

**SPARE PARTS & ACCESSORIES**



**Spare Parts**

Description	Part Number
Fibre to SAS RAID controller module, for ES S16F-R1430 subsystem, 4 x FC-4G SFP host ports, RAID 6	IFT-83SF14RE16
Fibre to SAS RAID controller module, for ES S16F-G1430 subsystem, 4 x FC-4G SFP host ports, RAID 6	IFT-83SF14GE16
Drive tray, Type-III bezel and Type-II LED light-pipe	IFT-9273CDTray
Trays w/ MUX; applies to redundant-controller subsystem using SATA drives	IFT-9273S1DT2S1S
Power supply module, enhanced EonStor 16-bay subsystems, 530W capacity	IFT-9273ECPSU
Cooling fan module for enhanced EonStor 16-bay subsystems	IFT-9273ECFanMod
Left-side forearm handle with LCD panel for 3U RAID subsystems	IFT-9273CHandLLCD
Right-side forearm handle for 3U subsystems	IFT-9273CHandR
512MB DDR RAM DIMM module for ASIC400 platform	IFT-DDRESCM5
1GB DDR RAM DIMM module for ASIC400 platform	IFT-DDRESCMA
2GB DDR RAM DIMM module for ASIC400 platform	IFT-DDRESCMB
Li-Ion battery cell pack	IFT-9273CBTE

**Accessories**

Description	Part Number
Null modem, DB-9-female-to-DB-9-male, wires swapped	IFT-9011
Dongle board, SAS-to-SATA-II MUX conversion, for access from dual controller	IFT- 9273S1N2S1S
Dummy drive tray	IFT-9273CDTrayDmy
RS-232C serial cable, audio-jack to DB9	IFT-9270ASCab (S16F-G1430)
RS-232C serial cable, audio-jack-to-DB-9, Y-cable to dual controllers	IFT-9270AYCab (S16F-R1430)
UPS cable, audio-jack to DB-9	IFT-9270CUPSCab (S16F-G1430)
UPS cable, audio-jack to DB-9, Y-cable to dual controllers	IFT-9270CUPSYCab (S16F-R1430)
Agilent Fibre Channel 4.25 GBd Small Form Pluggable Optical Transceiver, LC, wave-length 850nm, multi-mode	IFT-9270CSFP4GA01
Optical FC cable, LC-LC, MM-62.5/125, Duplex, LSZH, O.D.=1.8mmx2, 1 Meter	IFT-9270CFCCab01
Optical FC cable, LC-LC, MM-62.5/125, Duplex, LSZH, O.D.=1.8mmx2, 5 Meters	IFT-9270CFCCab02
Optical FC cable, LC-LC, MM-62.5/125, Duplex, LSZH, O.D.=1.8mmx2, 10 Meters	IFT-9270CFCCab03
Slide rail assembly for Enhanced EonStor 3U enclosures, 28" to 32" rack depth	IFT-9273Cslider32
Slide rail assembly for Enhanced EonStor 3U enclosures, 32" to 36" rack depth	IFT-9273Cslider36

**EonStor® S16F-R/G1430**

3U Profile, Redundant/Single RAID Controller,  
Four (4) / Two (2) FC-4G Host Channels,  
16-drive SAS RAID Subsystem



The EonStor S16F-R1430 and S16F-G1430 are designed for speed, integrity, and always-on availability using the latest FC-4G and SAS technologies. Answering the complex demands of today's applications, the S16F series comes with dual- or single-controller options. The S16F-R1430 provides full-featured hardware redundancy, extra-wide host links via eight (8) host ports, and easy expansion through fault-tolerant, full-duplex, SAS wide port external links. The S16F-G1430 is a cost-effective option with single RAID controller for less-critical storage applications. For budget-sensitive applications, SATA disk drives can be applied even in a dual-controller configuration using our ingenious MUX module mechanism.

Built around Infortrend's latest ASIC400 architecture with the boost of expanded bandwidth and a double-parity engine, the array delivers extraordinary performance especially when processing complex parity such as RAID6. With up to eight (8) host ports, onboard bypass, and EonPath™ multipathing drivers, the subsystem offers superior interoperability within existing SAN environments and additional connection points for path redundancy.



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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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## HIGHLIGHTS

- Dual-active or single RAID controller configurations
- Fault-tolerant enclosure design
- Infortrend's fifth-generation ASIC400 RAID engine
- Two (2) FC-4G host channels per controller
- Four (4) host ports per controller with onboard hub
- SAS or SATA-II disk drives in the sixteen (16) drive bays
- Hardware RAID5 and RAID6
- SAS, SFF-8470, 4x wide links to expansion enclosures
- S.M.A.R.T. and NCQ support
- Two available expansion enclosures: S16S-J1000-R and S16S-J1000-G JBODs
- Supports expansion to a maximum of 48 (the R model) or 60 (the G model) disk drives
- Intelligent load-balancing internally and externally between host links by the EonPath™ multi-path software
- Embedded, browser-based RAIDWatch management tool
- Windows Logo Certificated

## OVERVIEW

The S16F provides a maximum of 16Gbps host-side bandwidth and SAS 4x wide links to expansion enclosures. With extraordinary capacity-per-footprint and cost-per-GB ratios, demands for capacity and performance can be easily fulfilled.

The S16F series comes in a cableless, backplane-based enclosure with redundant, hot-swappable component pairs whose operational statuses are constantly monitored and reported via comprehensive interfaces such as the LCD screen, firmware utility, telnet console, and the browser-based or Java-based RAIDWatch software. Behind the robust hardware lies a firmware core that sums up a decade of storage development expertise, making the subsystem invulnerable to faults that might jeopardize RAID storage stability, whether from thermal, hard drive, or sensitive application abnormalities.

### Reliability

The S16F series fully supports advanced, enterprise-class RAID features. Multiple logical drives or logical volumes co-exist with configuration levels starting from RAID0 up to the multi-level RAID60, which features unprecedented protection with the ability to handle the simultaneous failures of any two disk drives.

From host links to the hot-swap mechanisms, the subsystem guarantees data safety by supporting numerous measures including intelligent battery backup with charge level awareness and FRU feedback, support for an uninterruptible power supply (UPS), and multi-path drivers with failover and load-balancing capabilities. A configured RAID array is not only protected by disk redundancy, but also by the rich variety of protection measures ranging from media error recovery to proactive measures for dealing with faulty components.

### Availability

The S16F subsystem inherited high availability EonStor architecture with enhancements such as RoHS compliance and redesigned modules. Constructed for component-level redundancy, electrical and signal paths are strung across a common backplane and interfaced with critical components using quality connectors. The highly integrated design allows all critical components such as disk drives, RAID controllers, power supplies, cooling modules, sensors, and detection circuitry to function as an organic whole. A fault condition triggers reactive and preventive measures, e.g., Forcing cache flush to reduce the chance of data loss or further damage.

### Serviceability

The subsystem's modular nature and the easy access to all field replaceable units (FRUs) reduce maintenance time. All critical components come with status LEDs, mistake-proof mechanisms, and are interfaced through GUI or instant messaging methods like email, MSN, etc.

### Manageability

The subsystem's built-in Ethernet port ensures easy access to the Java-based SANWatch (Storage Management Suite) for remote configuration, management, and monitoring functions. SANWatch Manager provides "Install Once, Run Anywhere" convenience with a user-friendly graphical user interface. Additionally, the subsystem can be accessed through the LCD keypad panel, RS-232C terminal, and telnet.

The SANWatch Configuration Client sub-module gives system managers the power of real-time monitoring even when they are away from the subsystem by providing a variety of notification methods including email, fax, LAN broadcast, SNMP traps, MSN Messenger, SMS messages, and the configuration utility screen.



## INFOTREND SMART TECHNOLOGIES

Derived from a decade of experience in RAID storage design, our firmware features extremely compact protocol and rich varieties of algorithms to deal with the stringent demands of today's storage applications. These intelligent technologies handle various I/O characteristics, drive media defects, and system fault conditions.



## MAJOR MARKETS AND USES

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

### IO Smart

The IO Smart technologies consist of specific configuration options that control various I/O characteristics in order to meet the rapidly increasing requirements. The functions include adaptable stripe sizes, adaptive write policies and guaranteed latency I/Os which improve sequential write performance and ensure fast and efficient data flow. The AV optimization options provide means to adapt to applications with multi-threaded I/Os and various I/O queue depths.

### Drv Smart

Drv Smart is comprised of fault-preventive algorithms that ensure data integrity when conditions related to hard drive imperfections occur. Drv Smart mechanisms correct minor defects, increase reaction time, allow more time to prepare a rebuild, and help minimize performance impact. Drv Smart features include Media Scan, Task Scheduler, hot-spare, drive roaming, S.M.A.R.T. and manual cloning options, and transparent resetting of non-responsive hard drives.

### Sys Smart

Sys Smart combines enclosure monitoring and firmware management capabilities to minimize the chance of downtime caused by hardware failures. Other Sys Smart functions include event-triggered and monitoring approaches combined with the powerful RAIDWatch Manager. Component status, voltage/temperature readings, and system events are instantly revealed through the Manager's graphical interface.

## SPECIFICATIONS

### S16F-R/G1430 (RAID Subsystem)

#### Subsystem Characteristics

- 800MHz PowerPC GL RISC CPU, 1MB L2
- ASIC400 RAID engine
- Default DDR cache memory (per controller) 512MB
- FC-4G host channels (per controller) 2
- SAS 4x wide link expansion (per controller) 1
- BBU (per controller, optional on G model) 1
- COM ports (per controller) 2
- 10/100 Ethernet port (per controller) 1
- Total capacity w/expansion R: 48TB G: 80TB

- LCD keypad panel 1
- PSUs 2
- Cooling module 2
- Diagnostic LEDs on all FRUs

#### Drive Interface

- Number of disk trays 16
- SAS/SATA-II
- Total no. of HDD w/ expansion R: 48 G: 60

#### Host Connection Ports

- SFP ports per controller 4
- Data single channel bandwidth 4Gb
- Tag command queuing 256
- Multiple target IDs

#### RAID Configurations

- RAID levels 0, 1(0+1), 3, 5, 6, 10, 30, 50, 60, NRAID
- Up to 32 logical drives (varies by memory size)
- Up to 1024 LUNs (varies by memory size)
- Up to 2GB cache per controller

#### High Availability

- Redundant, hot-swappable FRUs
- Subsystem self-diagnostics
- Li-Ion battery backup unit
- UPS status detection
- Multiple local, global, and enclosure-specific hot-spares

#### Management

- Java-based SANWatch software with Snapshot protection
- Terminal via RS-232C
- Telnet over Ethernet
- Event notification methods: Email/Fax/LAN broadcast/ SNMP traps/SMS/ MSN

#### Approvals

- BSMI, CB, CE, FCC, UL, cUL, RoHS
- Microsoft WHQL- Windows Server 2003
- Microsoft Multi-Cluster Submission- w/MPIO

#### Requirements

- AC Input: 100VAC ~ 240VAC 530W with PFC
- DC Output: 12V-32A; 5V-32A; 3.3V-30A
- Relative Humidity: 5% to 95% non-condensing
- Operating Temperature: 0°C to 40°C (without BBU) 0°C to 35°C (with BBU)

#### Dimensions

- 3U, 19-inch rackmount chassis
- Without handles: 445(W) x 130(H) x 488.2(D) mm (17.5 x 5.1 x 19.2 inches)
- With handles: 482.6(W) x 131(H) x 504.3(D) mm (19 x 5.1 x 19.9 inches)

#### OS Support

- Microsoft Windows 2000 Server
- Microsoft Windows 2003 Server
- Sun Solaris ver. 9/10
- RedHat Linux ver. 8/9, 64-bit, Enterprise ver.3
- SuSE: Linux ver. 8/9, 64 bit
- Fedora 64-bit
- MAC OSX version 10.4

### S16S-J1000-R/S (JBOD)

#### JBOD Characteristics

- Single/redundant expander controller 2
- SAS 4x wide port per controller 2
- PSUs 2
- Cooling module
- Diagnostic LEDs panel

#### Drive Interface

- SAS/SATA-II 16
- Number of disk trays 3

#### Maximum Connection

- To dual-controller RAID 4
- To single-controller RAID