EonStor GS SAS HDD Storage

Scale-out High Availability
Unified Storage for Enterprises

Highlights

High Performance and Scalability

- Massive sequential throughput of up to 16GB/s read and 12GB/s write per appliance
- Scale-out and scale-up expansions, providing more than 50PB 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-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 provides high throughput to handle large amounts of I/O and file transfers, even under heavy workloads. The G3 models, which feature high-speed transmission interfaces and protocols, deliver up to 16Gb/s read and 12Gb/s write in throughput on a single appliance.

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 to add up to 896 drives. Together with scale-out expansion, GS supports more than 3000 drives with over 50PB 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-bay or 60-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.

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 a block-level active-active storage solution for business-critical applications that have an extremely low tolerance for downtime. Featuring synchronous remote replication, auto-failover and failback, 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.

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 3000 G3	GS 4000 G3
Form Factor	2U 12-bay	GS 3012**R3/S3**	GS 4012**R3/S3**
	3U 16-bay	GS 3016**R3/S3**	GS 4016**R3/S3**
	4U 24-bay	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**
		Note: **S**: Single controller, upgradable to dual redundant controllers **R**: Dual redundant controllers **3**: G3 **T**: High performance **C**: U.2 SSD cache	
Controller		Dual redundant or single upgradable to dual redundant	
Cache Backup Technology		Super capacitor + flash module	
CPU		Intel® Xeon® D 4-Core	Intel® Xeon® D 6-Core
Cache Memory	Single Controller	2U 12-bay/3U 16-bay/4U 24-bay: Default DDR4 8GB Expandable up to 192GB 4U 40-bay/60-bay: Default DDR4 12GB Expandable up to 192GB	
	Redundant Controller	2U 12-bay/3U 16-bay/4U 24-bay: Default DDR4 16GB Expandable up to 384GB 4U 40-bay/60-bay: Default DDR4 24GB Expandable up to 384GB	
Supported Drives		2.5" SAS SSD 2.5" 12Gb/s SAS 10,000 RPM and 15,000 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 upgradable to dual controller model only) Bundled 2.5" U.2 NVMe SSD for U.2 SSD cache models	
		Note: For the latest compatibility details, refer to our official website for the latest Compatibility Matrix.	
Max. Drive Number	via expansion enclosure, per appliance	896	
	via scale-out with other series of appliances, per cluster	3584	
Max. SSD Cache Pool (Block-level)		4TB	
Onboard 25GbE Ports (SFP28)		4	-
Onboard SAS Expansion Ports		2	
Max. Host Board Slots		4	
Host Board Options		16Gb/s FC x 4 32Gb/s FC x 2 32Gb/s FC x 4 10GbE (SFP+) x 2 25GbE (SFP28) x 2 12Gb/s SAS x 2	
		Note: For complete information, refer to our official website for the latest Host Board and Memory Guide.	
Max. 16Gb/s FC Ports		16	
Max. 32Gb/s FC Ports		16	
Max. 25GbE Ports (SFP28)		12	8
Max. 12Gb/s SAS Ports		8	
Expansion Enclosures (JBODs)		2U 12-bay: JB 3012A, JB 3016A, JB 3060L 3U 16-bay: JB 3016A, JB 3060L 4U 24-bay/40-bay/60-bay: JB 3060L	
Dimensions (Without Chassis Ears and Protrusions) (W x H x D)		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: 443.2 x 176 x 735.8 mm 4U 60-bay: 443.2 x 176 x 849.8 mm	
Package Dimensions (W x H x D)		2U 12-bay: 780 x 379 x 588 mm 3U 16-bay: 780 x 423 x 588 mm 4U 24-bay: 780 x 465 x 588 mm 4U 40-bay: 625 x 460 x 1032 mm 4U 60-bay: 620 x 460 x 1140 mm	
Power Supply Unit	Power Supplies (Redundant and Hot-swappable)	2U 12-bay/3U 16-bay/4U 24-bay: 530W x 2 (80 PLUS Bronze, 80 PLUS Gold for EU) 4U 40-bay/60-bay: 1200W x 2 (80 PLUS Platinum)	
	AC Voltage	2U 12-bay/3U 16-bay/4U 24-bay: 100VAC @10A to 240VAC @5A 4U 40-bay/60-bay: 100-127VAC @10A, 200-240VAC @8A	
	Frequency	50-60 Hz	
Safety Standards		• Electromagnetic Compatibility: CE, BSMI, FCC • Safety: UL, BSMI, CB	

PHYSICAL SPECIFICATIONS

Product Series		GS 1000 Gen2	GS 2000	GS 3000 Gen2	GS 4000 Gen2
Form Factor	2U 12-bay	GS 1012**R2C/S2C**	GS 2012**R/S** GS 2012**RT/ST**	GS 3012**R2C/S2C**	GS 4012**R2C/S2C**
	3U 16-bay	GS 1016**R2C/S2C**	GS 2016**R/S** GS 2016**RT/ST**	GS 3016**R2C/S2C**	GS 4016**R2C/S2C**
	4U 24-bay	GS 1024**R2C/S2C**	GS 2024**R/S** GS 2024**RT/ST**	GS 3024**R2C/S2C**	GS 4024**R2C/S2C**
		Note: **S**: Single, upgradable to dual redundant controllers **R**: Dual redundant controllers **2**: Gen2 **T**: High performance **C**: Super capacitor			
Controller		Dual redundant or single upgradable to dual redundant			
Cache Backup Technology		Super capacitor + flash module			
CPU		Intel® Atom® 4 Core	Intel® Pentium® 2 or 4 core	Intel® Xeon® D 4 Core	Intel® Xeon® D 8 Core
Cache Memory	Single Controller	Default DDR3 8GB Expandable up to 16GB	Default DDR4 8GB Expandable up to 64GB	Default DDR4 8GB, Expandable up to 256GB	
	Redundant Controller	Default DDR3 16GB Expandable up to 32GB	Default DDR4 16GB Expandable up to 128GB	Default DDR4 16GB, Expandable up to 512GB	
Supported Drives		2.5" SAS SSD 2.5" 12Gb/s SAS 10,000 RPM and 15,000 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 (dual controller model excluded)			
		Note: For the latest compatibility details, refer to our official website for the latest Compatibility Matrix.			
Max. Drive Number	via expansion enclosure, per appliance	448	896	896	896
	via scale-out with other series of appliances, per cluster	3136	3584	3584	3584
Max. SSD Cache Pool (Block-level)		1TB	3.2TB	4TB	4TB
Onboard SAS Expansion Ports		2	2	4	4
Onboard 1GbE Ports		8	8	0	0
Onboard 10GbE Ports (SFP+)		0	0	8	8
Max. Host Board Slots		2	4	4	4
Max. Expansion Boards (12Gb/s SAS x 2)		0	2	2	2
Host Board Options		16Gb/s FC x 4 32Gb/s FC x 2 1GbE (RJ-45) 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 12Gb/s SAS x 2		
		Note: For complete information, refer to our official website for the latest Host Board and Memory Guide.			
Max. 16Gb/s FC Ports		8	16	16	16
Max. 32Gb/s FC Ports		4	8	16	16
Max. 1GbE Ports		16	24	0	0
Max. 10GbE Ports (SFP+)		4	8	16	16
Max. 25GbE Ports (SFP28)		4	8	8	8
Max. 12Gb/s SAS Ports		6	10	12	12
Expansion Enclosures (JBODs)		JB 3012A, JB 3016A, JB 3024BA, JB 3025BA, JB 3060L		JB 3012A, JB 3016A, JB 3025BA, JB 3060L	
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			
Package Dimensions (W x H x D)		2U 12-bay: 780 x 379 x 588 mm 3U 16-bay: 780 x 423 x 588 mm 4U 24-bay: 780 x 465 x 588 mm			
Power Supply Unit	Power Supplies (Redundant and Hot-swappable)	460W x 2 (80 PLUS Bronze)		530W x 2 (80 PLUS Bronze)	
	AC Voltage	100VAC @8A to 240VAC @4A		100VAC @10A to 240VAC @5A	
	Frequency	50-60 Hz		47-63 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, or 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 (per Host-LUN Connection)		256
Max. iSCSI Initiators (per Controller)		416
Max. Host Connection Number (per FC)		128
RAID Options		RAID 0, RAID 1, RAID 3, RAID 5, RAID 6, 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
	Object Level	RESTful API
File Level	Max. File System Size	2PB
	Max. Number of User Accounts	20000
	Max. Number of User Groups	512
	Max. Number of Shared Folder	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		• SMI-S standard interface for hypervisor management applications • Muti-factor authentication login mechanism • 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
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		• Inline compression • Offline deduplication
Notification		• Email • SNMP traps
Applications		• Web-based file explorer • Syslog server • LDAP server • Proxy server • VPN server • Docker
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 cloud provides support, please refer to EonCloud Gateway webpage https://www.infortrend.com/global/solutions/eoncloud
Supported OS		Microsoft Windows Server, Red Hat Enterprise Linux, Mac OS X, VMware. Note: For the latest compatibility details, refer to our official website for the latest Compatibility Matrix.

DATA SERVICES

Thin Provisioning		Block level	Default	"Just-in-time" capacity allocation optimizes storage utilization and eliminates allocated but unused storage space.	
File Snapshot			Optional	Snapshot images per folder: 1024	
Local Replication	Snapshot	Block level	Default	Snapshot images per source volume: 64	Snapshot images per pool: 128
			Optional	Snapshot images per source volume: 256	Snapshot images per pool: 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	Rsync with 128-bit SSH encryption	
		Block level	Optional	Replication pairs per source volume: 8	Replication pairs per system: 64
				Note: 1. The maximum number of replication pairs per source volume is 8, whether they are remote asynchronous pairs, remote synchronous pairs, or local volume pairs. 2. 16Gb FC x 4, 32Gb FC x 2, and 32Gb FC x 4 host boards do not support Remote Replication.	
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		Block level	Optional	Delivering continuous availability and eliminating downtime for mission-critical workloads that require non-stop operations	
				Note: HA service is available on GS 3000 Gen2/G3 and GS 4000 Gen2/G3 only.	
SSD Cache		File level	Optional	Accelerating file operations and data access performance for both read and write Max. SSD number per controller: 8	
		Block level	Optional	Accelerating data access in random read-intensive environments (e.g. OLTP) Max. SSD number per controller: 4	
				Recommended DIMM capacity per controller for SSD Cache pool for GS 1000 Gen2, GS 2000	
				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: 1.0TB
				DRAM: 64GB	Max SSD Cache Pool Size: 1.6TB
				DRAM: 128GB	Max SSD Cache Pool Size: 3.2TB
				Recommended DIMM capacity for SSD Cache pool for GS 3000 Gen2 / G3, GS 4000 Gen2 / 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: 1.0TB
				DRAM: 24GB	Max SSD Cache Pool Size: 1.5TB
				DRAM: 32GB	Max SSD Cache Pool Size: 2.0TB
				DRAM: 48GB	Max SSD Cache Pool Size: 3.0TB
				DRAM: 64GB and up	Max SSD Cache Pool Size: 4.0TB

WARRANTY AND SERVICE

Service and Support	Standard Service	3-year limited hardware warranty and 8x5 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 service can be upgraded to 5 years. • Upgrade: Replacement part dispatch on the next business day • Advanced service: 24x7 phone, web, and email support + onsite diagnostics on the next business day • Premium service: 24x7 phone, web, and email support + onsite diagnostics in 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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