



Highlights

- Reduce x10 the application response time through IBM zHyperLink technology
 - Integration by design with IBM Z, IBM LinuxONE and IBM Power Systems
 - Secure and transparent data transfer to multi-cloud environments
 - Advanced disaster recovery with unique 2, 3, and 4 site replication
 - Intelligent data placement across performance and high-capacity flash tiers
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IBM DS8880F

Business-critical all-flash data systems designed to foster trusted digital experiences

Today, IT leaders are facing increasing pressures to keep cost down and maintain sustained high-performance operations while looking for new ways to transform their organizations and create a competitive advantage.

Achieving these goals requires a new perspective on the critical capabilities needed to drive business innovation. As organizations start to move at an ever-faster pace, they are required to provide higher levels of service delivery while harnessing the power of the data, differentiating their products and providing measurable business impact for their customers.

For those organizations looking to deliver sustained, excellent performance for the ever-changing demands of the market, IBM offers the DS8880F data systems. They are efficiently designed to meet a wide variety of workloads for different business needs through mission-critical acceleration, ultra-low application response times, uncompromising availability and unparalleled integration with IBM servers. The family includes:

- **IBM DS8888F Analytics class:** delivers superior performance and high capacity for the most demanding, business-critical workloads
- **IBM DS8886F Enterprise class:** provides the ideal combination of high performance, capacity and cost for a wide variety of workloads
- **IBM DS8884F Business class:** enables midrange organizations to meet storage challenges with advanced functionality in a space-saving package
- **IBM DS8882F Rack mounted:** delivers powerful enterprise capabilities as the larger DS8880F systems in a flexible rack mountable solution at the lowest entry cost. The DS8882F model can be integrated into existing client 19-inch standard racks, mounted into IBM Z model ZR1 or IBM LinuxONE Rockhopper II systems.

All the members of the DS8880F family deliver advanced function capabilities, enabling a trusted foundation to support the digital transformation initiatives that your organization requires to streamline the core business operations and achieve a competitive advantage.

Mission-critical acceleration

Designed to provide extraordinary performance for mission-critical applications, DS8880F is based on the same fundamental system architecture as the innovative IBM Watson solution. DS8880F uses this to form the three-tiered architecture that balances system resources for optimal throughput.

Powered with the next generation of High-Performance Flash Enclosures (HPFE Gen2), the DS8880F family delivers extremely low application response times, helping organizations to accelerate their core transaction processes while expanding their business operations into next-gen applications using AI to extract value to data.



IBM DS8880F all flash data systems

The need for low latency drove the high adoption rate of I/O technologies including IBM FICON Express16S, Super Parallel Access Volume (Super PAV), High Performance FICON (zHPF), and now zHyperLink.

zHyperLink technology is the result of an IBM research project created to provide extreme-low-latency links between the mainframe and associated storage. It dramatically accelerates access to data by reducing application response time by up to 90 percent and cuts the elapsed time of IBM Db2 transaction in half, delivering outstanding performance for mainframe environments¹

Unparalleled integration

The IBM DS8880F family provides deep integration with IBM Z, IBM LinuxONE and IBM Power Systems while supporting distributed environments, enabling the consolidation of a wide variety of workloads under a single management point.

In the era of digital business, the mainframe remains for many the most stable, secure and mature environment to support IT initiatives.² At the heart of today's DS8880F is the advanced microcode that has been designed, developed and tested in conjunction with the IBM Z team to be released in a timely and coordinated manner delivering unmatched business value.

IBM DS8880F family, is the leader in the external storage market for mainframe environments³, that is why most of the largest banks in the world rely on DS8880F to protect their data with its industry-leading disaster recovery capabilities.

DS8880F also delivers excellent integration with IBM Power Systems running in IBM AIX, IBM i and Linux environments. For performance, DS8880F enables host adapters on the storage system to give preferential treatment to higher-priority database I/O with Db2 software. What's more, DS8880F copy services are tightly integrated with IBM PowerHA SystemMirror for AIX and IBM i, which adds another level of assurance for users who need 24x7 business continuity for their mission-critical applications.

DS8880F includes interoperability with VMware vStorage APIs for Array Integration, VMware vCenter Site Recovery Manager and a VMware vCenter plug-in that allows users to offload storage management operations to DS8880F. This enables virtual servers to focus their resources on computational workloads. DS8880F also supports IBM Storage Management Console for VMware vCenter to help VMware administrators independently monitor and

control their storage resources.

Uncompromising availability

DS8880F is designed to address the needs of dynamic enterprise environments requiring the highest levels of availability. It supports dynamic system changes such as online system microcode updates and online hardware upgrades, and includes redundant, hot-swappable components and sophisticated data integrity features for 24x7 operations.

For uncompromising availability, DS8880F includes deep integration with IBM HyperSwap and IBM Geographically Dispersed Parallel Sysplex (GDPS), as well as advanced multi-site business-continuity capabilities to give organizations peace of mind knowing that business-critical data will be available during planned and unplanned outages.

With IBM Copy Services Manager, you can simplify copy services management for DS8880F through a unique, easy-to-use interface that helps monitor and control copy-services configurations. Designed to scale for thousands of relationships, Copy Services Manager represents a single point of control to automate and simplify the recovery process in large replication environments, protecting your most valuable data and helping you to keep costs down.

Transparent cloud connectivity

Transparent Cloud Tiering (TCT) enables organizations to use Multicloud resources as additional storage tiers for data archiving and disaster recovery operations on IBM Z environments. TCT does not require an additional server or gateway, but it is rather a software-defined storage feature that leverages existing DS8880F data systems, avoiding the need for additional hardware infrastructure.

Beyond automating data migration to and from the cloud, TCT can provide more than 50 percent savings in CPU utilization⁴ when archiving large data sets, enabling clients to reap those savings or apply them towards new workloads such as Cognitive and Machine Learning

Transparent Cloud Tiering integrates with IBM Cloud Object Storage and can also provide direct connectivity to IBM Cloud and Amazon S3.

Increased security, minimized risk

The unrelenting tide of data breaches is driving increased interest in IBM self-encrypting storage, which automatically secures all information on flash cards when physically removed from a storage system. IBM Full Disk Encryption also provides a simple, cost-effective way to purge sensitive data from systems that are being retired or repurposed through a simple cryptographic erasure.

Encryption drives are standard on every DS8880F system and provide support for the Key Management Interoperability Protocol (KMIP). DS8880F has a variety of other security features, such as role-based administration, multi-level authentication, tamper-proof audit logging and support for the Syslog protocol. These and other advanced security capabilities make it an ideal choice to help keep sensitive data secure.

¹ Compared to High Performance FICON. The projection was based on z14 and zHyperlink with DS8886 and z13 measurements that provided results for I/O interrupts and dispatching. zHyperLink are supported by the DS8884F, DS8886F and DS8888F models.

² IBM unveils new cloud-ready mainframe based on single-frame design, Ross Mauri. April 10, 2018. <https://www.ibm.com/blogs/systems/mainframe-cloud-secure/>

³ Calculations based on data from IDC WW Quarterly Enterprise Storage Systems Tracker file, March 1, 2018.

⁴ Results based on internal IBM data measurements on an IBM zEnterprise EC12 when migrating data sets exceeding 6,000 3390 tracks in size. Results will vary by customer based on particular workloads, configurations, software levels and the quantity and size of data sets being migrated.

IBM DS8880F all-flash data systems at a glance				
Offering	DS8882F	DS8884F	DS8886F	DS8888F
Controller model	983 (Single phase)	984 (Single phase)	985 (Single phase) 986 (Three phase)	988 (Three phase)
Expansion model	N/A	N/A	85E (Single phase) 86E (Three phase)	88E (Three phase)
POWER 8 cores per system (min / max)	12	12 / 24	16 / 48	48 / 96
System cache (min / max)	64 GB / 256 GB	64 GB / 256 GB	256 GB / 2,048 GB	1,024 GB / 2,048 GB
Host ports (min / max)	8 / 16	8 / 64	8 / 128	8 / 128
Flash cards (min / max)	16 / 48	16 / 192	16 / 384	16 / 768
Physical storage capacity* (min / max)	6.4 TB / 368.64 TB	6.4 TB / 1474.56 TB	6.4 TB / 2949.12 TB	6.4 TB / 5898.24 TB
Maximum number of frames	1 (rack mounted)	1	2	3
Maximum number of zHyperLink connections	0	4	12	16
Height in rack units	16U expandable to 17U (with an additional 1U keyboard/display)	40U	40U expandable to 46U	40U expandable to 46U
Host adapter interfaces	8 Gbps or 16 Gbps Fibre Channel / IBM FICON			
Drive interface	Two PCIe Gen3 for attachment to the I/O / Micro Bay Eight SAS 6 Gb for attachment to the Gen2 enclosure			
Flash cards	400 GB, 800 GB, 1,600 GB, 3,200 GB, 3,840 GB and 7,680 GB			
RAID levels	5, 6 and 10			
Dry bulb temperature	16°C - 32°C (60°F - 90°F)			
Relative humidity	20% - 80%			
Power supply	50/60 Hz			
Warranty	All models: onsite service, same day, 24x7 4 years on type 5334 models 3 years on type 5333 models 2 years on type 5332 models 1 year on type 5331 models			
Supported systems	For more details on supported servers, visit: ibm.com/systems/support/storage/ssic/interoperability.wss			

* Usable capacity depends on factors such as data format, RAID level and spare disks configured. Maximum capacity values are based on fully populated DS8880F systems.

Why IBM

Whatever the requirements, IBM can help with an end-to-end infrastructure solution that includes data systems, application servers, software, services, support and equipment financing. The IBM DS8880F all-flash data systems deliver mission-critical availability, superior flash performance, unparalleled synergy with IBM servers and transformational efficiency for organizations looking to achieve a true competitive advantage.

For more information

To learn more about IBM DS8880F, please contact your IBM representative or IBM Business Partner, or visit: ibm.com/ds8000f

For information on specific function availability, please contact your IBM storage specialist.

Additionally, IBM 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 Global Financing.



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