and small. The platform offers built-in AI and interoperability while enabling a fast response to cyber threats and data breaches. From hybrid storage to performant nonvolatile memory express (NVMe) all-flash arrays and both on-premises and cloud-based workloads, IBM FlashSystem meets even the most demanding data storage requirements.

### **For more information**

To learn more about IBM FlashSystem, [contact your IBM representative](#) or IBM Business Partner or visit [ibm.com/FlashSystem](https://ibm.com/FlashSystem)

[IBM Cyber Resiliency Guarantee](#), IBM.

<https://community.ibm.com/community/user/storage/blogs/nat-prakongpan/2023/09/12/ibm-flashsystem-cyber-recovery-guarantee>

See details and definition of maintenance in the maintenance contract found here:

<https://www.ibm.com/support/customer/csol/terms/?ref=Z126-8971-04-05-2023-us-en>

[FlashSystem Sustainability Guarantee](#), IBM.

<https://community.ibm.com/community/user/storage/blogs/audrey-odonnell/2023/06/16/flashsystem-sustainability-guarantee>

Industry-standard QLC expects about 1,000 P/E (i.e.: write) cycles, <https://www.techtarget.com/searchstorage/definition/write-cycle> whereas FlashCore Module 4 drives, which are in the C200, achieve 5,500 P/E cycles prior to wear out, using internal testing developed using the JEDEC Standards for Retention.

Data movements now have zero downtime and are non-disruptive, guaranteed for customers with the IBM Storage Assurance Perpetual program – no swing box required. Through IBM Storage Assurance Perpetual, IBM guarantees that data can be moved between FlashSystem devices while always maintaining an active path to data from servers and applications using the data when Storage Partitions are migrated as described in the IBM Storage FlashSystem documentation for the relevant Storage Virtualize release and FlashSystem platform.

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United States of America  
May 2025

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