SGI® InfiniteStorage 350 Quick Start Guide

007-4932-001

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Record of Revision

Version	Description
001	December 2006 First publication

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Chapter 1

SGI InfiniteStorage 350 Quick Start Instructions

This document guides a knowledgeable user through the unpacking, installation and basic setup of an SGI InfiniteStorage 350 SATA RAID system. If your system is being unpacked and set up by SGI professional services personnel, set these instructions aside as a reference.

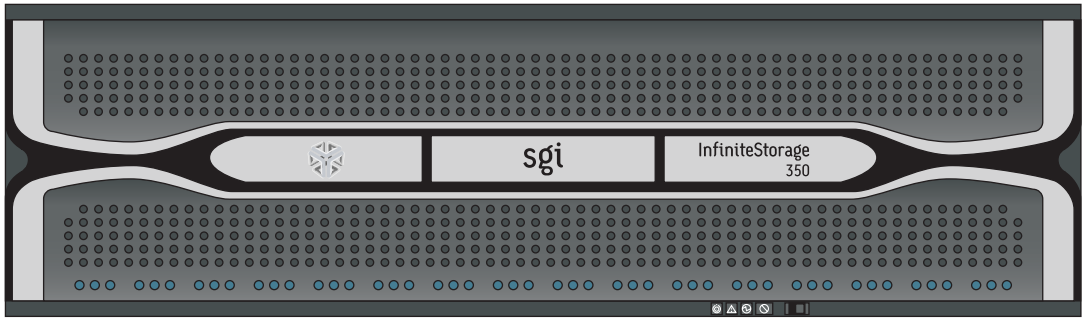

Figure 1-1 SGI InfiniteStorage 350 Front Panel

For information on SGI Altix servers used with your InfiniteStorage system, see:

- *SGI Altix XE210 System User's Guide* (P/N 007-4870-00*x*)
- *SGI Altix XE240 System User's Guide* (P/N 007-4873-00*x*)
- *SGI Altix 450 System User's Guide* (P/N 007-4857-00*x*)

The InfiniteStorage 350 system shares many of the functions and components used by the InfiniteStorage 4000 RAID sub-system. Shared information on storage operation, rack features, system indicator lights, troubleshooting, and replacing components, is found in:

- *SGI InfiniteStorage 4000 RAID System User's Guide* (P/N 007-4834-00*x*)

These and other SGI documents are available in PDF or other formats, and can be searched, accessed and downloaded via internet from the SGI publications library at:
`http://docs.sgi.com`

Various formats are available. This library contains the most recent and most comprehensive set of online books, release notes, man pages, and other information.

RAID Features

The InfiniteStorage 350 RAID system is a mass storage system using serial ATA (SATA) disks exclusively. All drive arrays in the RAID must be SATA attached. No intermixing of fibre channel expansion units is supported. Also, no intermixing of fibre channel disks within the controller unit or SATA expansion units is supported. The InfiniteStorage 350 RAID does support the following:

- 1-GByte cache per RAID controller canister for a maximum of 2-GBytes per RAID controller enclosure.
- 16 SATA disk drives are pre-installed at the factory in both the RAID controller enclosure and the optional disk expansion enclosures.
- Each dual-controller RAID enclosure uses two 4-Gbit per second front-end host ports per controller module, for a total of four host ports.
- One or two optional SATA disk expansion enclosures can be attached to the “back-end” disk channels.

Important: The RAID controller canisters used with the SGI InfiniteStorage 4000 products **cannot** be interchanged with the controllers used in the InfiniteStorage 350 products.

While the form and function of the InfiniteStorage 350 is similar to other SGI SATA-based RAID products such as the TP9300S, it is important you note the following:

- Older serial ATA drives (such as those used in TP9300S or TP9500S) are **not** generally size (data capacity) compatible with the InfiniteStorage 350 disks and should never be used as spares in InfiniteStorage 350 drive arrays.
- Fibre Channel (SCSI-protocol) drives cannot be used as spares in SATA enclosures.
- The 3992 RAID controller interface used in an InfiniteStorage 350 has a different form factor than RAID controllers used in the interface on older SGI RAID products. The difference can also be confirmed by special marking or part numbers on the 3992 RAID controller canister.

- The InfiniteStorage 350's 3992 RAID controllers cannot be used as spares or replacements for other SGI RAID controllers.
- The expansion enclosures contain environmental status modules (ESMs) instead of RAID controllers. Each environmental status module contains an environmental services monitor board (ESM) and two slots for SFPs (small form-factor pluggables).
- The ESM board is the interface between the controller enclosure and the expansion enclosure. The ESMs used in the 16-slot disk expansion units are **not** interchangeable with those used in the SGI 14-slot disk expansion enclosures.
- The ESMs in the enclosures can be swapped with those used in the InfiniteStorage 4000 units as they also support Fibre Channel (SCSI-protocol) drives.

Performance Features

The SGI InfiniteStorage 350 RAID storage system has the following basic features:

- Support for cost effective (SATA) drive array technology.
- Continuous availability, with constant monitoring and optional redundancy of all active components.
- Dynamic scalability, making it easy to grow RAID disk resources without disruption.
- Superior connectivity, allowing simultaneous connections to multiple servers directly or by way of storage area networks (SANs). Support for optical host connections.
- Large storage capacity with support for up to 48 drives.
- Storage management facilities for installation, configuration, expansion, and monitoring.
- Redundant power supplies and hot-swappable components.
- Upgradeable to meet a variety of RAID requirements.
- Integrated RAID controllers.
- Battery backup for cache data.

Note: The InfiniteStorage 350 controller enclosure and it's 16-slot disk expansion units use a switched bunch of disks (SBOD) technology. This functions in a manner similar to an FC-AL switch, allowing the controller to establish point-to-point connections between a disk and the controller.

RAID Controller Features

The RAID controllers in the InfiniteStorage 350 have the following features:

- 48-drive maximum configuration
- Five RAID levels (0, 0+1, 1, 3, and 5)
- 4 Gbit/s front end (FE) and 4 Gbit/s back end (BE)

Note: The back end can also support 2 Gbit/s, the setting of whether to use 2 or 4 is based on the selector switch located on the front of the controller and expansion enclosures.

- Switched connection to disk (SBOD)
- Immediate LUN availability (ILA)
- Transparent disk drive rebuilds
- Variable stripe size per controller (16K, 32K, 64K, 128K, 256K and 512K)
- Mirrored cache
- Drive roaming during power off
- Cache coherency
- Transparent failover and failback
- Automatic error recovery
- Write through, write back, or read ahead support
- Automatic detection of failed drives
- Automatic drive rebuilds, using a “hot spare” drive
- Hot-swappable drives
- SAN mapping server to LUN mapping
- Automatic firmware flashing: In a dual controller configuration, the firmware of the replacement controller is automatically flashed to match the firmware of the surviving controller.

Availability Features

The InfiniteStorage 350 has the following availability features:

- Dual power feeds with dual power supplies
- Redundant cooling
- Battery back-up (BBU) maintains cache in case of power failure
- Dynamic hot-sparing
- Non-disruptive component replacement

General Technical Features and Specifications

The InfiniteStorage 350 has the following technical features and specifications listed in Table 1-1. For additional technical information and specifications, see Appendix A in the *SGI InfiniteStorage 4000 RAID System User's Guide* (P/N 007-4834-00*x*).

Table 1-1 InfiniteStorage 350 Technical Features and Specifications

Technical Feature	Specification Overview
Enclosure airflow	Front to back airflow
Host interface compatibility	Backward compatible with 1Gbit and 2 Gbit HBAs
Enclosure max shipping weight	115 lbs. (52.2 kg) use at least two people to lift enclosure

Supported Platforms

The InfiniteStorage 350 supports the following hardware and software platforms:

- Hardware: SGI Altix series, Silicon Graphics Prism visualization systems.

  Note: Contact your SGI sales or service representative for more specific information on supported hardware systems.

- Software: SGI Linux Environment of SLES 10 with SGI ProPack 5 or later and CXFS. Support for SLES 9.
- Specific IRIX platforms are supported with IRIX release 6.5.27 or higher.

  Note: For further updates or information, refer to the product release notes located on the CD shipped with your InfiniteStorage 350 RAID system.

Contacting the SGI Customer Service Center

To contact the SGI Customer Service Center, call 1-800-800-4SGI, or visit http://www.sgi.com/support/customerservice.html.

From outside the United States contact your local SGI sales office.