Infortrend®

Explore EonStor GS

EonStor GS U.2 NVMe Hybrid Flash Storage

Scale-out Unified Storage with High Availability for Enterprises

Highlights

Extreme Performance

- Massive sequential throughput of up to 125GB/s
- Up to 2.4M end-to-end IOPS to accelerate storage operations

Cost-Effective Storage

- U.2 NVMe SSD to deliver better performance at lower costs
- QLC SSD support for higher capacity at reduced costs
- Automated storage tiering to fully utilize SSD and HDD

Flexible Scalability

- Scale-out and scale-up expansions to easily expand performance and capacity to more than 70PB

Easy to Use and Manage

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

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 U.2 NVMe hybrid flash storage is a high performance storage solution for enterprises. Equipped with U.2 NVMe SSD, it provides higher IOPS and throughput and is more cost-effective. GS U.2 is a unified storage that supports both SAN and NAS services. With block-level and file-level scale-out support, it can linearly increase performance and capacity. Complete data protection allows IT staff to focus on higher value projects. It is a perfect fit for such applications as AI, HPC, M&E, virtualization, and database.

End-to-End High Performance with U.2 NVMe SSD

The most high-end model, GS 5000U, features 200GbE connectivity with RDMA and NVMe over Fabrics (NVMe-oF), achieving up to 125GB/s read throughput and 2.4M IOPS on a single appliance.

Cost-Effectiveness and High Storage Efficiency

U.2 NVMe SSD is becoming mainstream in the market as it combines the advantages of SAS and SATA SSDs, allowing enterprises to enjoy higher performance at a competitive price.

With significant improvement in performance and durability in recent years, quad-level cell (QLC) SSDs have become a compelling option for applications requiring high capacity and flash-level performance. QLC SSDs offer 33% more storage capacity per cell compared to triple-level cell (TLC) SSDs, all while costing less. EonStor GS U.2 NVMe storage supports QLC SSDs to provide greater flexibility, catering to a wide range of enterprise applications and requirements.

EonStor GS U.2 NVMe storage supports hybrid storage, and with automated storage tiering, the storage system can automatically leverage the high throughput and low latency of U.2 NVMe SSDs for frequently accessed data, while using HDDs on expansion enclosures as data backup media, thereby boosting system performance at a reduced total cost of ownership.

The storage solution also comes with data compression and offline deduplication, which reduces the storage capacity required and thus saves storage costs. The compression feature 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.

Flexible Scalability with Scale-out and Scale-up

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

Through scale-up expansion, each storage appliance can be connected to JBOD expansion enclosures to add up to 896 drives. Together with scale-out expansion, EonStor GS U.2 NVMe storage supports more than 3000 drives in total.

Easy Data Access for Users 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.

Smart Management of SSD

EonStor GS U.2 NVMe storage uses an intelligent algorithm to handle data writes and optimize SSD usage. The algorithm not only extends SSD lifespan by reducing the total amount of writes on an SSD but also prevents multiple SSDs from failing at the time and causing data loss. Moreover, as EonStor GS U.2 NVMe storage monitors SSD status in real time, it estimates the remaining lifespan of each SSD and sends the administrator a reminder to replace the SSD that is about to fail.

Complete Data Protection and Backup

EonStor GS U.2 NVMe 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 U.2 NVMe storage 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, controllers, to host boards, the modular design of all these hardware components lowers maintenance complexity and provides fast, precise technical support and RMA services, keeping EonStor GS U.2 NVMe storage safe from any downtime to maintain nonstop services, increase productivity, and enhance competitiveness.

In addition, EonStor GS U.2 NVMe storage 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

GS U.2 NVMe storage 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 2000U	GS 3000U	GS 3000UT	GS 4000U
Form Factor	2U 24-bay		GS 2024**UR**	GS 3024**UR**	GS 3024**URT**	GS 4024**UR**
	4U 48-bay		-	-	GS 3048**URT**	GS 4048**UR**
			Note: U: NVMe storage **R**: Dual redundant controllers **T:** High performance			
Controller			Dual redundant			
Cache Backup Technology			Super capacitor + flash module			
CPU			Intel® Xeon® D 2-Core	Intel® Xeon® D 4-Core	Intel® Xeon® D 4-Core	Intel® Xeon® D 6-Core
Cache Memory			Default DDR4 16GB, up to 128GB		Default DDR4 48GB, up to 384GB	
Supported Drives			2.5” U.2 NVMe SSD (must be purchased from Infortrend)			
Max. Drive Number	Via Expansion Enclosures, per Appliance		896		U.2 NVMe JBOF: 96 HDD/SSD JBOD: 896	
	Via Scale-out with Other Series of Appliances, per Cluster		3584		U.2 NVMe JBOF: 384 HDD/SSD JBOD: 3584	
Max. SSD Cache Pool (Block Level)			4TB			
Onboard 10GbE Ports (SFP+)			0	4	0	0
Onboard 25GbE Ports (SFP28)			0	0	4	0
			Note: All the ports must be set to the same channel type (block-level or file-level).			
Onboard JBOF Expansion Ports			GS 3024**URT**: 4, GS 4024**UR**: 4			
Host Board Slots			4	4	4	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, RDMA • 25GbE (SFP28) x 4, RDMA • 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	
			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			16	16	16	16
Max. 32Gb/s FC Ports			16	16	16	16
Max. 10GbE Ports (SFP+)			8	12	8	8
Max. 25GbE Ports (SFP28)			16	16	20	16
Max. 100GbE Ports (QSFP28)			0	0	4	4
Max. 100GbE Ports (QSFP56)			0	0	8	8
Max. 12Gb/s SAS Ports			8	8	8	8
Expansion Enclosures			JB 4024**U**, JB 3012**A**, JB 3016**A**, JB 3024**BA**, JB 3025**BA**, JB 3060**L**, JB 3090			
			Note: JB 4024**U** is supported only for GS 3024**URT** and GS 4024**UR**			
Dimensions (Without Chassis Ears and Protrusions) (W x H x D)			449 x 88 x 500 mm		• 2U 24-bay: 449 x 88 x 530 mm • 4U 48-bay: 449 x 176 x 530 mm	
Package Dimensions (W x H x D)			• 2U 24-bay: 588 x 239 x 780 mm • 4U 48-bay: 588 x 423 x 780 mm			
Power Supply Unit	Power Supplies (Redundant and Hot-swappable)	Global	• 2U 24-bay: 530W x 2 (80 PLUS Bronze) • 4U 48-bay: 1300W x 2 (80 PLUS Titanium)			
		EU	• 2U 24-bay: 800W x 2 (80 PLUS Titanium) • 4U 48-bay: 1300W x 2 (80 PLUS Titanium)			
	AC Voltage	Global	• 2U 24-bay: 100-240VAC @10-5A • 4U 48-bay: 100-127VAC @12A, 200-240VAC @8.5A			
		EU	• 2U 24-bay: 100-127VAC @10A, 200-240VAC @5A • 4U 48-bay: 100-127VAC @12A, 200-240VAC @8.5A			
			Note: Please use 200-240VAC for the 4U 48-bay models in both the global and EU versions.			
	Frequency		50-60 Hz			
Safety Standards			• Electromagnetic compatibility: CE, BSMI, FCC • Safety: UL, BSMI, CB			

PHYSICAL SPECIFICATIONS

Product Series			GS 5000U	
Form Factor	2U 24-bay		GS 5024**URE**	GS 5024**UR**
			Note: U: NVMe storage **R**: Dual redundant controllers **E**: Essential	
Controller			Dual redundant	
Cache Backup Technology			Super capacitor + flash module	
CPU			Intel® Xeon® Scalable 12-Core	Intel® Xeon® 6 16-Core
Cache Memory			Default DDR5 128GB, up to 1024GB	
Supported Drives			2.5" U.2 NVMe SSD (must be purchased from Infortrend)	
Max. Drive Number	Via Expansion Enclosures, per Appliance		U.2 NVMe JBOF: 96 HDD/SSD JBOD: 896	
	Via Scale-out with Other Series of Appliances, per Cluster		U.2 NVMe JBOF: 384 HDD/SSD JBOD: 3584	
Max. SSD Cache Pool (Block Level)			4TB	
Host Board Slots			6	10
			Note: GS 5024**UR** supports six PCIe Gen 5 x16 slots and four PCIe Gen 5 x8 slots on one appliance.	
Host Board Options			• 32Gb/s FC x 4 • 25GbE (SFP28) x2, RDMA • 25GbE (SFP28) x4, RDMA • 100GbE (QSFP28) x 1, RDMA • 100GbE (QSFP56) x 2, RDMA • 200GbE (QSFP56) x 1, RDMA • 12Gb/s SAS x 2	• 32Gb/s FC x 4 • 25GbE (SFP28) x4, RDMA • 100GbE (QSFP28) x 1, RDMA • 100GbE (QSFP56) x 2, RDMA • 200GbE (QSFP56) x 1, RDMA
			Note: 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			24	40
Max. 25GbE Ports (SFP28)			24	40
Max. 100GbE Ports (QSFP28)			6	10
Max. 100GbE Ports (QSFP56)			12	20
Max. 200GbE Ports (QSFP56)			6	10
Max. 12Gb/s SAS Ports			12	0
Expansion Enclosures			JB 4024**U**, JB 3012**A**, JB 3016**A**, JB 3024**BA**, JB 3025**BA**, JB 3060**L**, JB 3090, JB 4090	JB 4024**U**, JB 3012**A**, JB 3016**A**, JB 3060**L**, JB 4090
Dimensions (Without Chassis Ears and Protrusions) (W x H x D)			449 x 88 x 830 mm	
Package Dimensions (W x H x D)			594 x 235 x 1106 mm	
Power Supply Unit	Power Supplies (Redundant and Hot-swappable)	Global	1600W x 2 (80 PLUS Titanium)	
		EU		
	AC Voltage	Global	100-127VAC @12A, 200-240VAC @10A	
		EU		
			Note: Please use 200-240VAC for the GS 5000**U** series 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		2PB
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		832
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 2.0/3.11), 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, iSCSI/RDMA (iSER), SAS, NVMe/TCP, NVMe/RDMA, NVMe/FC
		Note: 1. NVMe/RDMA is supported only on host channels with RDMA functionality. 2. iSCSI/RDMA (iSER) is not supported on GS 2000**U** Series.
	Object Level	RESTful API (Amazon S3-compatible API)
	GPUDirect Storage (GDS)	Supported on NVMe-oF (Block) and 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. • 8GB: 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	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
		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 not available on GS 2000**U**.	
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	
				DRAM: 8GB	Max SSD cache pool size: 0.5TB
				DRAM: 16GB	Max SSD cache pool size: 1TB
				DRAM: 32GB	Max SSD cache pool size: 2TB
				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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