Infortrend®

Explore EonStor GS

EonStor GS SAS HDD Storage

Scale-out High Availability Unified Storage for Enterprises

Highlights

High Performance and Scalability

- Massive sequential throughput of up to 45GB/s read and 20GB/s write per appliance
- Scale-out and scale-up expansions, providing more than 70PB in a single GS cluster

Easy to Use and Manage

- Single namespace for easier data access
- Auto-balancing to reduce the burden of storage management for IT staff

High-Density Design

- Reduce hardware footprint with 4U 40/60/90-bay models

Lower Total Cost of Ownership

- Save budgets by using only a few SAS/U.2 NVMe SSDs for cache to reach near all-flash system performance, in both SAN and NAS environments

Nondisruptive Operations

- HA service ensures non-stop operations with a near-zero RTO (recovery time objective) by deploying two storage devices to provide services from two separate sites.

Introduction

EonStor GS SAS HDD storage series is a unified storage solution for enterprises of all sizes in various applications. Supporting hybrid environments that integrate SAN, NAS, and cloud services, this series includes a wide range of models ready to meet different needs, from performance-hungry applications, general enterprise workloads, to storage solutions requiring a high-density hardware design. With its high performance, flexibility, and scalability, EonStor GS can help organizations boost overall productivity and efficiency.

High Performance

EonStor GS delivers exceptional throughput, ensuring seamless handling of large I/O operations and file transfers, even under heavy workloads. The GS 5000 series, featuring high-speed 200GbE RDMA and SAS 24G expansion interface, delivers an outstanding performance of up to 45GB/s read and 20GB/s write throughput. This makes it ideal for applications that demand rapid access to large volumes of data.

Flexible Scalability with Scale-out and Scale-up

Through the scale-out expansion, you can linearly increase performance and capacity for both block-level and file-level data. When one GS unit is no longer able to provide enough performance or capacity, you can simply add more GS appliances to form a cluster—with a maximum of 4 GS units.

Through scale-up expansion, each GS unit can be connected to JBOD expansion enclosures, accommodating over 800 drives and providing more than 18PB of storage capacity. Together with scale-out expansion, GS supports more than 3000 drives with over 70PB storage capacity.

Easy Data Access and Simple IT Management

Users can access shared folders in a single root directory under a single namespace, without having to worry about where the data is stored. Auto-balancing is also supported to achieve load balancing, which relieves the burden of manual planning and configuration for IT personnel.

High-Density Design

Enterprises with limited rack space can still get a powerful and high capacity storage solution. Leveraging the high-density 4U 40, 60, or 90-bay models, you can easily achieve your workload requirements with a reduced hardware footprint.

Storage Efficiency with Better TCO

EonStor GS supports SSD cache, which leverages the high speed and low latency of SSDs to deliver faster performance for frequently accessed data. By using only a few SSDs on an HDD-based appliance, SSD cache can help meet enterprises' requirements for both high I/O loads and large storage capacity at a reduced total cost of ownership (TCO). This feature brings advantages to read-intensive SAN environments, such as online transaction processing (OLTP) and email service (e.g. Microsoft Exchange). It also enhances read and write performance for NAS and improves user experience with file operation when a large number of files are stored on a GS unit.

In addition, EonStor GS comes with inline compression and offline deduplication, which reduces the storage capacity required and thus saves further storage costs. The inline compression feature compresses raw files in real-time, which greatly reduces the data size and the transfer time. To deal with repeated files saved by manual backups or archiving, offline deduplication helps you automatically remove duplicate data from an appliance or a cluster to free up storage space.

Complete Data Protection and Backup

EonStor GS offers various data protection mechanisms to guarantee data safety. First, Infortrend's unique RAID technology ensures your data remains intact even in case of a drive failure. With snapshot, a flexible backup tool, you can back up local resources on a storage system by schedule, including volumes and shared folders, and roll back to a previous version when needed. For further protection, you can back up data to a remote GS appliance using the remote replication feature, or to a public cloud with EonCloud Gateway.

Immutable object storage, another crucial feature for data protection, safeguards data against ransomware attacks. It retains data with WORM (write once read many) storage protection, where data gets "locked" and therefore cannot be modified, deleted, overwritten, or even encrypted by ransomware. By setting a retention period, you can easily follow government compliance requirements or company policies on data retention.

For companies requiring an easy-to-use and reliable storage solution for file backup, EonStor GS can be utilized as a backup appliance, allowing you to leverage its backup server function to back up data from PC, file servers, and public cloud through a GUI interface. Additionally, you can set options such as a backup schedule and a retention period to best fit your needs.

New Level of High Availability

From power supplies, cooling fans, to controllers, the EonStor GS appliance is built in a modular, redundant, and hot-swappable hardware design, which reduces maintenance complexity and ensures uninterrupted services, whether during a regular system upgrade or even in an unplanned maintenance event due to a component failure.

In addition, EonStor GS offers HA service to deliver continuous availability with a near-zero RTO (recovery time objective) and a zero RPO (recovery point objective). With two storage devices deployed at near sites, the HA service provides block-level active-active storage and file-level active-passive storage for business-critical applications that have an extremely low tolerance for downtime. Featuring synchronous remote replication and auto-failover, this solution ensures identical and complete copies of data are stored on both storage devices and avoids service downtime due to planned or unexpected events. Auto-failback is available in block-level HA service, allowing a storage device to resume services without switching manually.

Intuitive Management Software

EonStor GS adopts EonOne, a web-based management software tool, to assist customers in raising storage and service efficiency for increased productivity. With its intuitive interface design, IT administrators can easily manage a cluster and multiple appliances, monitor performance and capacity usage, and complete system configurations, all from one centralized interface.

PHYSICAL SPECIFICATIONS

Product Series			GS 1000 G3	GS 2000	GS 3000 G3	GS 4000 G3	GS 5000
Form Factor	2U 12-bay		GS 1012**R3C/S3C**	GS 2012**R/S** GS 2012**RT/ST**	GS 3012**R3/S3**	GS 4012**R3/S3**	-
	3U 16-bay		GS 1016**R3C/S3C**	GS 2016**R/S** GS 2016**RT/ST**	GS 3016**R3/S3**	GS 4016**R3/S3**	-
	4U 24-bay		GS 1024**R3C/S3C**	GS 2024**R/S** GS 2024**RT/ST**	GS 3024**R3/S3**	GS 4024**R3/S3**	-
	4U 40-bay		-	-	GS 3040**RT3/ST3** GS 3040**RT3C/ST3C**	GS 4040**R3/S3** GS 4040**R3C/S3C**	-
	4U 60-bay		-	-	GS 3060**RT3/ST3** GS 3060**RT3C/ST3C**	GS 4060**R3/S3** GS 4060**R3C/S3C**	-
	4U 90-bay		-	-	GS 3090**RT3/ST3** GS 3090**RT3C/ST3C**	GS 4090**R3/S3** GS 4090**R3C/S3C**	GS 5090**R/S** GS 5090**RC/SC**
			Note: R: Dual redundant controllers **S**: Single upgradable to dual redundant controllers **3**: G3 **T**: High performance **C**: Super capacitor (GS1000 G3) **C**: U.2 SSD cache (GS5000, GS4000/3000 G3)				
Controller			Dual redundant or single upgradable to dual redundant				
Cache Backup Technology			Super capacitor + flash module				
CPU			Intel® Pentium® 2-Core	Intel® Pentium® 2-Core Intel® Pentium® 4-Core (for **T** models)	Intel® Xeon® D 4-Core	Intel® Xeon® D 6-Core	Intel® Xeon® Scalable 12-Core
Cache Memory	Single Controller		Default DDR4 8GB, up to 64GB		• 2U 12-bay/3U 16-bay/4U 24-bay: Default DDR4 8GB, up to 192GB • 4U 40-bay/60-bay: Default DDR4 12GB, up to 192GB • 4U 90-bay: Default DDR4 16GB, up to 192GB		Default DDR5 64GB, up to 512GB
	Redundant Controllers		Default DDR4 16GB, up to 128GB		• 2U 12-bay/3U 16-bay/4U 24-bay: Default DDR4 16GB, up to 384GB • 4U 40-bay/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" SAS SSD • 2.5" 12Gb/s SAS 10,000 RPM HDD • 3.5" 12Gb/s NL-SAS 7,200 RPM HDD • 2.5" SATA SSD, 3.5" 6Gb/s SATA 7,200 RPM HDD (for single-controller models only) • 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	Via Expansion Enclosures, per Appliance		448	896	896	896	896
	Via Scale-out with Other Series of Appliances, per Cluster		3136	3584	3584	3584	3584
Max. SSD Cache Pool (Block Level)			2TB	3.2TB	4TB	4TB	4TB
Onboard 1GbE Ports (RJ45)			0	8	0	0	0
Onboard 25GbE Ports (SFP28)			0	0	4	0	0
			Note: All the ports must be set to the same channel type (block-level or file-level).				
Onboard 12Gb/s SAS Expansion Ports			2	2	4	4	0
Onboard 24Gb/s SAS Expansion Ports			0	0	0	0	4
Host Board Slots			2	4	4	4	4
Host Board Options			• 16Gb/s FC x 4 • 32Gb/s FC x 2 • 32Gb/s FC x 4 • 1GbE (RJ45) x 4 • 10GbE (SFP+) x 2 • 25GbE (SFP28) x 2, RDMA • 12Gb/s SAS x 2	• 16Gb/s FC x 4 • 32Gb/s FC x 2 • 32Gb/s FC x 4 • 1GbE (RJ45) x 4 • 10GbE (SFP+) x 2 • 25GbE (SFP28) x 2 • 12Gb/s SAS x 2	• 16Gb/s FC x 4 • 32Gb/s FC x 2 • 32Gb/s FC x 4 • 10GbE (SFP+) x 2 • 25GbE (SFP28) x 2, RDMA • 25GbE (SFP28) x 4, RDMA • 100GbE (QSFP28) x 1, RDMA • 100GbE (QSFP56) x 2, RDMA • 12Gb/s SAS x 2	• 32Gb/s FC x 4 • 25GbE (SFP28) x 2, RDMA • 25GbE (SFP28) x 4, RDMA • 100GbE (QSFP28) x 1, RDMA • 100GbE (QSFP56) x 2, RDMA • 200GbE (QSFP56) x 1, RDMA • 12Gb/s SAS x 2
			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. 16Gb/s FC Ports			8	16	16	16	0
Max. 32Gb/s FC Ports			8	16	16	16	16
Max. 1GbE Ports (RJ45)			8	24	0	0	0
Max. 10GbE Ports (SFP+)			4	8	8	8	0
Max. 25GbE Ports (SFP28)			4	8	20	16	16
Max. 100GbE Ports (QSFP28)			0	0	4	4	4
Max. 100GbE Ports (QSFP56)			0	0	8	8	8
Max. 200GbE Ports (QSFP56)			0	0	0	0	4
Max. 12Gb/s SAS Ports			6	10	12	12	8
Max. 24Gb/s SAS Ports			0	0	0	0	4
Expansion Enclosures (JBODs)			JB 3012**A**, JB 3016**A**, JB 3024**BA**, JB 3025**BA**, JB 3060**L**, JB 3090, JB 4090				
Dimensions (Without Chassis Ears and Protrusions) (W x H x D)			• 2U 12-bay: 449 x 88 x 500 mm • 3U 16-bay: 449 x 130 x 500 mm • 4U 24-bay: 449 x 174.4 x 500 mm		• 2U 12-bay: 449 x 88 x 509.8 mm • 3U 16-bay: 449 x 130 x 509.8 mm • 4U 24-bay: 449 x 174.6 x 509.8 mm • 4U 40-bay: 438 x 176 x 735.8 mm • 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 (Incl. Pallet for 4U 40/60/90-bay Models) (W x H x D)			• 2U 12-bay: 588 x 239 x 780 mm • 4U 40-bay: 620 x 485 x 1000 mm		• 3U 16-bay: 588 x 283 x 780 mm • 4U 60-bay: 630 x 477 x 1150 mm		• 4U 24-bay: 588 x 325 x 780 mm • 4U 90-bay: 620 x 585 x 1370 mm
Power Supply Unit	Power Supplies (Redundant and Hot-swappable)	Global	460W x 2 (80 PLUS Bronze)		• 2U 12-bay/3U 16-bay/4U 24-bay: 530W x 2 (80 PLUS Bronze) • 4U 40-bay/60-bay: 1200W x 2 (80 PLUS Platinum) • 4U 90-bay: 1600W x 2 (80 PLUS Titanium)		2700W x2 (80 PLUS Titanium)
		EU	• 2U 12-bay/3U 16-bay/4U 24-bay: 800W x 2 (80 PLUS Titanium) • 4U 40-bay/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	• 2U 12-bay/3U 16-bay/4U 24-bay: 100-240VAC @10-5A • 4U 40-bay/60-bay: 100-127VAC @10A, 200-240VAC @8A			• 4U 90-bay: 100-127VAC @12A, 200-240VAC @10A	200-240VAC @16.0-13.5A
		EU	• 2U 12-bay/3U 16-bay/4U 24-bay: 100-127VAC @10A, 200-240VAC @5A • 4U 40-bay/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 40-bay, 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

Max. Logical Drive Number		30
Max. Logical Drive Capacity		512TB
Stripe Size		16KB, 32KB, 64KB, 128KB, 256KB, 512KB, 1024KB (per logical drive)
Write Policy		Write-back or write-through (per logical drive)
Max. Pool Size		2PB
Max. Pool Number		30
Max. Volume Size		2PB
Max. Volume Number		1024
Max. Host LUN Mapping Number		4096
Max. Reserved Tag Number		256 (per Host-LUN connection)
Max. iSCSI Initiators		416 (per controller)
Max. Host Connection Number		128 (per FC)
RAID Options		RAID 0, RAID 1, RAID 3, RAID 5/5F, RAID 6/6F, RAID 10, RAID 30, RAID 50, RAID 60
Supported Protocols	File Level	CIFS/SMB (version 2.0/3.0), NFS (version 2/3/4), AFP (version 3.1.12), FTP/FXP (vsftp 2.3.4), WebDAV (httpd package 2.4.6)
	Block Level	FC, iSCSI, SAS, NVMe/TCP, NVMe/RDMA
		Note: NVMe/RDMA is supported only on host channels with RDMA functionality.
	Object Level	RESTful API (Amazon S3-compatible API)
	GPUDirect Storage (GDS)	Supported on NFS over RDMA (File) environments for direct GPU memory access.
File Level	Max. File System Size	2PB
	Max. Number of Local Users	20000
	Max. Number of Local Groups	512
	Max. Number of Domain Users and Groups	The number depends on the memory capacity of a single controller and the system configuration. • 8/12GB: 50,000 • 16/24GB: 100,000 • 32/48GB: 200,000 • 64GB: 400,000 • 96GB and up: 500,000
		Note: The number of **R** models does not double.
	Max. Number of Shared Folders	• **S** models: 1024 (NFS/CIFS/FTP) | 255 (AFP) • **R** models: 2048 (NFS/CIFS/FTP) | 255 (AFP)
	Max. Number of Rsync Jobs	1024
	Max. Number of Concurrent Rsync Processes	64
	Max. Number of Connections	2048 (NFS/CIFS/AFP) | 1024 (FTP)
Management		• Web-based EonOne management software • User account management • Group management • Folder management - folder access control • Quota management • Folder encryption with AES • Integration with Microsoft Active Directory (AD) and Linux LDAP • Storage Resource Management to analyze history of resource usage • Multi-factor authentication login mechanism • File-level QoS (network traffic control) • SMI-S standard interface for hypervisor management applications • Command-line interface (CLI)
Availability and Reliability		• Immutable object storage • Hot-swappable hardware modules • Device mapper • Antivirus • Trunk group • Cache safe technology • UPS • WORM (file level only) • SMB Multichannel
Efficiency		• Block level: Offline compression, offline deduplication • File level: Inline compression, offline deduplication
Notification		• Email • SNMP traps
Applications		• Anti-virus • Backup Server • Docker • LDAP Server • Mail Server • Nextcloud • Project Server • Proxy Server • Syslog Server • VPN Server • Web Server
Supported Cloud Services		EonCloud Gateway supports integration with the following cloud providers: Amazon S3, Microsoft Azure, Alibaba Cloud, OpenStack, Baidu Cloud, Google Cloud, Tencent Cloud, Wasabi Cloud, etc.
		Note: For complete information about supported cloud providers, please refer to EonCloud Gateway webpage **https://www.infortrend.com/global/solutions/eoncloud**
Supported OS		Microsoft Windows Server, Red Hat Enterprise Linux, SUSE Linux Enterprise, Sun Solaris, MacOS X, VMware, Citrix XenServer, OpenStack Cinder
		Note: For supported OS versions, please refer to the Compatibility Guide.

DATA SERVICES

Thin Provisioning		Block Level	Default	"Just-in-time" capacity allocation optimizes storage utilization and eliminates allocated but unused storage space.	
Local Replication	Snapshot	Folder-based	Optional	Snapshot images per folder: 1024 (supported on Btrfs file system only)	
		Volume-based	Default	Snapshot images per source volume: 64	Snapshot images per system: 128
			Optional	Snapshot images per source volume: 256	Snapshot images per system: 4096
	Volume Copy/Mirror		Default	Replication pairs per source volume: 4	Replication pairs per system: 16
			Optional	Replication pairs per source volume: 8	Replication pairs per system: 256
Remote Replication		File Level	Default	Support Rsync with 128-bit SSH encryption	
		Block Level	Optional	Replication pairs per source volume: 8	Replication pairs per system: 64
				Note: The maximum number of replication pairs per source volume is 8, whether they are remote asynchronous pairs, remote synchronous pairs, or local volume pairs	
Automated Storage Tiering			Optional	Storage tiers per pool: 4	
Scale-out		File Level	Default	Appliances per cluster: 1	
			Optional	Appliances per cluster: 4	
		Block Level	Default	Appliances per cluster: 4	
HA Service		File Level	Optional	Delivering continuous availability and eliminating downtime for mission-critical workloads that require non-stop operations	
		Block Level		**Note:** HA service is available on GS 5000 and GS 4000/3000 **G3** only.	
SSD Cache		File Level	Optional	Accelerating file operations and data access performance for both read and write Max. SSD number: 8	
		Block Level	Optional	Accelerating data access in random read-intensive environments (e.g. OLTP) Max. SSD number: 4	
				Recommended DIMM capacity per controller for SSD cache pool for GS 2000 and GS 1000 G3	
				DRAM : 8GB	Max SSD cache pool size : 0.4TB
				DRAM : 16GB	Max SSD cache pool size : 0.6TB
				DRAM : 32GB	Max SSD cache pool size : 1TB
				DRAM : 64GB	Max SSD cache pool size : 1.6TB
				DRAM : 128GB and up	Max SSD cache pool size : 3.2TB
				Recommended DIMM capacity per controller for SSD cache pool for GS 5000 and GS 4000/3000 G3	
				DRAM : 8GB	Max SSD cache pool size : 0.5TB
				DRAM : 12GB	Max SSD cache pool size : 0.75TB
				DRAM : 16GB	Max SSD cache pool size : 1TB
				DRAM : 24GB	Max SSD cache pool size : 1.5TB
				DRAM : 32GB	Max SSD cache pool size : 2TB
				DRAM : 48GB	Max SSD cache pool size : 3TB
				DRAM : 64GB and up	Max SSD cache pool size : 4TB

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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