Infortrend®

EonStor GSx SAS HDD Parallel File Storage

Highlights

Ultimate Performance

- Performance scales linearly when adding more GSx appliances
- A single appliance delivers 15GB/s read and 9.7GB/s write throughput, while a cluster of 10 appliances achieves nearly 10 times that performance

Scale-Out

- Start with one appliance and scale out by adding a new GSx when needed to linearly increase performance

Easy Deployment and Management

- Simplified IT architecture without the need for additional servers
- Special setup wizards guiding through the entire GSx cluster installation process
- EonOne central management

Reduced Rack Space

- No I/O nodes or metadata servers required

Major OS Platform Compatibility

- Linux and Windows platforms for client hosts
- CIFS and NFS file-sharing protocols supported

Introduction

EonStor GSx SAS HDD storage is a high-performance solution facilitating parallel file access in IT environments requiring processing and storing sheer volumes of data. GSx cluster combines performance of multiple GSx appliances enabling enterprises to harness the benefits of faster data processing with multiple concurrent I/O paths. Designed with efficiency in mind, GSx simplifies IT architecture and eliminates the need for additional parallel file system software. With high capacity, high performance, and cost-effectiveness, EonStor GSx SAS HDD storage is ideally suited for demanding HPC and AI applications.

Maximized Performance with Parallel File Access

EonStor GSx delivers ultra-high performance by processing data in parallel from multiple GSx appliances, leveraging their combined performance. GSx evenly distributes data across GSx appliances in the cluster with the intelligent data allocation mechanism. To accelerate data access, GSx swiftly locates data paths and enables direct data access from the data-owning GSx appliances. This approach effectively reduces the time required for locating and accessing data compared to non-parallel file systems, such as scale-out NAS, where data access is facilitated from only a single appliance. Additionally, by employing block protocol for file transfer, GSx eliminates file protocol overhead, maximizing performance for demanding applications.

A single GSx SAS HDD appliance features 15GB/s read and 9.7GB/s write throughput. By combining the performance of multiple GSx appliances, a GSx SAS HDD cluster with 10 appliances can achieve nearly 10 times the performance of a single appliance, facilitating seamless parallel file access for demanding workloads.

High Scalability with Scale-out

With ever-expanding data, applications often require storage expansion to accommodate larger datasets and more complex computations. EonStor GSx ensures that data access performance and capacity scale as the system is expanded. As your application demands evolve, simply add more appliances to the cluster to scale out, achieving linear performance increase and expanded capacity. The scale-up feature facilitates capacity expansion, with each GSx SAS HDD storage appliance connecting to a JBOD expansion enclosure to add over 180 drives. Moreover, GSx supports a single namespace architecture allowing users to seamlessly access and manage data.

Easy Deployment and Management

EonStor GSx dramatically simplifies IT architecture and setup by integrating functions of I/O nodes and metadata servers directly into GSx appliances. Also, GSx supports client agents installed on client hosts to enable parallel file access, so the solution doesn't require using any additional parallel file system software. This approach simplifies the deployment of parallel file storage, offering organizations a straightforward solution of high-performance parallel file access storage for their I/O-intensive workloads. Additionally, special wizards facilitate GSx cluster deployment, guiding IT administrators through the entire system installation process.

EonOne, the web-based management software tool provided with the EonStor GSx parallel file storage system, is designed to easily set up configurations for increased productivity. Its intuitive interface simplifies the tasks of IT administrators, allowing them to effectively manage multiple GSx appliances, monitor performance and capacity usage, and configure GSx systems, all through a centralized platform.

Space-Saving Architecture

In a traditional parallel file system architecture, typically involving metadata servers and multiple I/O nodes, there is a significant demand for rack space in the data center. However, EonStor GSx offers a solution that allows enterprises to avoid the abovementioned hardware, addressing space constraints.

High Efficiency

EonStor GSx SAS HDD models support a flexible hybrid configuration, allowing SSDs and HDDs to coexist within a single appliance. These systems can utilize U.2 NVMe or SAS SSDs as cache for metadata and small files, and support SAS SSDs as a high-performance tier for frequently accessed data. HDDs provide cost-effective, high-capacity storage optimized for large-scale or sequential workloads. This hybrid architecture offers optimal data placement, improves system responsiveness, and helps reduce the total cost of ownership for applications combining high I/O operations and large data volumes.

Data Protection

EonStor GSx parallel file storage provides robust data protection mechanisms to safeguard against various risks. First, RAID 5/6 technology helps the system to run normally and ensures your data is fully protected even in the case of a drive failure. As an additional layer of protection against disasters such as hardware failures or catastrophic on-site events, you can replicate data to a remote location using the remote replication feature to enable effective disaster recovery measures.

Major Client Host OS Compatibility

EonStor GSx can work with client hosts running on major OS platforms. GSx ensures compatibility with Linux and Windows systems through client agents enabling parallel file access. Furthermore, GSx supports the most popular file-sharing protocols: NFS – for Linux-based systems and CIFS – for Windows environments.

PHYSICAL SPECIFICATIONS

Product Series			GSx 4000	GSx 5000
Form Factor	4U 60-bay		GSx 4060**R3** GSx 4060**R3C**	-
	4U 90-bay		GSx 4090**R3** GSx 4090**R3C**	GSx 5090**R** GSx 5090**RC**
	Note: R: Dual redundant controllers **C**: U.2 SSD cache			
Number of Appliances			1 to 10	
Controller			Dual redundant	
Cache Backup Technology			Super capacitor + flash module	
CPU			Intel® Xeon® D 6-Core	Intel® Xeon® Scalable 12-Core
Cache Memory			• 4U 60-bay: Default DDR4 24GB, up to 384GB • 4U 90-bay: Default DDR4 32GB, up to 384GB	Default DDR5 128GB, up to 1024GB
Supported Drives			• 2.5" 12Gb/s SAS 10,000 RPM HDD • 3.5" 12Gb/s NL-SAS 7,200 RPM HDD • 2.5" SAS SSD • 2.5" U.2 NVMe SSD (for U.2 SSD cache models; must be purchased from Infortrend)	
	Note: For the latest Compatibility Guide, refer to our official website.			
Max. Drive Number	Per Appliance		4U 60-bay: 150 4U 90-bay: 180	270
	Per Cluster		4U 60-bay: 1500 4U 90-bay: 1800	2700
Onboard SAS Expansion Ports			4	0
Max. Host Board Slots			4	4
Host Board Options			• 32Gb/s FC x4 • 25GbE (SFP28) x4, RDMA • 100GbE (QSFP28) x1, RDMA • 100GbE (QSFP56) x2, RDMA	• 32Gb/s FC x4 • 25GbE (SFP28) x2, RDMA • 25GbE (SFP28) x4, RDMA • 100GbE (QSFP28) x1, RDMA • 100GbE (QSFP56) x2, RDMA • 200GbE (QSFP56) x1, RDMA
	Note: 1. At least 24GB memory is required per controller to use RDMA. 2. It is strongly recommended that you refer to the latest Host Board and Memory Guide on our website for complete information, including supported combinations and important notes, before purchasing any host board for your model.			
Max. 32Gb/s FC Ports			16	16
Max. 25GbE Ports (SFP28)			16	16
Max. 100GbE Ports (QSFP28)			4	4
Max. 100GbE Ports (QSFP56)			8	8
Max. 200GbE Ports (QSFP56)			0	4
Expansion Enclosures (JBODs)			• 4U 60-bay: JB3060L, JB3090 • 4U 90-bay: JB3090	JB4090
Dimensions (Without Chassis Ears and Protrusions) (W x H x D)			• 4U 60-bay: 438 x 175.8 x 849.8 mm • 4U 90-bay: 435 x 175.8 x 1088.8 mm	435 x 175.8 x 1063 mm
Package Dimensions (W x H x D)			• 4U 60-bay: 630 x 477 x 1150 mm • 4U 90-bay: 620 x 585 x 1370 mm	
Power Supply Unit	Power Supplies (Redundant and Hot-swappable)	Global	• 4U 60-bay: 1200W x 2 (80 PLUS Platinum) • 4U 90-bay: 1600W x 2 (80 PLUS Titanium)	2700W x2 (80 PLUS Titanium)
		EU	• 4U 60-bay: 1300W x 2 (80 PLUS Titanium) • 4U 90-bay: 1600W x 2 (80 PLUS Titanium)	2700W x2 (80 PLUS Titanium)
	AC Voltage	Global	• 4U 60-bay: 100-127VAC @10A, 200-240VAC @8A • 4U 90-bay: 100-127VAC @12A, 200-240VAC @10A	200-240VAC @ 16.0-13.5A
		EU	• 4U 60-bay: 100-127VAC @12A, 200-240VAC @8.5A • 4U 90-bay: 100-127VAC @12A, 200-240VAC @10A	200-240VAC @ 16.0-13.5A
	Note: Please use 200-240VAC for the 4U 60-bay and 4U 90-bay models in both the global and EU versions.			
	Frequency		50-60 Hz	
Safety Standards			• Electromagnetic compatibility: CE, BSMI, FCC • Safety: UL, BSMI, CB	

SOFTWARE SPECIFICATIONS

File System	Infortrend Parallel File System	
Clients and Connectivity	GSx Client	Allows users and applications to connect over Ethernet or Fibre Channel to access
	Supported Client OS	Linux, Windows
	Client Connections	Leverages FC, iSCSI, iSER/RDMA
Max. Number of File Systems	64	
Max. iSCSI Initiators	416	
Max. Host Connection Number	256 (per FC)	
Max. File System Size	80PB	
Max. File Size	80PB	
Max. Number of User Accounts	20000	
Max. Number of User Groups	512	
Max. Number of Concurrent Connections	2048	
Management	• Web-based EonOne management software • Folder management - folder access control • User account management	• Quota management • Microsoft Active Directory (AD), Linux LDAP and NIS authentication • Group management • ACL control
Data Protection	• Disk protection: RAID 5, RAID 6	• Cluster protection: Rsync
Notification	• Email	• SNMP traps

DATA SERVICES

SSD Cache	File Level	Optional	Benefiting from the fast speed of SSDs, the metadata server can become more effective and efficient in handling data query requests from all clients.
	Block Level		Leverages the high speed and low latency of SSDs to deliver faster read performance when accessing vital data under high demand.

WARRANTY AND SERVICE

Service and Support	Standard Service	3-year limited hardware warranty and 8 x 5 phone, web, and email support (batteries are covered under warranty for 2 years)
	Upgrade or Extension Options	Warranty extension: Standard service can be extended up to 5 years. The following services can be upgraded to 5 years. • Upgrade: Replacement part dispatch on the next business day • Advanced service: Phone, web, and email support + onsite diagnostics on the next business day • Premium service: Phone, web, and email support + onsite diagnostics within 4 hours
		Note: Options may vary by region. For more details, please contact our sales representatives.
	Technical Support	Get information on system installation and maintenance, download technical documents and software, or issue a support ticket
	Product Services	Register products, download firmware, apply for licensing services, create product repair tickets, or check product repair status

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