



NS-RC 150F

4 Ultra160 Channels

Ultra160-to-Ultra160 RAID Controller

5.25" Half-Height Profile



OVERVIEW

The NS-RC 150F is designed for today's demanding I/O applications with advanced RAID operations featuring four Ultra160 SCSI channels. Its exceptionally high performance derives from the combination of a 64-bit RISC PowerPC 750 CPU and Infortrend's sophisticated RAID ASIC. I/Os are rapidly processed and distributed to array hard drives. Data is transferred between the host and the drives via a high-speed 64-bit data path at a burst rate of 1056MB/second. The result is a controller which excels in applications that require both high sustained data rates and fast I/O turnaround.

FEATURES

High Flexibility

Each SCSI channel can be defined as either a drive channel or a host channel. This allows users to connect multiple host systems through independent channels. Background firmware download and automated rolling upgrade (in redundant mode) are also supported.

High Data Availability

With a multitude of RAID functions, the NS-RC 150F gives users both the highest data availability and security. NS-RC 150's capabilities include: automatic drive failure detection, background rebuilding, and bad sector reassignment. When the controller detects a hard drive failure in a RAID 1, 3, or 5 logical drive, the disk array will instantly replace the failed disk with a hot-spare drive. Data is reconstructed into the hot-spare drive, while the host remains uninterrupted. In the absence of a hot-spare drive, users can hot-replace the failed drive with a new one and initiate an automatic rebuild.

Advanced Configuration Options

RAID level stripe size is configurable on a per logical drive basis. Caching mode is automatically switched to a conservative state upon the discovery of critical conditions.

Active-Active Redundancy

The controller supports active-active redundancy and the controller failover/failback is totally transparent to host. Array workload can be flexibly assigned to either controller on a per logical unit basis while cached data is constantly synchronized over the dedicated communications channel. Different caching mode optimization applies to different logical drives for the best adaptation to I/O characteristics.

Bad Sector Management

NS-RC 150F detects bad sectors on SCSI drives during disk reads or writes. It will recover the data from parity fault and perform bad sector reassignments.

A manual Scrub function helps to discover media errors on drives. Data is then safely reconstructed onto the healthy sectors.

Battery Backup

Infortrend's battery backup option protects write-back cache data from sudden power interruptions. If system power is lost before the controller completes a cache write flush operation, the battery supplies auxiliary power (see specifications for details) to the controller's DRAM until system power is restored and the write cache is flushed.



SPECIFICATIONS

Compatibility

- Host platform independent
- Host OS independent
- 5.25 inch, half-height form factor
- Support for S.M.A.R.T. capable drives

SCSI Operation

- Ultra160 SCSI channels
- Up to 160MBytes/sec per channel
- Up to 15 devices per channel, total of 105 drives per controller
- Concurrent I/O commands
- Tagged Command Queuing
- Automatic bad sector reassignment
- Built-in SCSI terminator
- Up to 12m cable length

RAID Operation

- RAID levels 0, 1, (0+1), 3, 5, 10, 30, 50, NRAID and JBOD
- All channels can be assigned as host/drive
Up to 8 logical drives of variable RAID levels for a maximum of 16 terabytes
- Dedicated and global spare drive support
- Configurable stripe depths
- Multiple host and clustering support
- Host-LUN mapping, 32 LUN's per ID
- On-line RAID expansion

Fault Detection, Monitoring and Recovery

- Auto-rebuilding
- Background rebuilding
- Hot spare drive operation
- Disk hot-swapping
- Memory parity checking
- Infortrend Simple Enclosure Management Service (ISEMS) via I²C interface
- SAF-TE support
- On-board alarm
- Controller self-diagnostics
- Voltage and temperature monitoring
- Caching mode switch upon the discovery of system faults

Management

- RAIDWatch GUI management software for use on any platform that supports Java 2.0 or higher.
- Text-based RAID manager (Text RAID Manager) software (all major platforms)
- Firmware-embedded manager (via RS-232C port)
- Management via In-band SCSI
- Field-upgradable firmware in flash memory

Processor

- PowerPC 64-bit RISC microprocessor
- Infortrend proprietary 64-bit ASIC chipset with enhanced hardware XOR
- Read-Ahead/Write-Back cache
- Up to 1GB maximum cache size on single SDRAM DIMM socket with ECC support
- Immediate logical drive availability
- Write-through, write-back, multi-threaded intelligent predictive read-ahead, optimized sorted and grouped writes
- New/unused drives automatically assigned as global spares

Expansion Daughterboard

- **IFT-9284FU3A: 4 Ultra160 channels**



Physical / Electrical

Channels	4 Ultra160 SCSI (expandable to 8)
Interfaces	2 Power, I ² C port, Fault-Bus Plus, serial port COM1 + COM2, battery connector
Input Voltage	+ 5VDC, + 12VDC
Form Factor	5.25" half-height, 9.51L x 5.74W x 1.60H inches
Main Board Dimensions	8.31L x 5.51W inches
Operating Temperature	5 to 40°C
Relative Humidity	10-95%, non-condensing
Altitude	Sea level to 10,000 ft
MTBF	> 500,000 hours

ACCESSORIES

- IFT-9016 RS-232 cable
- IFT-9011 Null Modem
- IFT-9010D Battery cell pack
- IFT-9070D Battery backup daughterboard (charger circuit)
- IFT-9519D Battery extension cable



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