



Major Markets and Uses

Infortrend products are used in disk-to-disk backup, server-attached and network data storage and in major industries such as medical imaging, security/CCTV, and digital media including video-on-demand, stream editing and more.



Spare Parts

Description	Part Number
LCD board	IFT-9560-IOLCD
Type-1 I/O module w/hub	IFT-9560-IO1
Type-2 I/O module w/hub, separate signal path w/o hub circuits	IFT-9560-IO2
LED module	IFT-9560-IOLED
Maintenance modules	IFT-9560-IOMT
BBU module	IFT-9560-IOBT
Replacement controller module (4 channel model) including controller board	IFT-9560-CTMod-4
Replacement controller module (6 channel model) and I/O Module	IFT-9560-CTMod-6
LCD module	IFT-9560-LCDMod
Power supply unit	IFT-9560-PSU
Fan module; contains two cooling fans	IFT-9560-FanMod

Accessories

Description	Part Number
Serial port cable (PS/2 to DB-9 male) for Single/Dual-Single controller	IFT-9560Scab
Serial port Y-cable (two PS/2 to DB-9 male) for Redundant controller	IFT-9560Ycab
Slide rails for 18-inch deep racks	IFT-9253L18-0010
Slide rails for 20-inch deep racks	IFT-9253L20-0010
Null modem	IFT-9011



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• Infortrend offers a 3-year limited warranty on subsystems and a 1-year warranty on battery backup units.

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1U Profile
Fibre to Fibre RAID Controller Head

EonRAID[®] 2510FS



Delivering unprecedented performance, the EonRAID 2510FS RAID controller combines all of the functionality necessary for building a completely fault-tolerant RAID array in a small, compact 1U chassis. The controller is equipped with a modular chassis that easily adapts to a wide range of applications. Through its optical Fibre Channel (FC) ports with or without a port bypass circuit (PBC), the controller can manage dozens of terabytes of capacity provided by Infortrend's FC-to-FC or FC-to-SATA JBODs. It is Ideal for DAS or SAN applications. Derived from more than a decade of experience in RAID design, the highly adaptive firmware delivers unmatched performance through its capabilities of I/O characteristics analysis, drive media diagnosis, and various optimization algorithms.



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Featuring up to twelve FC-2G host channels, the embedded FC-2G controllers ensure superior performance, extreme reliability, and exceptional data availability for today's data-intensive storage environments. The modular design of the controller head minimizes maintenance time and increases scalability for demanding, high capacity SAN environments.

Equipped with two fully redundant, hot-swappable controller modules, this durable, uniquely designed 19-inch rack-mountable enclosure has complete component redundancy and FC-2G support that includes dual-loops and multi-path configurations. The enclosure is built to perform in the most rigorous storage environments where data availability is an imperative.

Highlights

- Module redundancy: RAID controllers, disk drives, power supplies, cooling modules, I/O modules, battery units, and maintenance modules
- FC-2G Fibre Channels (FC); SFP ports for optical fiber
- Cost-existing, flexible, multi-level RAID configurations: Logical drives, logical volumes, and logical partitions for RAID levels 0, 1(0+1), 3, 5, 10, 30, 50
- Auto detection, auto rebuild, hot spare, and hot swap capability
- No Single Point of Failure with all critical components configured in redundant, hot-swappable pairs
- Redundant host and drive paths via hot-swappable I/O modules
- Port bypass circuit support
- Up to 248 FC-2G drives (in a 2 dual-loop, dual-active controller configuration)
- Up to 1024 LUNs for host mapping
- Up to 64TB per logical drive
- Up to 1GB SDRAM cache memory
- RAIDWatch®: Browser-based GUI Manager for all Major platforms

Available Models

Various customizations are possible using the six in the series (see table). For applications that require 24x7 availability, the dual-redundant models have all the necessary functionality to ensure the system will survive catastrophic events.

MODELS	CONTROLLERS	CHANNELS
EonRAID 2510FS-4S	Single controller	4 FC-2G
EonRAID 2510FS-6S	Single controller	6 FC-2G
EonRAID 2510FS-4RH	Dual-Redundant	4 FC-2G (redundant paths)
EonRAID 2510FS-6RH	Dual-Redundant	6 FC-2G (redundant paths)

Reliability

The controller supports a complete list of RAID configuration levels in the form of logical drives, logical volumes and logical partitions. Multiple RAID configurations can co-exist within one enclosure, each with distinct write policy, stripe size, and optimization modes. Hot rebuild and numerous fault correction mechanisms ensure the highest standard of RAID protection.

Safe distribution of data is embodied in many ingenious fault-preventive designs. From memory ECC, write-verify, parity regeneration, parity update tracking, Media Scan, to battery backup protection, your data is warded against factors that might cause data inconsistencies.

Availability

The controller's 2Gbps Fibre Channels (FC-2G) are routed through independent, hot-swappable I/O modules. The single and dual-active controller models come with Type 1 I/O modules that are equipped with port bypass circuits. This design ensures path redundancy on the host side using multi-path connections, and on the drive side using dual-loops to the disk drives.

All active modules are cross-linked between controllers so that no user intervention is required to restore a controller pair after a single controller or module failure.

To achieve optimum availability and uptime, critical components are configured as redundant and hot-swappable pairs.

Manageability

The EonRAID 2510FS includes a number of interface features to keep users constantly aware and automatically notified of array status. The subsystem comes standard with an Ethernet port for local or remote management using simple telnet protocol or the feature-rich RAIDWatch Manager that provides a convenient "Install Once, Run anywhere" graphical user interface. Additionally, system administrators can use the event notification function to choose to be notified of any system events via email, fax, LAN broadcast, SNMP traps, MSN Messenger, ICQ, and SMS messages.

Serviceability

Based on an architecture designed for the most demanding environments, the EonRAID 2510FS is built on a cableless, backplane-based architecture which minimizes the chance of component failure and enables swift isolation and replacement of failed components.

All modules are individually housed in either a retrievable canister or removable panel. In the event of component failure, each module can be replaced within seconds.

Infortrend Smart Technologies

Derived from more than ten years of experience in RAID storage design, our firmware features extremely compact protocol and rich varieties of algorithms to deal with the stringent requirements of storage applications. The technologies are smart for I/O processing, drive handling, and system management.

IOSmart

The IOSmart technologies consist of specific functions and configuration options that control various I/O characteristics in order to meet the rapidly increasing requirements of today's applications. These functions include the adaptable stripe size, Adaptive Write Policy, optimizations modes, Guaranteed Latency I/O, and the automatically adjusted multi-threaded, predictive read-ahead, sorted, or group writes.

DrvSmart

DrvSmart is comprised of fault-preventive algorithms that ensure data integrity when conditions related to hard drive imperfections occur. DrvSmart mechanisms correct minor defects, increase reaction time, allow

more time to prepare a rebuild, and help minimize performance impact. DrvSmart functions include Media Scan & Task Scheduler, hot-spare, drive roaming, SMART and manual cloning options, etc.

SysSmart

SysSmart combines enclosure monitoring and firmware management capabilities in order to minimize the chance of down time caused by hardware failures. With SysSmart, Infortrend's subsystems are smartly managed and guarded against extreme operating conditions.

SysSmart functions include the event-triggered, Auto Data Protect mechanism, dual-speed fan control, and the various monitoring utilities and monitoring approaches combined with the powerful RAIDWatch manager.

Specifications

Subsystem Characteristics

- 400MHz CPU, 256KB L2 cache
- Dual ASIC133 RAID engine
- Redundant RAID controllers Yes
- SDRAM cache memory up to 1GB 512MB
- BBUs per controller 1
- I/O modules 4 or 6
- LED modules 1
- Maintenance modules per controller 1
- LCD keypad panels 1
- Serial COM ports per controller 1
- Ethernet ports per controller 1
- Diagnostic LEDs on all FRUs

Host Interface

- SFP ports to optical fiber 4 to 12
- F_Port and FL_Port connectivity Yes
- Transfer rate 200MBps
- Tag command queuing
- Multiple target Ids

RAID Configurations

- RAID levels 0, 1(0+1), 3, 5, 10, 30, 50, JBOD
- Max. 128 of logical drives
- Max. 1024 of LUNs
- Multiple array configurations
- Automatic background rebuild

High Availability

- Redundant, hot-swappable, FRUs Yes
- Enclosure and RAID controller self-diagnostics Yes
- Battery backup units Yes
- Hot spare drives Yes

Management

- RAIDWatch GUI software over local/remote Access Yes
- Terminal (RS-232C) for local access Yes
- Telnet over Ethernet Yes
- LCD keypad panel Yes
- Event notification methods:
 - Email Yes
 - Fax Yes
 - LAN broadcast Yes
 - SNMP traps Yes
 - Cell phone message SMS
 - Instant messengers MSN/ ICQ

OS Support

- Microsoft Windows NT
- Microsoft Windows 2000 Server
- Microsoft Windows 2003 Server
- Sun Solaris ver. 8/9
- Red Hat Linux ver. 8/9, enterprise ver. 3
- SuSE Linux ver. 8/9

Requirements

- Input Voltage: 100VAC at 6A; 240VAC at 3A with PFC (auto-switching)
- Relative Humidity: 5% to 95% non-condensing
- Operating Temperature: 0° to 40°C

Dimensions

- 1U, 19-inch rackmount chassis
- Chassis without handles: 427(W) x 44(H) x 480(D) mm (16.8 x 1.7 x 18.9 inches)
- Chassis with handles: 427(W) x 44(H) x 500(D) mm (16.8 x 1.7 x 19.7 inches)