



# NS-RC 2500F

4 Ultra160 Channels  
(Up To 8 Ultra160)



	CHANNELS	PROFILE
2500F	4 Ultra160	Half-height
2500F-50	4 Ultra160	Board-only

## OVERVIEW

The newest member of the NS-RC 2500F series is designed with Infortrend's 133MHz chipsets and PowerPC 750CXe CPU for fast, high-throughput RAID operation. I/Os are rapidly processed and distributed to array hard drives via a high-speed 64-bit data path in the maximum bandwidth of 1056MB/second. The result is a controller ready for future applications that require both high sustained data rates and fast I/O turnaround.

## FEATURES

### High Flexibility

All SCSI channels can be defined as either host or drive. This allows integrators a flexible deployment for connecting multiple host systems through independent channels.

Firmware upgrade can be performed on single or redundant controllers during active services. Controllers can shift I/Os temporarily allowing firmware on both controllers to be updated. In the unlikely event of controller

failure, a failed unit can be replaced with one running later version of firmware.

64 array partitions and 128 LUN's per controller are supported.

### High Data Availability

The controller's advanced capabilities ensure the highest level of availability and fault-tolerance. The capabilities include: automatic drive failure detection and background rebuild, bad sector reassignment, auto failback/failover, multi-level RAID, to name a few.

When the controller detects a hard drive failure in a RAID 1, 3, or 5 logical drive, the disk array instantly replaces the failed disk with a hot-spare. Data is reconstructed into the hot-spare drive without interference to the host. In the absence of a hot-spare drive, users can hot-swap the failed drive with a new one and an automatic rebuild will begin.

The battery backup option protects write-back cache data from sudden power interruptions. The battery supplies auxiliary power to maintain cached data for up to 72 hours.

### Bad Media Management

The controller is capable of detecting bad sectors on SCSI drives during disk reads or writes, recovering the data from parity fault, and performing bad sector reassignments. Bad sector management is fully transparent to host.

Ultra160-to-Ultra160  
External RAID Controller  
5.25" Drive Profile

### Active-Active Redundancy

The controller supports active-active redundancy with a synchronized write-back cache. Each controller has a dedicated high-bandwidth channel for an exact replica of the counterpart's cached data. I/Os belonged to a failed controller can be automatically transferred to the surviving controller, and vice versa to the replacement making failover and failback totally transparent to host.

### Zero-Down-Time Technology

The controller is designed from top to bottom to be hot-swappable. The docking connectors and special canister mechanism ensure joining and separating main board free of signal glitches and power surge.

With automatic failover/failback, auto rebuild, synchronized cache..., disk array operation is thoroughly protected from possible causes of downtime.

**Board-Only Solutions for OEMs**  
NS-RC 2500F controllers are the ideal solutions for OEM customers who design their own backplanes. The controller board can be readily integrated with a cableless and hot-swappable enclosure design via the connection of all supported signals over docking connectors.



SPECIFICATIONS

Compatibility

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

SCSI Operation

- Ultra160 160MBytes/sec per channel transfer rate with CRC data protection
- 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
- Multiple host support; all channels can be assigned as host or drive
- Write-through, write-back, multi-threaded intelligent predictive read-ahead, optimized sorted and grouped writes
- Up to 8 logical drives of variable RAID levels for a maximum of 16 terabytes
- Host-LUN mapping
- On-line RAID expansion
- Clustering support

Fault Detection, Monitoring and Recovery

- Active-active redundant controller operation with synchronized write-back cache
- Auto-rebuilding
- Background rebuilding
- Dedicated and global spare drive support
- Disk hot-swapping
- Memory parity checking
- SAF-TE and Infortrend Simple Enclosure Management Service (ISEMS) via I<sup>2</sup>C interface
- Controller self-diagnostics: voltages, temperature (CPU, board, ASIC, ...) and fan rpm

Management

- RAIDWatch GUI management software through In-band SCSI or out-of-band via Ethernet interface for 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)
- Field-upgradeable firmware in flash memory

Processor

- 400MHz PowerPC 750CXe with an internal L2 cache of 256Kb
- Infortrend proprietary 64-bit ASIC chipset as XOR engine
- Up to 1GB maximum cache size on single SDRAM DIMM socket with ECC support

Physical / Electrical

Channels	Ultra160 SCSI
Interfaces	Power x 2, I <sup>2</sup> C port, serial port, battery
Input Voltage	+ 5VDC, + 12VDC
Form Factor	5.25" half-height, 10.39L x 5.74W x 1.60H inches
Main Board Dimensions	6.88L x 5.62W inches
Operating Temperature	5 to 44°C
Relative Humidity	10-95%, non-condensing
Altitude	Sea level to 10,000 ft
MTBF	> 500,000 hours

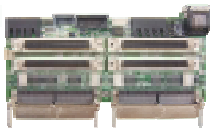
ACCESSORIES

- IFT-9010D Battery cell pack
- IFT-9070D Battery daughterboard (charger circuit)
- IFT-9512 COM1 + COM2 combo cable
- IFT-9515 Terminator power cable
- IFT-9531 Bezel key
- IFT-9535 X cable for redundant controller configuration
- IFT-9537 Ethernet cable

CONTROLLER BACKPLANE

IFT-9288FMB44

DB68 SCSI, power, I<sup>2</sup>C port, serial port, Ethernet, battery, termpower



EXPANSION

DAUGHTERBOARD

IFT-9284FU3

4 Ultra160



BACKPLANE

IFT-9288FB4

4 DB68 SCSI connectors, termpower



OEM VERSION

IFT-9284FU3M

4 Ultra160



Distributed By:



NETWORK SYNTHESIS

Phone: (949)453-1805 • Fax: (949) 453-1806
Web: http://www.networksynthesis.com
Email: info@networksynthesis.com

\* Specifications are subject to change without prior notice.
\* Other trade names and trademarks belong to their respective owners.