



# **XL-RAID133v2**

## **Data Backup System**

User's Guide



## Contents

Chapter 1 Introduction .....	2
1-1 Functions and Features .....	2
1-2 Product Specifications .....	3
1-3 System Requirements and support .....	3
1-4 Note (Read carefully before using XL-RAID133v2 ) .....	4
Chapter 2 Installation .....	5
2-1 Package Contents .....	5
2-2 Part Description .....	6
2-3 How to open/close the front panel .....	7
2-4 How to remove/insert the Removable Carrier .....	8
2-5 Installing HDD in the Removable Carrier .....	10
2-6 Installing the XL-RAID133v2 in your Computer .....	10
Chapter 3 RAID Use .....	11
3-1 Factory Default .....	11
3-2 Installation .....	12
Chapter 4 LCD Information List .....	13
4-1 Auto Rebuilding Status .....	13
4-2 LCD display showing HDD status .....	14
Chapter 5 Firmware Update .....	16
Chapter 6 RAIDGuide Software .....	17
6-1 Introduction .....	17
6-2 How to Install .....	17
Chapter 7 Questions & Answers .....	19
APPENDIX .....	21

# Chapter 1 Introduction

XL-RAID133v2 provide disks mirroring (RAID1) and striping (RAID0) functions for small offices or home offices. XL-RAID133v2 is an excellent reliability and high-efficiency solution for online back up or capacity expansion.

## 1-1 Functions and Features

### Interface

- ✍ ATA133 E-IDE interface, up to 133MB/Sec.
- ✍ Supports 2 ATA133/ATA6 E-IDE Drive.
- ✍ Alarm for HDD failure, overheat and fan failure (XL-RAID133v2 only).

### RAID

- ✍ Supports RAID 0, 1.
- ✍ The two hard disks can simultaneously perform mirroring for online backup or striping for capacity expansion.
- ✍ One of the two hard disks can function as source, and the other as target for back up purpose. (RAID 1)
- ✍ Providing **on-line rebuilding** function. (RAID 1)
- ✍ **Hot swappable** to replace damaged HDD without interrupting system. (RAID 1)
- ✍ Supports over 400GB Capacity. (RAID 0)

### Enclosure

- ✍ **Independent Operating Systems (OS)**, no drivers required.
- ✍ LCD screen showing HDD operating status.
- ✍ RAIDGuide GUI Software with E-mail notification Aluminum case (XL-RAID133v2 only).
- ✍ Fan failure and overheat detectors.

## 1-2 Product Specifications

<b>Model No.</b>	<b>XL-RAID133V2</b>
<b>System Specifications</b>	
Microprocessor	8032 microprocessor
Host Interface	ATA133/UDMA133
Host Transfer Rate	133MB/sec
RAID level	0, 1
Installation Space	2 x 5-1/4" Expansion Bay
Drive	2 x ATA133/UDMA133 EIDE 1" Height
HDD Selection Mode	Master/Slave
Support Big Drive	Yes
Overheating prevention	8cm Ball Bearing Fan
<b>Environmental Conditions</b>	
Operating Temperature	0°C~55°C
Non operating Temperature	-20°C~70°C
RAIDGuide GUI Software	Yes
<b>Reliability</b>	
Error Detector	HDD, Overheat, Fan
<b>Dimensions</b>	
Material	Aluminum
Measures (mm)	146(W)X238(D)X85(H)
Weight	0.9 Kg (HDD Excluded)
Safety	CE, FCC, BSMI Certificate

## 1-3 System Requirements and support

### ✍ Hardware Requirements

1. With IDE Interface Computer System.
2. HDD with standard EIDE/IDE Interface.
3. 2 x 5-1/4" Expansion Bay.
4. One 4-pin DC power socket outlet.
5. To be afford to offer two hard disk power consumption.

## 1-4 Note (Read carefully before using XL-RAID133v2 )

1. Use two identical hard disks (same brand name and model) for optimum performance and greatest convenience.
2. To obtain optimum performance, use two brand new hard disks or hard disks in perfect conditions without any damaged sectors.
3. Use hard disks with a minimum capacity of 3.2GB Ultra DMA 33/66.
4. Easy to use with hard disks manufactured by QUANTUM, IBM, MAXTOR, or Western Digital, etc.
5. Whether it is the upper or lower deck, please set up both Hard Disks to **MASTER** mode or else HDD won't be detected.
6. If replacing an old HDD with a new one, please purchase the same brand and choose a disk capacity greater than or equal to the original one.
7. XL-RAID133v2 will automatically format a new HDD as use the **Auto-Rebuild** Function to copy data to the new target HDD.
8. Normal HDD mode for XL-RAID133v2 is Ultra DMA. In the event of failure to work with EIDE connector, HDD will automatically configure itself in PIO mode 4 or with lower speed.
9. There is a Ball Bearing Fan integrated in the XL-RAID133v2 to prevent overheating for 7200 rpm HDD. When two 7200rpm Hard Disks are installed in a very busy server, we suggest adopting a PC case with optimal design for overheating prevention in order to avoid PC or RAID crashes.
10. In case of power failure during the **Auto-Rebuild** Function, controller will remember the rebuilding progress percentage and carry on the operations when the power is restored.

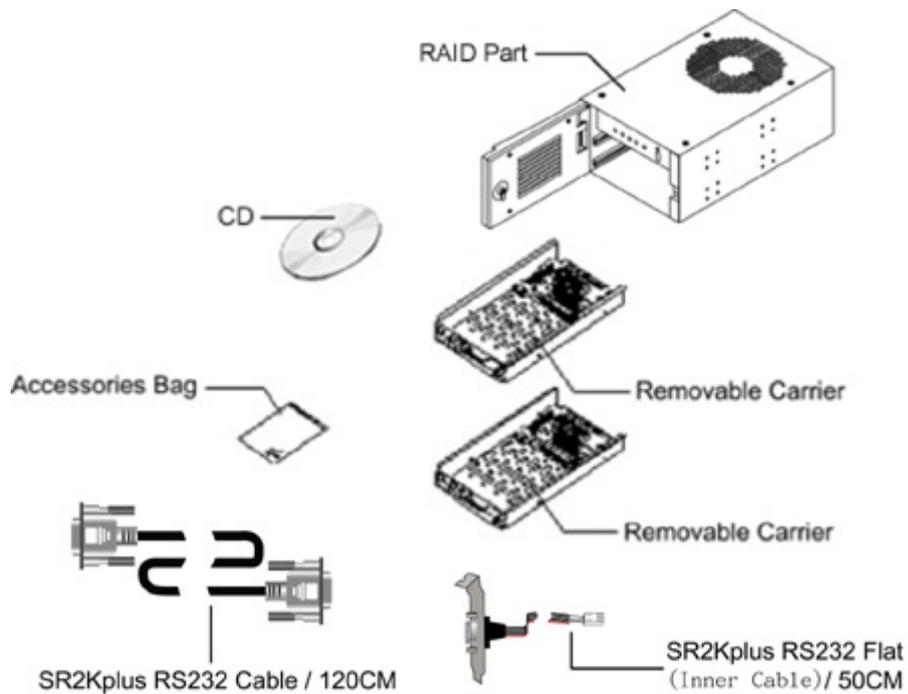
Please decide RAID level before formatting hard drive. As once you complete RAID setup, changing RAID level will lose all data in drive.

# Chapter 2 Installation

## 2-1 Package Contents

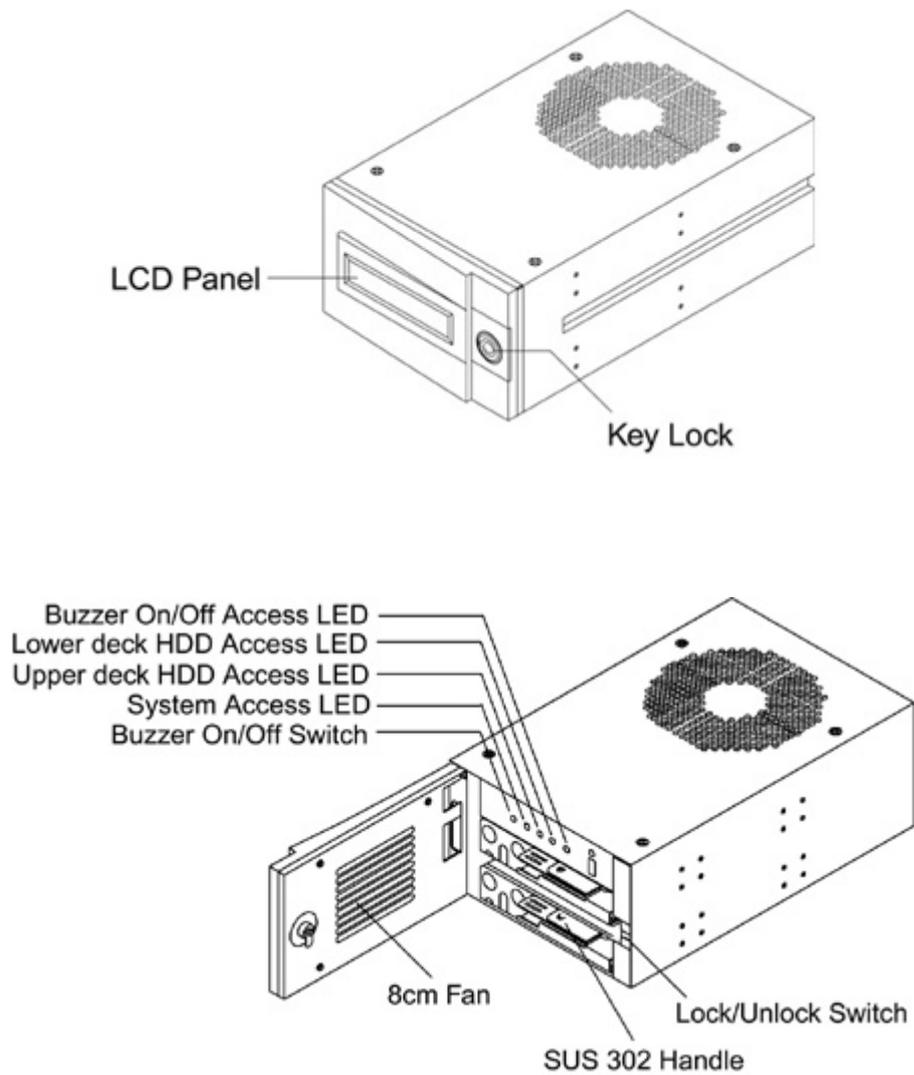
Your XL-RAID133v2 package includes the following: please contact our distributors in case of any missing or damaged items.

Item	Quantity
RAID Kit	1
Removable Carrier	in RAID 2
CD Box with express installation	1
Accessories bag	1 (including 8 x 6#-32 and 8 x M3×6 screws )
SR2Kplus RS232 Cable	1
SR2Kplus RS232 Flat ( Inner Cable )	1



## 2-2 Part Description

### Front Panel

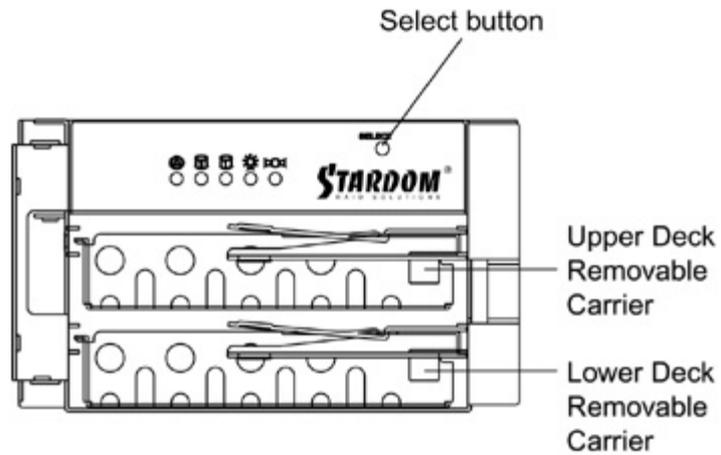


Buzzer On/Off switch :

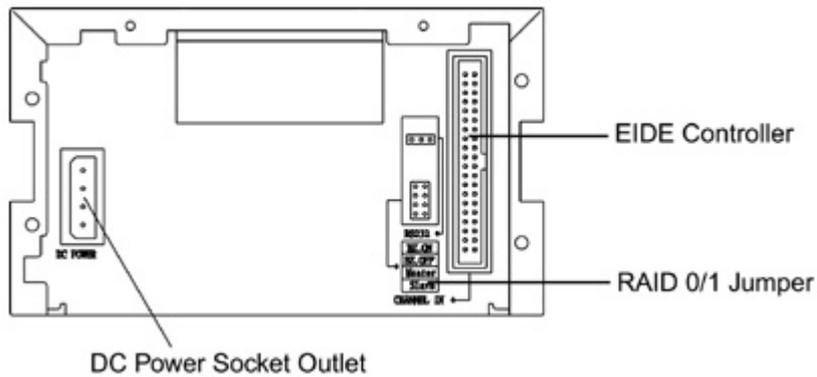
Alarm functions when buzzer switch is on. To release the function, please push the button. Push the button again to recover the function.

LED displays **Red** when buzzer switch is **Off**.

## Inside the XL-RAID133v2



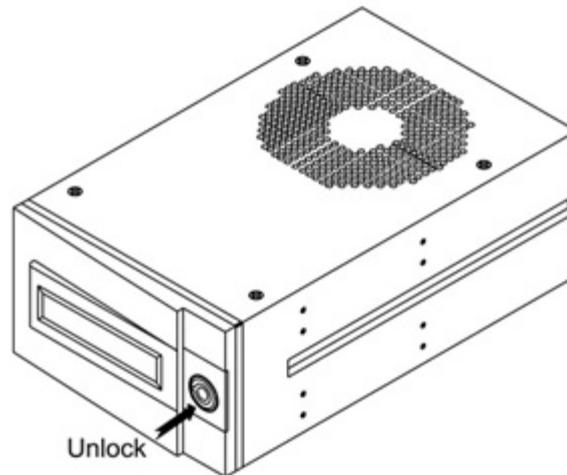
## Back Panel



## 2-3 How to open/close the front panel

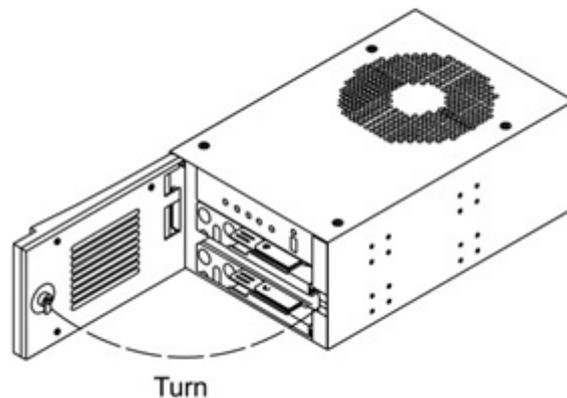
### ✍ Opening the front panel

1. Touch the right side center of the front panel with your finger as indicated by the arrow. There is a trigger to open the panel.



#### ✍ Closing the front panel

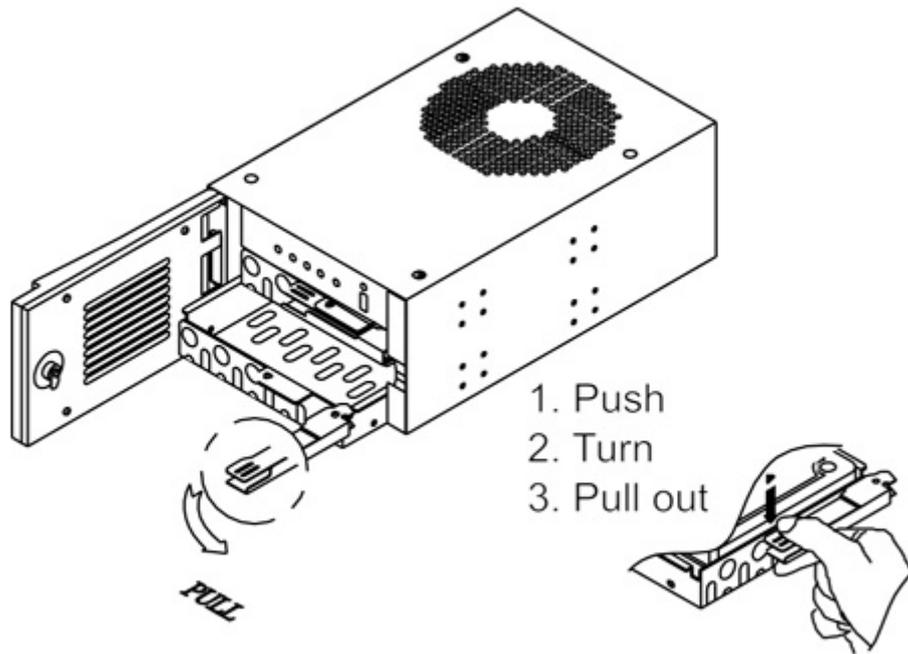
1. Turn the panel in the direction indicated by the arrow to connect it with the trigger until it clicks inside, which means the front panel is closed.



## 2-4 How to remove/insert the Removable Carrier

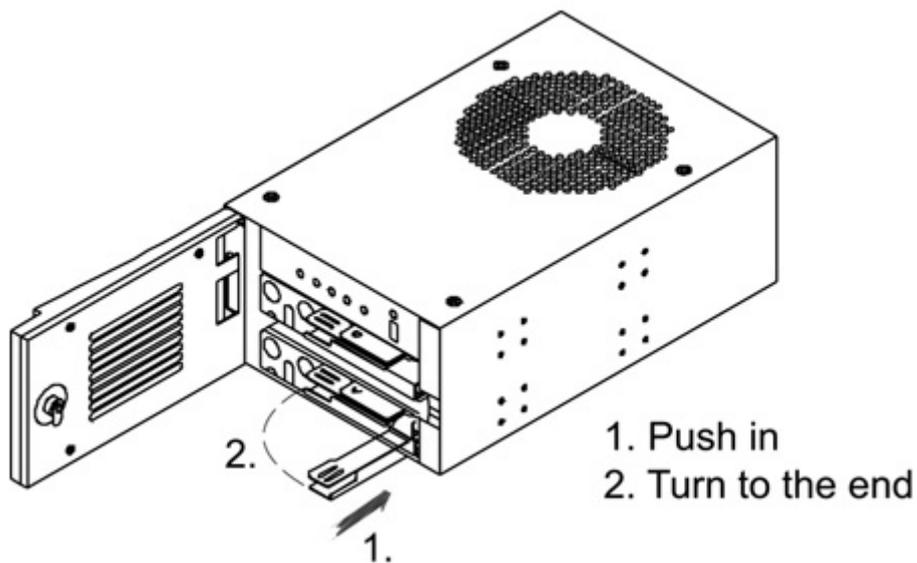
#### ✍ Removing the Removable Carrier

1. Following the indicated direction, press down and hold the Removable Carrier Handle to unlock the spring from its button.
2. Turn the Removable Carrier Handle in the direction indicated by the arrow to remove the Removable Carrier.
3. Pull out the Removable Carrier along the direction shown in the figure.



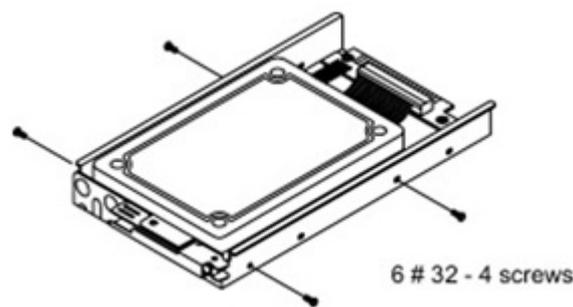
✎ To insert the Removable Carrier

1. Following the direction indicated by the arrow, slide the Removable Carrier along the rail into the slot end of the upper or lower deck.
2. Following the direction indicated by the arrow, turn the Removable Carrier Handle to the end in order to fix it with the spring.



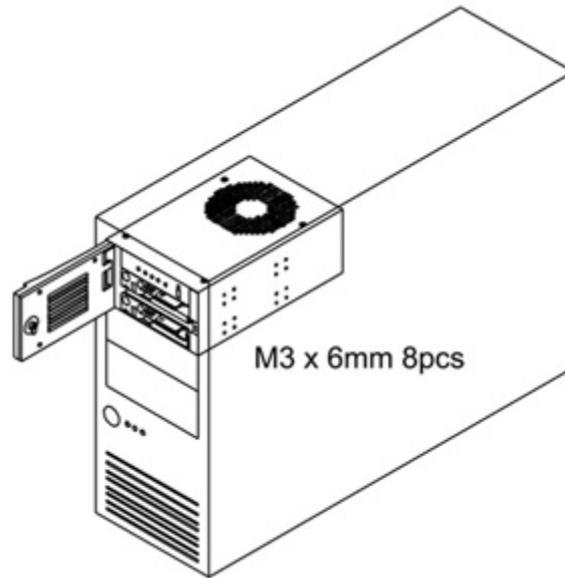
## 2-5 Installing HDD in the Removable Carrier

- ✍ Set Master/Slave jumpers to **MASTER** (Important).
- ✍ Connect the power cord and the Removable Carrier's EIDE/IDE interface cable to the HDD.
- ✍ Inset the HDD into the Removable Carrier.
- ✍ Fasten the HDD with the attached 6#-32 screws in their four locations. Place the power cord and the EIDE/IDE interface cable lower than the surface of the HDD in order to avoid any hindrance when taking out the HDD. Please refer to the following illustration.



## 2-6 Installing the XL-RAID133v2 in your Computer

- ✍ Turn the power off.
- ✍ Make sure there are two 5-1/4" Expansion bays available for the XL-RAID133v2 .
- ✍ Set up MASTER or SLAVE positions of XL-RAID133v2 according to your needs. (Factory default: **Master**). If you need to set it to SLAVE, please modify the jumpers on the back panel of the XL-RAID133V2 .
- ✍ Remove computer case and insert the XL-RAID133v2 into the Expansion bay.
- ✍ Connect power cord and EIDE/IDE interface cable to the right connector.
- ✍ Make sure the direction of power cord, wrong connection will damage XL-RAID133v2.
- ✍ Fasten XL-RAID133v2 at four places with attached M3×6mm screws, according to the following illustration.
- ✍ Replace and fasten computer case.



## Chapter 3 RAID Use

- ✂ After proper installation, the XL-RAID133v2 can be considered as one HDD.
- ✂ Both FDISK and FORMAT commands have the same function as one Hard Disks inside the your computer.

### [ Important ! ]

- ✂ After turning PC power on, the hard disks in XL-RAID133v2 maintain synchronized operation unless one of them stops working as setup RAID1 Mirroring Function.
- ✂ As setup RAID0 Striping Function, system will be crashed if any one hard disk fails.

### 3-1 Factory Default

- |                         |        |
|-------------------------|--------|
| ✂ Buzzer On/Off switch  | ON     |
| ✂ Operation Mode Switch | NORMAL |
| ✂ MASTER/SLAVE JUMPER   | MASTER |
| ✂ RAID JUMPER           | RAID 1 |

## 3-2 Installation

### ✍ Installing two new Hard Disks

1. After finishing hardware installation, turn the power on. In the BIOS setting screen, change HDD type to AUTO. This will enable the computer system to automatically detect the type and model of your Hard Disks.
2. After restarting the computer, the XL-RAID133v2 will automatically low format HDD synchronously. In addition, it will install the OS and other required software. (Refer to OS Installation Guide)
3. If the two installed hard disks have different capacities, XL-RAID133v2 will auto detect and set the capacity according to the smaller one. This way your Computer will suppose that the XL-RAID133v2 has a smaller capacity.

### ✍ Installing one new HDD in Auto-Rebuild mode (Setup RAID1)

1. Locate the original HDD in either the upper or lower deck of XL-RAID133V2 .
2. In the event of no HDD inside, XL-RAID133v2's buzzer begins to sound after computer is started. To switch off the alarm, use a sharp pointed object to turn off the buzzer on the front panel. The Access LED on the lower part of the panel will be on. (Note 1)
3. After loading the OS, insert the Removable Carrier with the new HDD into the upper or lower deck of the XL-RAID133v2. The capacity of the new HDD should be equal to or greater than the original one.
4. Wait a few minutes, after which the XL-RAID133v2 will automatically perform the **Auto-Rebuild** function.
5. After the **Auto-Rebuilding**, use a sharp pointed object to turn on the buzzer on the front panel. The Access LED on the lower part of the panel will be off. (Note 2)

### ✍ Hot plug and data on-line rebuild under RAID Level 1

1. In the event of any installed HDD's operation failure, the XL-RAID133v2 buzzer will sound. Pull out the Removable Carrier together with the damaged HDD without turning the power off.
2. PC will continue normally to store data into the other HDD; no data loss will happen.

3. First follow the reverse order of the steps described in Section 2-5 Installing HDD in Removable Carrier to remove the damaged HDD, and then replace it with a new HDD.
4. Insert the Removable Carrier with the new HDD into the XL-RAID133V2 .
5. Wait a moment. The XL-RAID133v2 will automatically perform rebuild function on the new HDD.
6. Use a sharp pointed object to turn on the buzzer on the front panel. The Access LED on the lower part of the panel will be off. (Refer to Note 2).
7. After the rebuild process is over, any data on the newly installed HDD will be overwritten.

**Note1 : Alarm functions when buzzer switch is "On".**

**Note2 : Buzzer access LED displays red when buzzer switch is "Off"**

## Chapter 4 LCD Information List

### 4-1 Auto Rebuilding Status

While the HDD with data is on the upper deck of the XL-RAID133V2 , start the computer. The computer will automatically detect the HDD on the lower deck of the XL-RAID133V2 . In case of abnormal operation, the buzzer will sound and the LCD will show the following:

Pri HDD : OK
--------------

Sec HDD : Fail
----------------

- 1 Insert a new HDD correctly on the lower deck of the XL-RAID133V2 . Screen will display and buzzer will sound in case of abnormal operation. If the HDD is properly set up, the LCD will show the following:

Pri HDD : OK
--------------

Sec HDD : OK
--------------

2. A few seconds later, the LCD will show:

Rebuilding...
Pri → Sec XXX%

The data in the upper deck's HDD will be rebuilt in the lower deck's HDD.

XXX%: Percentage completed, ranging from 0~100.

3. When the rebuild is completed, LCD will show:

Pri HDD : OK
Sec HDD : OK

## 4-2 LCD display showing HDD status

- Disk on the upper deck (Primary Disk): Fail
- Disk on the lower deck (Secondary Disk): OK

Pri HDD : Fail
Sec HDD : OK

- Disk on the upper deck (Primary Disk): OK
- Disk on the lower deck (Secondary Disk): Fail

Pri HDD : OK
Sec HDD : Fail

- Disk on the upper deck (Primary Disk): Fail
- Disk on the lower deck (Secondary Disk): Fail

Pri HDD : Fail
Sec HDD : Fail

- Disk on the upper deck (Primary Disk): OK
- Disk on the lower deck (Secondary Disk): OK

Pri HDD : OK
Sec HDD : OK

- If target drive is smaller than source drive, the information is like below.
- Primary Disk capacity > Secondary Disk capacity

Wrong Capacity PRI>SEC
---------------------------

- Secondary Disk capacity > Primary Disk capacity

Wrong Capacity SEC>PRI
---------------------------

- When the LCD shows Rebuilding Flag error :

Rebuild Flag ERR Pri : S    Sec : S
--

1. Turn the computer off
2. Hold on the Select button
3. Turn the computer on
4. When the LCD shows Clear Rebuilding Yes/No, select Yes :

Clear Rebuilding Yes / No
------------------------------

5. After selecting Yes, the LCD will show the following :

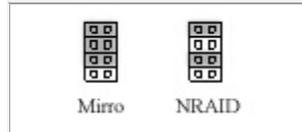
Pri HDD : OK Sec HDD : OK
------------------------------

Please reboot the computer.

# Chapter 5 Firmware Update

- Firmware Update

1. Make a DOS disk with operation system
2. Copy Flash\*\*\*.exe and Fail.bin to Floppy Disk
3. Close JP1 behind XL-RAID133V2



4. Open the computer with Floppy Disk
5. Type command [A:\>Flash\*\*\* 0 Fail.bin] and press Enter
6. After typing command, the screen will show the following

```
The old firmware code
will be saved as a:\old
code.bin

Do you want to save?
```

Press N button

7. The screen will show the following

```
Program OK!!!
```

Please reboot the computer.

# Chapter 6 RAIDGuide Software

## 6-1 Introduction

RAIDGuide is a software that operator with RAID system. Use PC serial port receives RAID system information and display on screen. The information include drive address, real time status (hard disk fail, system fail, hard disk insert and identify), rebuild progress. It provides an easily and friendly operation interface for user.

### Function and Feature

Support two RAID system connections.

Support e-mail notifies when hard disk fail or system fail.

Support PC speaker alarm and play wav or midi file when hard disk fail or system fail.

Support 20 users multi-remote RAID system monitor.

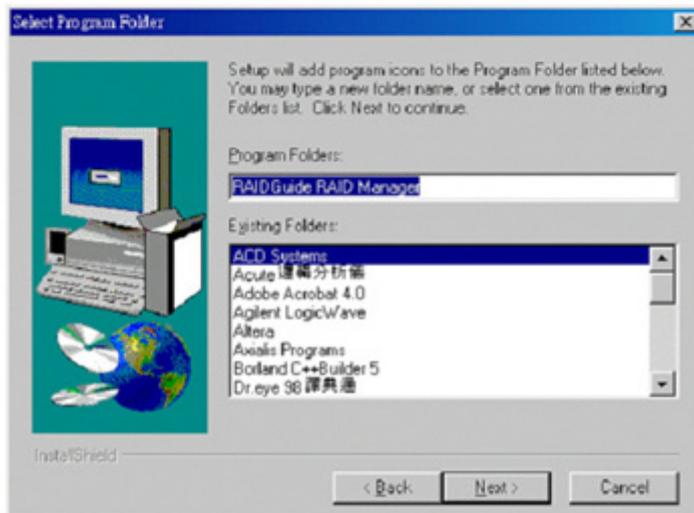
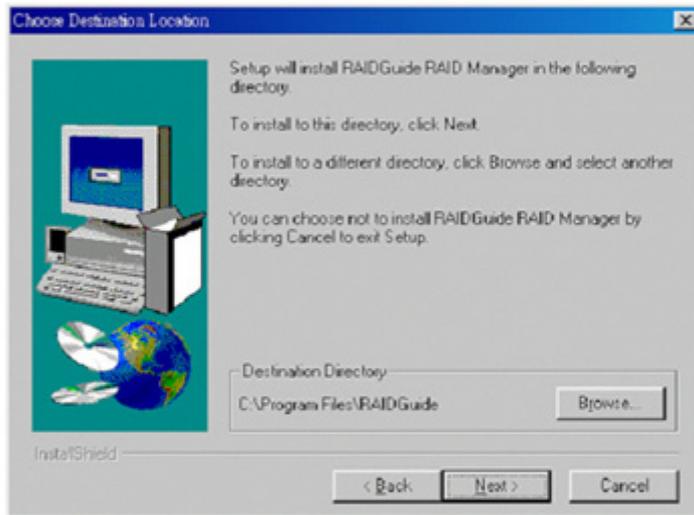
Hide in tray and restore window when RAID system hard disk fail or system fail.

### System Requirements

Hardware	Specification
Microprocessor	Pentium
Memory	64MB
Connection Line	1 Set
Hard Disk Space	10 MB
Screen Resolution (Suggestion)	800 ×600

## 6-2 How to Install

Put the RAIDGuide RAID Manager CD-ROM in the CD-ROM device. It will be auto run and start install program. You can choice folder to install it or use default path. After the installation of RAIDGuide RAID Manager software completed, you can start the program right now.



If you want to know further methods of operation about RAIDGuide, please refer to the XL-RAIDGuide.pdf in our RAIDGuide CD-ROM or [www.xtendlan.com](http://www.xtendlan.com).

## Chapter 7 Questions & Answers

**Q1: Why is the computer system unable to reboot or re-configure after XL-RAID133v2 is installed?**

- A:**1. XL-RAID133v2 supports IDE I/O interface. However, it is not compatible with motherboards building the ITE IT8680F-A chip. Replace it with another I/O chip compatible with the XL-RAID133V2 .
2. Check if IDE bus connector is connected properly.
  3. Check if power cord connected to XL-RAID133V2 .

**Q2: What happens if power is shut down while the XL-RAID133v2 is running?**

- A:** In case of power failure during the **Auto-Rebuild** Function, controller will remember the rebuilding progress percentage and carry on the operations when the power is restored.

**Q3: What is the configuration for XL-RAID133v2 (with 1 or 2 hard disks) when one HDD is already installed?**

- A:**1. On the same IDE buses, set the jumper for XL-RAID133v2 to MASTER and the original disk to SLAVE. Otherwise, the original HDD cannot be detected.
2. On different IDE buses, set MASTER or SLAVE for XL-RAID133v2 and original HDD respectively.

**Q4: When using the XL-RAID133V2 , the computer system is unable to read/write properly.**

- A:**1. Check if IDE bus connector is inserted properly.
2. Check if IDE bus length is shorter than 46cm or 18".

(Compliant to ATA 4 specification.)

**Q5: The buzzer alarm keeps sounding during XL-RAID133v2 operation.**

- A:** Check if both Removable Carriers (hard disks installed) on the upper and lower decks are inserted into the right position. Please refer to section 2-5 Installing HDD in Removable Carrier and section 2-4 Remove/insert Removable Carrier.

**Q6: How to turn on/off the buzzer?**

**A:**1. The factory default of the buzzer on/off switch is ON.

2. Use a sharp pointed object to turn off buzzer alarm on the front panel (Refer to Section 2-2 Part Description)

3. Use a sharp pointed object to turn on buzzer alarm on the front panel.

**Q7: Why do the responses of the computer system slow down when XL-RAID133v2 is under rebuilding?**

**A:** The performance of computer system is related to CPU, motherboard design and peripherals.

**Q8: Is it possible to lose data or disable performance when performing Auto rebuilding in the XL-RAID133v2 ?**

**A:**1. It will not lose any data unless the source disk has bad sectors or failed during rebuilding.

2. The capacity of the target disk must be larger than the source disk.

**Q9: How is the HDD capacity configured when replacing with a new disk?**

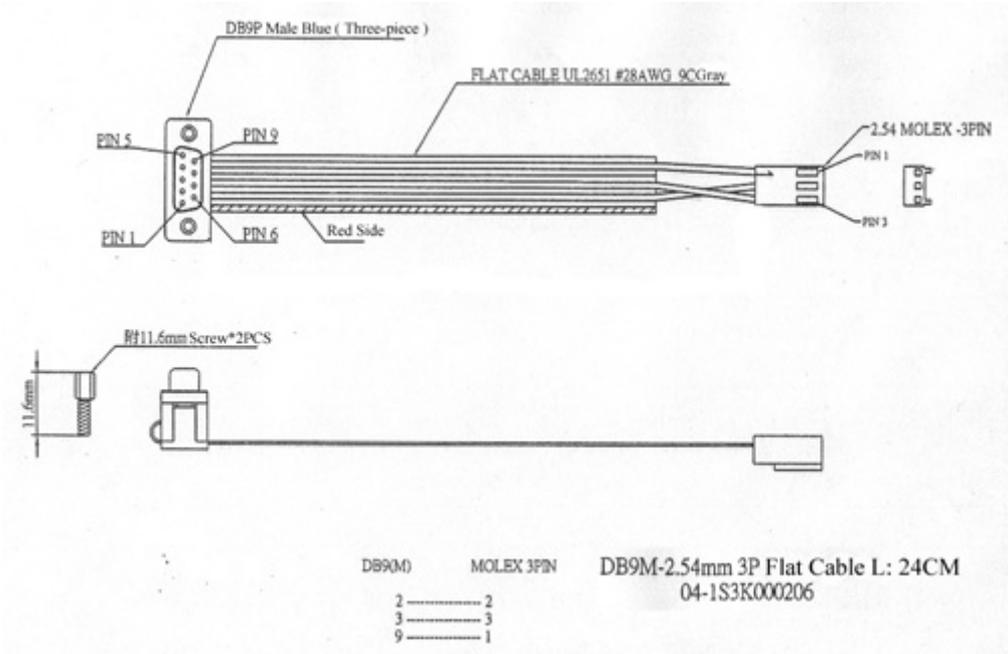
**A:** 1. XL-RAID133v2 is configured to the least capacity detected when XL-RAID133v2 is installed for the first time.

2. When larger capacity is replaced in XL-RAID133V2 , the HDD capacity of XL-RAID133v2 remains unchanged.

# APPENDIX

1. Although the XL-RAID133v2 is structured to be compatible with other HDD main brands, we will not be responsible for any data loss resulting in any damages or defects.
2. The brand names and products used in this manual are trademarks, registered trademarks, trade names of their respective holders. RAIDON is not associated with any vendor or product mentioned in this manual.
3. Specification and feature is subject to change without notice.

## How to Connect Pins of RS232 and DB9



## Certified HDD for XL-RAID133v2

Brand Name	Type	Model No.	Capacity (GB)	Note
Quantum	SE	2100AT	2.1	
	ST	3240AT	3.2	
	EX	5100	5.1	
		6400	6.4	
		10200	10.2	
	CR	12700A	12.7	ATA66
		4300A	4.3	
		6400A	6.4	
	CX	8400A	8.4	
		6400A	6.4	
10200A		10.2		
AS	13000A	13.0		
IBM	40000AT	40		
	DHEA	34330	4.3	
	DTTA	350640	6.4	
		351010	10.1	
	DJNA	371010	10.1	7200rpm
		370910	9.1	7200rpm, ATA66
	DTNA	371350	13.5	
		371800	18.0	
	DTLA	372200	22.0	7200rpm, ATA100
		307045	46	
307060		61		
IC	307075	75		
	35L120AVVA07-0	120		
Maxtor		90432D2	4.3	7200rpm, ATA100
		90648D3	6.4	
		51536H3	15	
		53073H4	30	
Western	AC	26400	6.4	ATA66
		28400	8.4	
Digital	WD	153BA	15	7200rpm, ATA66
		1200BJ	120	7200rpm, ATA100
Seagate	ST	313620A	13.6	
		36421A	6.4	
		34321A	4.3	
		315320	15	7200rpm, ATA66
		330630A	30	
		330631A	30	7200rpm, ATA100
		380021A	80	
Fujitsu	MPD	3091AH	9.1	
		3064A	6.4	
		3043A	4.3	

Remark: all of the above listed hard disks run in Ultra DMA mode 2 (33MB/sec) or mode 1.