# EonStor GS Family

## Scale-out High Availability
## Unified Storage for Enterprise

## Highlights

### Extreme Performance and Scalability

- Up to 900K end-to-end IOPS to accelerate storage operations
- Massive sequential throughput of up to 11GB/s read and 8GB/s write per GS appliance
- Supports scale-out and scale-up, a single GS cluster can support more than 40PB

### Easier to Use and Manage

- Provides a single namespace for easier access and auto-balancing to reduce the burden of IT storage management

### Lower Total Cost of Ownership

- Uses SSDs for high-performance IO and NL-SAS/ SATA HDDs for massive data archiving via automated storage tiering
- Uses several SSDs for cache to reach near all-flash system performance; this helps to increase performance not only for database and VDI applications but also for file operation and NAS performance

## Introduction

*The EonStor GS series forms the backbone of high-performance enterprise storage solution with its powerful performance, flexibility, and high expandability helping to efficiently boost overall productivity. EonStor GS can handle large amounts of I/O and file transfers even under high workloads and is especially suitable for hybrid environments adopting SAN, NAS, and Cloud integration. It is perfect for those who want performance, capacity, and rich I/O options, and at the same time, it is ideal for budget-conscious applications as it can easily meet all general storage needs.*

### High Performance

EonStor GS series provides both high IOPS and high throughput. Supporting high-speed transmission interfaces and protocols, such as 32Gb/s FC and 40GbE, the series delivers up to 11 GB/s read and 8 GB/s write in throughput and 900K IOPS on a single appliance.

### High Scalability when Needed

EonStor GS supports scale-out and scale-up feature to easily expand performance and capacity to more than 40PB.

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

Through the scale-up expansion, each GS supports JBOD expansion enclosures to add up to 896 hard drives for increasing storage capacity.

## Easy Data Access for Users and Simple IT Management

Users can access shared folders in a single root directory under a single namespace, so they don't need to worry about where the data is placed. Auto-balancing is also supported to achieve the benefit of load balancing without the burden of manual IT planning and configuration.

## High Efficiency

EonStor GS supports hybrid storage. With the automated storage tiering function, EonStor GS storage can automatically leverage the advantages of SSDs for high-performance IO and HDDs for massive data archiving. It allows users to flexibly assign applications to tiers distinguished by different drive types and RAID levels.

EonStor GS supports SSD cache that leverages high speed and low latency of SSDs for delivering faster performance when accessing frequently demanded vital data. The feature helps users to meet high I/O loads and storage capacity requirements while dramatically boosting performance. It presents advantages for read-intensive SAN environments, such as online transaction processing (OLTP) and email (Microsoft Exchange). It also enhances read and write performance for NAS and improves user experience for file operation when a large number of files are stored in GS.

## Complete Data Protection and Backup

EonStor GS offers multiple data protection features to guarantee that data is tightly protected. For solid-state drive, EonStor GS incorporated Infortrend's unique RAID technology which helps the system to run normally while ensuring your data is fully protected even when a disk fails. In terms of local data backup, EonStor GS supports a flexible backup solution – snapshot. Users can back up all the resources within the storage system by schedule, including volumes, shared folder, and fulfill a rollback to a previous snapshot image. As for remote backup, you can use the remote replication feature to back up the data to a remote GS appliance, or even to a public cloud with the EonCloud Gateway feature.

## High Reliability

From power supplies, fans, controllers, to host boards, the modular design of all these hardware components lowers maintenance complexity and provides fast and precise technical support and RMA services, allowing EonStor GS to provide continuous services, increase productivity, and gain a competitive edge.

## Intelligent Management of SSD Drives

EonStor GS has an intelligent algorithm that arranges data writing in the storage appliance. The algorithm not only reduces the total amount of writes on an SSD to prolong its lifespan but also prevents multiple SSDs from failing at the time and causing data loss. In addition, as EonStor GS monitors SSD status in real time, it can estimate its remaining lifespan and send a notification to remind the administrator to replace the SSD which is about to fail.

## Easy Management

With the constant evolution of storage platforms, EonStor GS adopted the EonOne management software to assist customers in improving storage and service efficiency for increasing productivity. Its intuitive interface design enables centralized management of cluster and multiple appliances, monitoring of performance and capacity usage, and completion of all related system configurations.

## PHYSICAL SPECIFICATIONS

| Product Series | | GS 1000 Gen2 | GS 2000 | GS 3000 Gen2 | GS 4000 Gen2 |
|---|---|---|---|---|---|
| Form Factor & Available Model | 2U 12-bay | GS 1012**R2CF/S2CF** | GS 2012**R/S**<br>GS 2012**RT/ST** | GS 3012**R2CF/S2CF** | GS 4012**R2CF/S2CF** |
| | 2U 24-bay | GS 1024**R2CBF/S2CBF** | GS 2024**RB/SB**<br>GS 2024**RTB/STB** | - | - |
| | 2U 25-bay | - | - | GS 3025**R2CBF/S2CBF** | GS 4025**R2CBF/S2CBF** |
| | 3U 16-bay | GS 1016**R2CF/S2CF** | GS 2016**R/S**<br>GS 2016**RT/ST** | GS 3016**R2CF/S2CF** | GS 4016**R2CF/S2CF** |
| | 4U 24-bay | GS 1024**R2CF/S2CF** | GS 2024**R/S**<br>GS 2024**RT/ST** | GS 3024**R2CF/S2CF** | GS 4024**R2CF/S2CF** |
| | 4U 60-bay | - | - | GS 3060**R2CLF/G2LF** | GS 4060**R2CLF/G2LF** |
| | Note: **G**: Single controller, not upgradable  **S**: Single controller, upgradable to dual redundant controllers  **R**: Dual redundant controllers<br>**2**: Gen2  **T**: High performance  **C**: Super capacitor  **B**: 2.5" drive  **L**: One drawer  **F**: EonCloud Gateway | | | | |
| Controller | | Dual redundant or single upgradable to dual redundant | | Single, dual redundant, or single upgradable to dual redundant | |
| Cache Backup Technology | | Super capacitor + flash module<br>(Only for upgradable to dual redundant controller and dual redundant controllers models) | | | |
| CPU | | Intel® Atom® 4 Core | Intel® Pentium® 2 or 4 core | Intel® Xeon® D 4 Core | Intel® Xeon® D 8 Core |
| Cache Memory (per System) | Single Controlle | Default DDR3 8GB<br>Expandable up to 16GB | Default DDR4 8GB<br>Expandable up to 64GB | Default DDR4 8GB, Expandable up to 256GB | |
| | Redundant Controller | Default DDR3 16GB<br>Expandable up to 32GB | Default DDR4 16GB<br>Expandable up to 128GB | Default DDR4 16GB, Expandable up to 512GB | |
| Supported Drives | | 2.5" SAS SSD<br>2.5" 12Gb/s SAS 10,000 or 15,000 RPM HDD<br>3.5" 12Gb/s NL-SAS 7,200 RPM HDD<br>2.5" SATA SSD, 3.5" 6Gb/s SATA 7,200 RPM HDD (**G/S** model only) | | | |
| | 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 Board | | 0 | 2 | 2 | 2 |
| | Note: The expansion board can only be installed in the HB2 slot and has 12Gb/s SAS x 2 ports only connectable with expansion enclosures. | | | | |
| Host Board Options | | 16Gb/s FC x 4<br>32Gb/s FC x 2<br>1GbE (RJ-45) x 4<br>10GbE (SFP+) x 2<br>10GbE (RJ-45) x 2<br>25GbE (SFP28) x 2<br>40GbE (QSFP+) x 2<br>12Gb/s SAS x 2 | | 16Gb/s FC x 4<br>32Gb/s FC x 2<br>32Gb/s FC x 4<br>10GbE (SFP+) x 2<br>10GbE (RJ-45) x 2<br>25GbE (SFP28) x 2<br>40GbE (QSFP+) x 2<br>12Gb/s SAS x 2 | |
| | Note: 1. For redundant controller models, identical host boards must be installed in the same order on both controllers.<br>2. FC connectivity supports DAS (Direct-Attached-Storage) connection via FC HBA cards and switched fabric connection. | | | | |
| 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 (RJ-45) | | 4 | 8 | 8 | 8 |
| Max. 10GbE Ports (SFP+) | | 4 | 8 | 16 | 16 |
| Max. 25GbE Ports (SFP28) | | 4 | 8 | 8 | 8 |
| Max. 40GbE Ports (QSFP+) | | 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<br>2U 24-bay: 449 x 88 x 500 mm<br>2U 25-bay: 449 x 88 x 500 mm | | 3U 16-bay: 449 x 130 x 500 mm<br>4U 24-bay: 449 x 174.4 x 500 mm<br>4U 60-bay: 447.6 x 176 x 840.9 mm | |
| Package Dimensions (W x H x D) | | 2U 12-bay: 780 x 379 x 588 mm<br>2U 24-bay: 780 x 338 x 588 mm<br>2U 25-bay: 780 x 340 x 588 mm | | 3U 16-bay: 780 x 423 x 588 mm<br>4U 24-bay: 780 x 465 x 588 mm<br>4U 60-bay: 620 x 460 x 1140 mm | |
| Power Supply Unit | Power Supplies (Redundant and Hot-swappable) | 460W x 2 (80 PLUS Bronze) | | GS 3000/4000: 530W x 2 (80 PLUS Bronze)<br>GS 3060L/4060L: 1200W x 2 (80 PLUS Platinum) | |
| | AC Voltage | 100VAC @8A to 240VAC @4A | | GS 3000/4000: 100VAC @10A to 240VAC @5A<br>GS 3060L/4060L: 200-240VAC @7.08A | |
| | Frequency | 50-60 Hz | | GS 3000/4000: 47-63 Hz<br>GS 3060L/4060L: 50-60 Hz | |
| Safety Standards | | • Electromagnetic Compatibility: CE, BSMI, FCC<br>• Safety: UL, BSMI, CB | | | |

# SOFTWARE SPECIFICATIONS

| | | | |
|---|---|---|---|
| Max. Logical Drives Number | | 32 | |
| Max. Logical Drives Capacity | | 512TB | |
| Configurable Stripe Size | | 16KB, 32KB, 64KB, 128KB, 256KB, 512KB, or 1024KB per logical drive | |
| Configurable Writes Policy | | Write-Back or Write-Through per logical drive. This policy can be modified. | |
| Max. Pool Size | | 2PB | |
| Max. Pool Number | | 32 | |
| Max. Volume Size | | 2PB | |
| Max. Volume Number (per pool/per system) | | 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 | |
| Protocol Support | File Level Protocol | 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) | |
| | | Note: Scale-out requires NFS version 4 or above. | |
| | Block Level Protocol | FC, iSCSI, SAS | |
| | Object Level Protocol | RESTful API | |
| File Level | Max. File System Size | 2PB | |
| | Max. Number of User Accounts | 20000 | |
| | Max. Number of User Groups | 512 | |
| | Max. Number of Folder Sharing | 2048 (NFS/CIFS/FTP) \| 255 (AFP) | |
| | Max. Number of Rsync Jobs | 1024 | |
| | Max. Number of Rsync Concurrent Processes | 64 | |
| | Max. Number of Concurrent Connections — NFS/CIFS/AFP | • 16 GB memory: 200<br>• 32 GB memory: 512<br>• 64 GB memory: 1024<br>• 128 GB memory: 2048 | |
| | Max. Number of Concurrent Connections — FTP | • With any memory: 1024 | |
| Management | | • Web-based EonOne management software<br>• User account management<br>• Group management<br>• Folder management - folder access control | • Quota management<br>• Folder encryption with AES<br>• Integration with Microsoft Active Directory (AD) and Linux LDAP<br>• Storage Resource Management to analyze history of resource usage |
| Availability and Reliability | | • Hot-swappable hardware modules<br>• Device mapper<br>• Antivirus<br>• Trunk group | • Cache Safe technology<br>• UPS<br>• WORM (file level only)<br>• SMB Multichannel |
| Notification | | • Email • SNMP traps | |
| Applications | | • File explorer • Syslog server • LDAP server<br>• Proxy server • VPN server • Docker | |
| Cloud Feature | | EonCloud Gateway supports integration with following cloud providers: Amazon S3, Microsoft Azure, Alibaba Cloud, OpenStack, Baidu Cloud,Google Cloud, Tencent Cloud, Wasabi Cloud, etc.<br>For complete information about cloud provides support, please refer to EonCloud Gateway webpage<br>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

| | | | |
|---|---|---|---|
| Self-encrypting Drives | | Default | Unique encryption mechanisms secure data on drives and make data deletion simple and complete. |
| Thin Provisioning | | Default | "Just-in-time" capacity allocation optimizes storage utilization and eliminates allocated but unused storage space. |
| Local Replication | Snapshot / File level | Optional | Snapshot images per folder: 1024 |
| | Snapshot / Block level | Default | Snapshot images per source volume: 64 · Snapshot images per pool: 128 |
| | Snapshot / Block level | 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 |
| | Volume Copy/Mirror | 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 <br> 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. <br> 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 |
| | File-level | Optional | Appliances per cluster: 4 |
| | Block-level | Default | Appliances per cluster: 4 |
| SSD Cache | File-level | Optional | Accelerating file operations and data access performance for both read and write <br> Max. SSD number: 8 |
| | Block-level | Optional | AAccelerating data access in random read-intensive environments (e.g. OLTP) <br> Max. SSD number: 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: 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 3000/4000 Gen2

| | |
|---|---|
| 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 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. <br> The following service can be upgraded to 5 years. <br> • Upgrade: Replacement part dispatch on the next business day <br> • Advanced service: 24x7 phone, web, and email support + onsite diagnostics on the next business day <br> • Premium service: 24x7 phone, web, and email support + onsite diagnostics in 4 hours <br> 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 |