



Technical RFI

ECHO



GLABS
INTELLIGENT
STORAGE

PRV2

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1. Unit specifications

Unit dimensions:	13.2cm x 43.7cm x 64.8cm (5.1" x 17.2" x 25.5")
Unit weight:	33kg (72.7lbs)
Input range:	100 - 240 VAC, 50-60Hz
PSU safety:	EMC - USA-UL listed. Canada-CUL listed, Germany-TUV certified, EN60950/IEC 60950-Compliant, CB report, CCC certification
Power supply:	Dual redundant 1000W removable PSUs
Power requirements standby:	33W
Power requirements full load:	350W
Operating temperature range:	10°C - 35°C
Non-operating range:	-40°C - 70°C
Operating humidity range:	8 - 90% non-condensing
Non-operating humidity range:	5 - 95% non-condensing
Unit form factor:	3U rackmount (rack mounts included)

Bootable replacement OS is provided on **Rescue Capsule** USB drive for fast system recovery.

2. Configurable capacities

- **ECHO** 32TB, 64TB, 96TB, 128TB, 160TB, 192TB and 224TB
- **ECHO EX** 32TB, 64TB, 96TB, 128TB, 160TB, 192TB and 224TB (Up to 4PB)

3. Connectivity

On Motherboard

- 2 x USB 3.0 ports and 2 x USB 2.0 ports
- 1 x VGA connector
- 1 x COM port
- 2 x 1Gb Ethernet ports (RJ45)
- 1 x RJ45 dedicated IPMI LAN port

Other

- 2 x 10Gb Ethernet ports (SFP+)
- Option for additional 1Gb, 10Gb, 25Gb and 40Gb Ethernet ports (RJ45 or SFP+)

4. Key Features

- **CORE.4 OS**
Highly intelligent and powerful operating system developed by the GB Labs engineering team specifically designed for the creative world. Friendly, full of features and management tools accessible through a clean and easy-to-use web interface, powered by set of intelligence and technology gained over years of experience in the Media and Entertainment industry. CORE.4 OS offers a feature set that can adapt as workflow evolves and changes.
- **Dynamic Bandwidth Control**
GB Labs developed Dynamic Bandwidth Control to swiftly and effortlessly identify and select; high, medium, and low priority users to constantly evaluate and balance performance to deliver full performance to all users. The system will constantly and reliably operate at peak performance.
- **Data protection**
RAID 6 data protection.
Optional Hardware based RAID 0/1/5/6 and Software based RAID 0/1/5/50/60.
- **Replication**
Designed to create near-line, or online, backups of your data. Replication is used to transfer files between GB Labs systems and other storage systems. All replications are performed using Smart Sync, which means that files are only sent when they need to be. Files can be checksummed for extra security to ensure that files are transferred correctly.
- **Snapshots**
A set of reference markers, pointers or data stored on a disk drive, tape drive or storage network (NAS/SAN). A Snapshot is like a detailed table of contents that is treated by the computer as a complete data backup. Snapshots streamline access to stored data and can speed up the process of data recovery. The GB Labs Snapshot tool takes incremental backups of a workspace, or other servers, on a connected network which allows you to then recover a workspace to a specific point in time.
- **Automation**
ECHO has automation built into its' CORE OS which, when enabled, can watch a folder and perform actions when a file event occurs. CORE OS uses these rules to perform actions when these events occur, such as; permission changes and transferring of files.
- **Active Directory**
If you have an Active Directory (AD) server on your network, you can enable the system to authenticate against the users on the AD server, and use that authentication with AFP, SMB and HTTP.

- **Workspace access control**
GB Labs CORE OS can control access to workspaces via IP addresses. This control allows you to override all other sharing access by setting access based rules around IP address, range or entire subnet of any active range connected to the system.
- **Mosaic**
Automatic asset organisation software for CORE.4 OS that indexes files on local storage - giving users the ability to browse their assets. Mosaic's variety of organisation tools enable different organisation strategies around user collaboration and data sharing. Mosaic is designed to support various asset types such as; images, audio and video.
- **File Manager**
Allows you to copy or move files around the workspaces on your system, or to and from other CORE OS systems on the network. File Manager enables changes to permissions and file ownership, in addition to being able to preview and retrieve file information.
- **Analytics Centre**
An updated set of tools, developed in-house by GB Labs, designed to enable CORE.4 OS to monitor the usage of the system in a far more detailed way. Combined with a user interface to allow users to choose exactly what they want to monitor.

The following information can be monitored by Analytics Centre:

- Network interface usage
- User connections through individual protocols (e.g. SMB, NFS, etc.)
- System temperatures
- Disk usage
- Disk access and wait times
- CPU usage

Analytics Centre generated information enables SPACE+ to make live decisions about how the system should perform, based on current or previous usage of the system.

5. File System

XFS is a 64-bit, high-performance, journaling file system used on all GB Labs storage platforms. XFS is particularly proficient at parallel I/O due to its design based on allocation groups. This enables extreme scalability of the I/O threads, file system bandwidth, and file system sizes when spanning multiple storage devices.

XFS ensures data consistency by performing metadata journaling and supporting write barriers. Capacity allocation is performed through extents with data structures stored in B+ trees, improving the overall file system performance, especially when handling large files. Delayed allocation helps in preventing file

system fragmentation, while online defragmentation is also supported.

As a feature unique to XFS, I/O bandwidth can be pre-allocated for a guaranteed rate, that is suitable for many real-time applications.

6. Data security and disaster recovery

Any single system that is being used for storage of valuable assets is susceptible to data loss and force majeure, regardless of how sophisticated the RAID level or clustering of the disks. It is critical that data is backed up and readily accessible for the purposes of business continuity and preservation of assets.

ECHO units can automatically replicate to other GB Labs servers on the network, which allows for data to be available in an emergency on a separate storage volume. Using long-range fibre, this can be up to 10km away.

ECHO 36 is the larger of the ECHO storage range and comes with mirrored OS, dual 40Gbe and hot spare disks as standard with ECHO 36 EX for further expansion. With a native capacity of 448TB, this size of unit means that future expansion can go beyond 10PB utilising just one head unit.

It is also possible to re-purpose Fibre Channel RAIDs or SAS JBODs with ECHO Bridge to provide this replication function. For compatibility of RAIDs, please contact us.

The GB Labs range is also complimented by high speed LTO-6, LTO-7 or LTO-8 units that run comprehensive software designed to work within the GB Labs Ecosystem. CORE software will also connect to other network servers, allowing Archive, Backup and LTFS workflows to be flexible.

7. API and third-party integration

A complete and comprehensive API is available for third-party integration with functions of CORE OS, including, File Manager and HSM automation capabilities of all GB Labs servers.

In addition, there is also a complete API for the VAULT product range, which is also readily available to provide powerful integration with other servers running management services, such as; MAM and DAM software.



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