

# EonStor<sup>®</sup> S12F-R1420/G1420

Enhanced 2U Profile, Single or Dual Controller  
12-drive, FC-4G to SAS/SATA RAID Subsystem



Today's storage market demands higher capacity and better performance storage devices while lowering the total cost of ownership. Infortrend strives to develop new storage systems to fulfill this need.

The EonStor S12F-R/G1420 is built around Infortrend's ASIC266 with XOR engine, FC-4G host channels, and supports twelve (12), hot-swappable, serial attached SCSI (SAS) or serial ATA (SATA) hard drives in a 2U profile. It achieves system throughput of 780MB per second (MBps) and provides IT professionals with a scalable storage subsystem that ensures future product compatibility and investment protection.

**Infortrend<sup>®</sup>**



## HIGHLIGHTS



- The best end-to-end I/O performance in a RAID5 configuration:  
Sequential Reads: 780MBps  
Sequential Writes: 521MBps
- 2U, 12-bay, single or redundant RAID controller subsystem
- Two (2) FC-4G host channels on each controller
- Supports a combination of up to twelve (12) SAS 3Gb and/or SATA-II disk drives
- Supports up to 2GB DDR cache memory per controller
- Supports RAID levels 0, 1 (0+1), 3, 5, 6, 10, 30, 50 and 60
- Hot-swappable battery backup units (BBUs) for memory data protection
- One click restores subsystem settings to factory default
- Effortless management through the LCD keypad, RS-232C terminal, or Java-based RAIDWatch® manager over the Internet

## OVERVIEW



Using 4G Fibre host channels, the S12F-R/G1420 doubles performance speed while maintaining backward-compatibility with 1G and 2Gbps systems. The latest SAS drive channel delivers four times the speed of parallel SCSI, enables faster and more reliable product link speeds, and provides a lower cost-per-gigabyte. The subsystem also supports SATA-II hard drives that improves the return on investment ratio.

### AVAILABLE MODELS

Two (2) models are available for the FC to SAS/SATA RAID subsystem.

Models	Configurations
S12F-R1420	Redundant controller
S12F-G1420	Single controller

### RELIABILITY

The subsystem supports BBU(s) that supply power to cache memory in the event of power loss. The S12F-R/G1420 further guarantees data safety by supporting the installation of an uninterruptible power supply (UPS), which can extend the operating time for the entire subsystem if a power shortage ever happens.



With the seamless firmware features of Infortrend's Smart Technologies and the choice of all RAID configuration levels, including enhanced RAID6 protection, the ES S12F-R/G1420 delivers reliable, consolidated storage for today's enterprise environments.

### AVAILABILITY

All major components on the S12F-R/G1420, such as controller module(s), disk drives, power supplies, and cooling modules, are integrated into the passive backplane via board-to-board connectors to increase availability and eliminate single points of failure, thus greatly increasing system uptime.

The highly flexible design features FC-4G host channels to achieve dual-path redundancy, making this subsystem an excellent choice for mission-critical applications.

### SERVICEABILITY

The modular nature of the subsystem and the easy accessibility to all field replaceable units (FRUs) through the front and rear panels ensure easy subsystem maintenance.

A variety of configuration and monitoring methods are available, either locally via the LCD keypad panel and the text-mode RS-232C terminal utility, or remotely through the Java-based GUI manager. All fault conditions, including module failure and abnormal voltage and temperature readings, are instantly reported.

### MANAGEABILITY

Managed by the LCD keypad panel, the S12F-R/G1420 provides a convenient way to monitor and be notified of the subsystem status. The LCD keypad panel is a simple management interface allowing users to configure and monitor the subsystem. All modules on the subsystem have LED indicators so that subsystem status can be determined in seconds.

The subsystem can also be accessed through the RS-232C terminal, telnet, or remotely through the Java-based RAIDWatch® Manager. By setting up RAIDWatch® Manager, users can be constantly aware and automatically notified of array status using any or all of the following notification methods: email, fax, LAN broadcast, SNMP traps, MSN Messenger, SMS messages, and the configuration utility screen.



**INFORTREND SMART TECHNOLOGIES**

Derived from more than ten years experience in RAID storage design, Infortrend's innovative firmware delivers Smart Technologies that provide enhanced storage solutions for every customer environment, from small organizations to large enterprises. These technologies enhance I/O processing, drive handling, and system management.



**MAJOR MARKETS AND USES**

Infortrend products are used in server-attached and networked data storage environments in major industries such as medical imaging, multi-media on demand (MOD), and digital media including video-on-demand, stream editing and more.



**IOSmart**

IOSmart allows for the flexible configuration of logical drives, logical volumes and logical partitions and ensures instant RAID availability via background logical drive initialization. Fibre loops load balancing is provided within the subsystem. The firmware's embedded intelligent algorithms, such as Adaptive Write Policy and Guaranteed Latency I/O, improve sequential write performance and ensure the fast and continuous flow of data.

**DrvSmart**

The DrvSmart utility provides an easy way to store data while keeping it safe. One of the main DrvSmart functions, Media Scan, retrieves data from degraded or damaged hard drives and handles low quality drives in both the degraded mode and during the rebuild process. Other DrvSmart features include disk cloning, drive roaming, SMART, transparent resetting of non-responsive hard drives, and RAID parity update tracking and recovery.

**SysSmart**

SysSmart combines enclosure monitoring and firmware management capabilities to minimize the chance of downtime caused by hardware failures. The auto data protection mechanisms were developed to ensure data safety. Other SysSmart functions include event-triggered as well as other monitoring utilities and approaches combined with the powerful RAIDWatch Manager. Component status, voltage and temperature readings, and system events are instantly revealed through the Manager's graphical interface.

**SPECIFICATIONS**

**SUBSYSTEM CHARACTERISTICS**

- 600MHz RISC CPU, 512KB L2 cache
- ASIC266 RAID engine
- Single or Redundant RAID controller(s)
- DDR cache memory per controller 512MB
- BBU per controller 1
- LCD keypad panel 1
- COM ports per controller 2
- 10/100 Ethernet ports per controller 1
- Diagnostic LEDs on all FRUs

**DRIVE INTERFACE**

- Number of disk trays 12
- SAS 3Gb drive channel (SATA-II compatible)

**HOST INTERFACE**

- SFP ports per controller 2
- Data single channel bandwidth 400MBps
- Auto-negotiate (1, 2, and 4Gbps)
- F\_port, FL\_port
- Tag command queuing
- Multiple target IDs

**RAID CONFIGURATIONS**

- RAID levels 0, 1(0+1), 3, 5, 6, 10, 30, 50, 60, JBOD
- Max. 32 logical drives
- Max. 1024 LUNs
- Multiple array configurations
- Automatic background rebuild
- Infortrend Smart Technologies

**HIGH AVAILABILITY**

- Redundant, hot-swappable FRUs
- Subsystem self-diagnostics
- Battery backup units
- UPS status detection
- Hot-spare disk drives

**MANAGEMENT SOFTWARE**

- RAIDWatch GUI software
- Terminal via RS-232C
- Telnet over Ethernet
- LCD keypad panel
- Event notification methods
  - Email
  - Fax
  - LAN broadcast
  - SNMP traps
  - Cell phone message
  - Instant messengers

SMS  
MSN

**OS SUPPORT**

- Microsoft Windows NT
- Microsoft Windows 2000 Server
- Microsoft Windows 2003 Server
- Sun Solaris ver. 8/9
- RedHat Linux ver. 8/9, Enterprise ver.3
- SuSE Linux ver. 8/9

**REQUIREMENTS**

- AC Input
  - 90VAC at 7A; 264VAC at 3.5A with PFC (auto-switching)
- DC Output
  - 12V-24A; 5V-36A; 3.3V-20A
- Relative Humidity
  - 5% to 90%, non-condensing
- Operating Temperature
  - 0°C to 40°C

**DIMENSIONS**

- 2U, 19-inch rackmount chassis
- Without handles:
  - 481.6mm W x 88mm H x 498mm D (19 x 3.5 x 19.6 inches)
- With handles:
  - 446mm W x 88mm H x 498mm D (17.6 x 3.5 x 19.6 inches)

SPARE PARTS & ACCESSORIES



SPARE PARTS

Description	Model Name
Fibre to SAS/SATA RAID controller module for ES S12F-R1420 subsystem, 2 FC-4G SFP host connectors, RAID 6	IFT-85SF14RD12C
Fibre to SAS/SATA RAID controller module for ES S12F-G1420 subsystem, 2 FC-4G SFP host connectors, RAID 6	IFT-85SF14GD12C
Right-side forearm handle for ES 2U series subsystems	IFT-9272CHandR
Left-side forearm handle for ES 2U series subsystems, LCD panel included	IFT-9272CHandLLCD
Battery cell pack, Li-ION, for ES 2U-R subsystems	IFT-9275CBTC
Power supply module for ES 2U-R subsystems, 405W capacity	IFT-9275CPSU
Cooling fan module for ES 2U-R subsystems	IFT-9275CFanMod
Drive tray, Type-III bezel and Type-II LED lightpipe	IFT-9273CDTray
512MB DDR RAM DIMM module for ASIC266 platform	IFT-DDRESCM5
1GB DDR RAM DIMM module for ASIC266 platform	IFT-DDRESCMA
2GB DDR RAM DIMM module for ASIC266 platform	IFT-DDRESCMB

ACCESSORIES

Description	Part Number
Null modem, DB-9 female to DB-9 male, wires swapped	IFT-9011
Serial port Y-cable for dual-controller subsystems, 2 audio jacks -to-1 DB-9; maintenance-free during controller failover/failback	IFT-9270AYCab
RS-232C serial cable, audio-jack to DB9	IFT-9270ASCab
Dummy drive tray, Type-II bezel	IFT-9272CDTrayDmy
HDD dongle board, 2 SAS-to-1 SATA (SATA-II) MUX conversion, active-active port selector embedded, dual-controller subsystems	IFT-9273S1N2S1S
Drive tray (Type-III bezel and Type-II LED lightpipe), 2 SAS-to-1 SATA (SATA-II) MUX conversion, active-active port selector embedded, dual-controller subsystems	IFT-9273S1DT2S1S
UPS Y-cable, 2 audio jack to DB-9	IFT-9270CUPSYCab
UPS cable, audio-jack to DB-9	IFT-9270CUPSCab
Agilent Fibre Channel 2.125 / 1.0625 GBd Small Form Pluggable Optical Transceiver, LC, wavelength 850nm, multi-mode	IFT-9270CSFP2GA01
Agilent Fibre Channel 4.25 / 2.125 / 1.0625 GBd Small Form Pluggable Optical Transceiver, LC, wavelength 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
Enhanced slide rail assembly for ES 2U subsystem, 21" to 28.5" rack depth	IFT-9272CESlide28
Enhanced slide rail assembly for ES 2U subsystems, 25.5" to 36" rack depth	IFT-9272CESlide36



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