

# RAID-410-IDE

# RAID Subsystems

## 4U SCSI to IDE RAID Subsystem

### Features

- Host Independent data protection for all popular Operating Systems
- Supports RAID levels 0, 1, 0+1, 3, and 5
- Ultra2 LVD host port
- Backplane design
- 19" rackmount 4U-high chassis
- Supports up to eight 3.5" hot-swappable Ultra DMA hard drives



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### Introduction

The RAID-410-IDE is an intelligent Ultra2 SCSI host to IDE drive ready RAID subsystem supplying fault tolerant data protection and 100% transparency to the host operating system. The RAID-410-IDE is a full-featured RAID array supporting RAID levels 0, 1, 0+1, 3, and 5. For higher data throughput rates and extended SCSI cable lengths, the RAID-410-IDE contains an Ultra2 SCSI host interface that provides data rates up to 80 MB/sec.

### High Performance and Lower Cost of Ownership

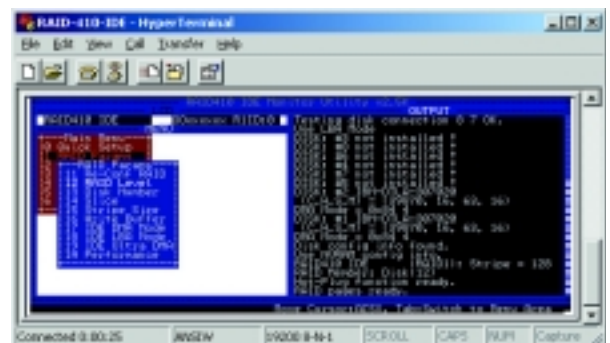
IDE hard disks are more affordable than SCSI drives but offer compatible data throughput and availability. The RAID-410-IDE's high performance comes from an embedded controller with a 64-bit processor and 64 MB of cache. It also supports SCSI features like Tagged Command Queuing which allow the embedded controller and the host operating system to coordinate command execution for maximum system efficiency.

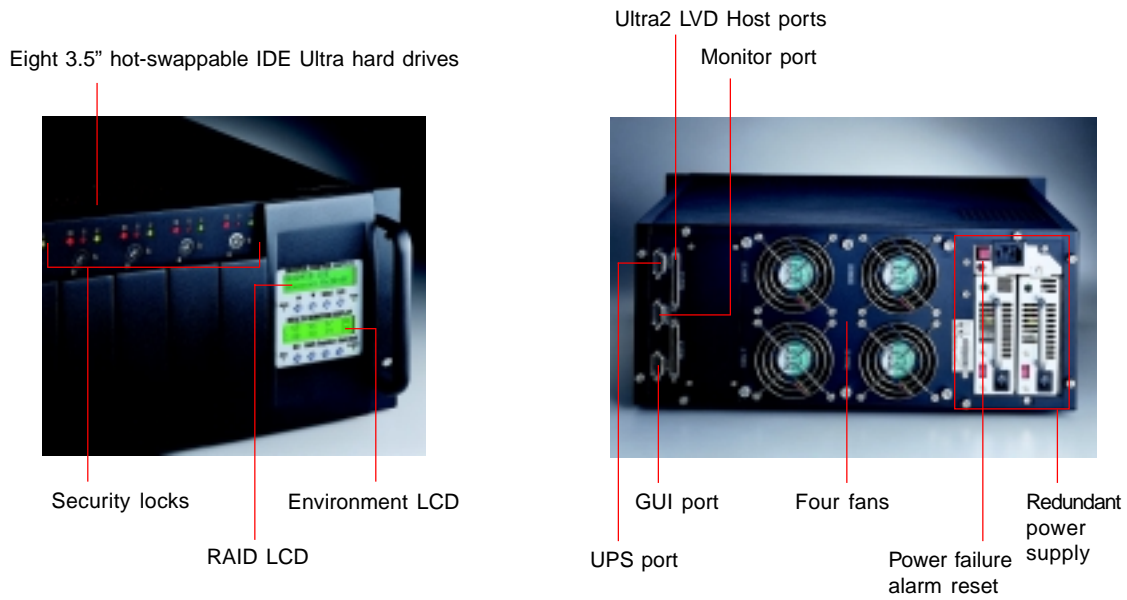
### High Data Availability, Hot-Swap, Auto-rebuild and Hot-spare

The RAID-410-IDE comes with 8 hot-swappable drive trays accommodating 3.5" Ultra DMA drives. The hot-spare feature allows the controller to automatically start rebuilding the data that was in a failed drive using a hot standby drive. For an additional level of reliability, the subsystem contains a backplane design which eliminates the problems associated with cable interconnects.

### Manageability and System Monitoring

With a menu driven front panel LCD display, a terminal serial port, real time drive status indicators and a Java based GUI interface, the RAID-410-IDE delivers a variety of ways to be managed and monitored.





## Specifications

Processor System	CPU	Intel® i960RN 64-bit	
Cache Memory	Max. Capacity	128 Mb (64 Mb installed)	
Channel		Host	Drive
	Number	1	1
	Interface	SCSI Ultra2 LVD	IDE Ultra DMA/100
	Max. Data Transfer Rate	80 MB/sec.	--
Drive Bay	3.5" HDD	8	
	Maximum of Capacity	1280 GB (160 GB x 8)	
	Drive Form Factor	1" height (low profile)	
	Drive Interface	IDE Ultra DMA/100	
	Backplane Board	Yes	
	Security Lock/Door	Yes	
RAID	Level	0, 1, 0+1, 3, 5	
	Auto Rebuilding	Yes	
	Hot-spare	Yes	
	On-line Expansion	Yes	
	Command Queuing	Up to 255 commands	
Cooling	Fan	4	
Management	Control & Monitoring	Web Based GUI management software, Text-based RAID manager software via RS-232	
	Alert Notification	Fax, e-mail, pager	
	Fault Detection System	HDDs, fan, temperature, power supply	
	Control	Power switch and alarm mute switch	
	Indicator	LCD/LED for power, fan, temperature, and HDDs (w/ HDD failure indicators)	
	UPS Connection	Yes	
Power Supply	Watt	250 W (1+1) Redundant	
	Input	AC 115 V	AC 230 V
		50 Hz	60 Hz
		2.5 A	5 A
Environment		Operating	Non-Operating
	Temperature	0 ~ 40 °C (32 ~ 104 °F)	-20 ~ 60 °C (-4 ~ 140 °F)
	Humidity	5 ~ 95 %, non-condensing	5 ~ 95 %, non-condensing
Physical	Dimensions (W x H x D)	482 x 176 x 449 mm(19" x 6.9" x 17.6")	
	Weight	17 Kg (37.5 lb)	

## Ordering Information

Model Name	Descriptions
RAID-410-IDE	4U SCSI to IDE RAID Subsystem

# RAID-500U3

# RAID Subsystems

## 5U Ultra 160 SCSI RAID Subsystem

### Features

- Host-independent RAID solution
- 64-bit RISC high performance RAID processor
- Ultra 160 SCSI to SCSI interface
- Host OS independent
- RAID levels 0, 1, (0+1), 3, 5, 10, 30, 50
- Eight SCA-2 hot swap disk drive bays (1.6" height)
- Multiple Host, MSCS clustering support
- Web and Text based GUI management software
- Management via In-band SCSI, LAN SNMP, and RS-232



### Introduction

The RAID-500U3 disk array stand-alone subsystem provides a high-density, flexible, and scalable solution for centralized data storage. You can handle the RAID-500U3 as easily as handling a single SCSI HDD. The subsystem is compatible with any standard Ultra Wide/Ultra2/Ultra 160 SCSI adapter card.

### Data Security

#### Hot-swap, Auto-rebuild, Hot-spare

The RAID-500U3 provides several configurations designed for high data availability. The failed HDD can be hot-swapped and replaced with a new HDD. The system will dynamically reconfigure the drives and auto-rebuild the lost data in the background, with no need for rebooting.

Users can specify some of the HDDs as spare in advance, thus enabling the RAID-500U3 to recover data automatically (hot-spare). Other functions include hot stand-by, auto drive failure detection, and so on.

### High Manageability

#### Real-time, Remote Alarm Notification

The RAID-500U3 is equipped with an alarm board for automatically detecting and notifying you of a power failure, fan failure and overheating within the chassis. Audible and visual alarms enable users to locate the problems immediately.

You can also set your system to send the alarm notification to a remote host, or a pager via a modem, and to provide real-time and intelligent management of the server system.

#### Easy Set Up LCD Front Panel

The RAID controller provides four operation buttons and a LCD display window for users to easily configure the RAID parameters.

#### JAVA-Based GUI RAID Manager

A user-friendly Graphical Interface for any platform that supports Java 2.0 or higher. Communicates with controllers via LAN, Internet using hybrid TCP/IP agents; RS-232C or in-band SCSI over the host SCSI channels.

### Expansion Tips

#### On-line Expansion for Single RAID-500U3 Unit

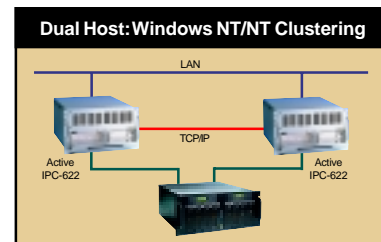
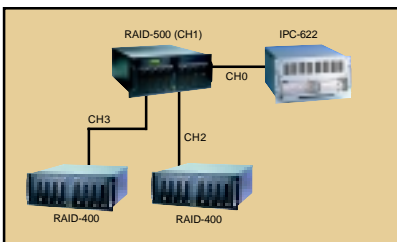
New HDDs can be added to the RAID-500U3 spare disk cartridge on-line and can be scanned and identified automatically. The system will update the configuration in the background.

#### Scalable, High Capacity RAID Subsystem

The RAID-500U3 can easily be scaled up to provide huge storage capacity. Each SCSI channel supports up to 8 drives, enabling you to expand your system up to hundreds of GBs!

#### Maximum Fault Tolerance Configuration

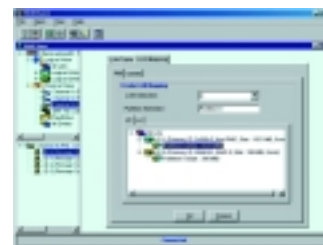
Connect from two server RAID controllers for maximum subsystem fault tolerance and no single point of failure.



## RAID-400: Expansion Enclosure



Redundant Power Supply



The RAID-400 is the ideal choice as your drive expansion enclosure. It offers high storage capacity and greater storage density.

## Specifications

Processor System	CPU	PowerPC 64-bit RISC CPU	
Cache Memory	Max. Capacity	2 GB (64 MB installed)	
Channel	Number of Host or Drive Channel	4 (extendable up to 8)	
	Interface	SCSI Ultra 160 LVD	
	Max. Data Transfer Rate	160 MB/sec.	
	All Channels Can Be Assigned as Host or Drive	Yes	
	Multiple Host Support	Yes	
	MSCS Clustering Support	Yes	
Drive Bay	3.5" HDD	8	
	Maximum of Capacity	1440 GB (180 GB x8)	
	Drive Form Factor	1.6" height	
	Drive Interface	Ultra 160, SCA-2 (80-pins)	
	Security Lock/Door	Yes	
RAID	Level	0, 1, 0+1, 3, 5, 30, 50	
	Auto Rebuilding	Yes	
	Hot-Spare	Yes	
	On-line Expansion	Yes	
Cooling	Fan	2 (49 CFM/each)	
	Control & Monitoring	Web Based GUI management software, Text-based RAID manager software via In-band SCSI, LAN SNMP, RS-232	
	Alert Notification	Fax, e-mail, pager	
	S.M.A.R.T (Self-Monitoring Analysis and Reporting Technology)	Yes	
	Fault Detection System	Fan, temperature, power supply	
	Controls	Power switch and alarm mute switch	
Management	Indicators	LCD/LED for power, fan, temperature, and HDDs	
	Watt	300 W (1+1) Redundant	
	Input	AC 115 V	AC 230 V
		5 A	2.5 A
50 Hz		60 Hz	
Environment	Temperature	Operating: 0 ~ 50 °C (32 ~ 122 °F) Non-Operating: -40 ~ 60 °C (-132 ~ 140 °F)	
	Humidity	10 ~ 85 %, non-condensing	
	Dimensions (W x H x D)	482 x 222 x 482 mm (19" x 8.75" x 19")	
Physical	Weight	24 Kg (52.8 lb)	

## Ordering Information

Model Name	RAID Controller	Controller CPU	DRAM for RAID Controller	No. of SCSI Channels	RAID Level	SCSI Interface	SCSI Bandwidth	SCSI Cable	SCSI Disk Cartridges Installed
RAID-500U3	Yes (Single)	RISC, 64-bit	64 MB	4	0, 1, (0+1), 3 or 5	Ultra160	160 MB/sec.	LVDS	8 (SCA 80-pin type)
RAID-500M	--	--	--	--	--	Ultra160	160 MB/sec.	LVDS	8 (SCA 80-pin type)
RAID-500	--	--	--	--	--	Ultra160	160 MB/sec.	LVDS	--

## Accessory Options

Model Name	Descriptions
RAID-400M	4U SCSI disk enclosure with 300 W redundant power supply and 8 SCA disk cartridges
RAID-400	4U SCSI disk enclosure with 300 W redundant power supply, without disk cartridges
RHC-U160-BLK	SCSI Ultra160 removable HDD cartridge for 80-pin SCA HDD, black