Preface

Notice

Product features and specifications described in this manual are subject to change without notice.

The manufacturer shall not be liable for any damage, or for the loss of information resulting from the performance or use of the information contained herein.

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Manual version 1.0

About this manual

Congratulations on your selection of the ACS-61020. The card is monitored by a Java-based RAID GUI.

INTENDED USER

This manual is designed and written for users installing and using RAID GUI. The intended user should have a working knowledge of RAID planning and data storage.

ORGANIZATION OF THE MANUAL

PART ONE: Introduction

Chapter 1: **Introduction** provides an overview of the card and its features.

PART TWO: Installing the card

Chapter 2: **Setting up RAID GUI** provides details of how to setting up your card and connecting to the RAID GUI.

PART THREE: Card Configurations

Chapter 3: **Card Connections** provides details of the connectors on the RAID card.

PART FOUR: Card BIOS and LCD Menu

Chapter 4: The Card BIOS and EFI allow the user to configure a RAID array without using the RAIDGuard X GUI.

Chapter 5: The LCD menu allows the user to configure a RAID array without using the RAIDGuard X GUI.

PART FIVE: Appendices

Appendix A: **Specifications** lists the technical details of the ACS-61020 RAID card.

Appendix B: **Contact Us** lists contact details of Accusys business units around the world.

Guide to conventions

Important information that users should be aware of is indicated with the following icons:

Caution

This icon indicates the existence of a potential hazard that could result in personal injury, damage to your equipment or loss of data if the safety instruction is not observed.

Note

This icon indicates useful tips on getting the most from your RAID card.

Important terms, commands and programs are put in **Boldface** font.

Table of Contents

PART ONE

Introduction

Chapter 1

Introduction

This chapter introduces the features and capabilities of ACS-61020. You will find:

- ⇨ A full introduction to your RAID card
- ⇨ Details of key features
- ⇨ A checklist of package contents
- ⇨ A checklist of what else you need to start installation
- ⇨ An overview of the RAID card

Overview

The ACS 61020 PCI Express to SATA II RAID adaptors provide the latest functionality and performance for Windows, Linux and MAC operating systems. And with a Java based GUI the RAIDGuard X server and client software offers improved functionality and manageability. Using the latest Intel XScale® 64-bit RISC processor the eXpeRAID family of adaptors supports up to 8 x SATA I/II disk drives making it ideal for applications that require high storage capacity and fast access such as video editing, digital surveillance, file servers and shared storage.

Using intelligent I/O processing and elaborate algorithms the card bypasses slow disk drives and rebuilds the data by sustaining a stable throughput and streamlining the data transfer therefore enabling the smooth handling of heavy loaded and time critical applications.

Data protection is one of the key features of the eXpeRAID adaptors. Not only do they protect against disk failure but also bad sectors using online recovery and reallocation. Disk scrubbing is available to fix the bad sectors and online data and parity refresh protects against data loss caused by media aging.

The RAIDGuard X management software supports the online changing of RAID configurations; quick configuration on any Java enabled platform; and with the next generation BIOS and Windows Storport driver it's future is guaranteed.

Key Features

ACS-61020 features the following:

- Multiple RAID levels: 0,1, 0+1, 5, 6, and JBOD
- Up to 4 independent disk arrays
- Support 4~8 x SATA I/II drives
- RAID capacity partitioning: up to 16 slices
- Support up to 64 LUNs
- Variable stripe sizes, up to 256KB
- Selective initialization method with on-the-fly background initialization and performance evaluation
- Support over-2TB volumes
- Online RAID group expansion
- Online RAID level migration
- On-the-fly RAID initialization
- Snapshot for fast backup and restore
- Support write-back and write-through caching
- Selective and adaptive read/write optimization policies
- Fast read response by intelligently bypass slow drive
- Automatic drive insertion/removal detection and fast disk rebuilding
- Online bad block data recovery and reallocation
- Online disk scrubbing with data refresh and parity regeneration
- Disk health monitoring by S.M.A.R.T.
- NVRAM-based transaction log and auto parity resynchronization
- Array roaming and drive traveling with redundant on-disk meta data
- Array recovery to restore RAID configurations
- Dual firmware images for firmware recovery
- Support boot from RAID
- Enclosure components monitoring and control
- Optimized for multiple-stream video processing
- Support for Windows Mac OS and Linux
- Java-based GUI for remote management
- Reliable multi-lane SATA connectors
- RoHS compliant
- Support for main stream os's: Windows XP Pro,2K, 2003 and Vista, Linux and MAC OS X

SERIAL ATA (Serial advanced technology attachment)

The ACS-61020 is designed for use with the latest Serial ATA II hard disk drives. Serial ATA (often abbreviated as SATA or S-ATA) allows data transfer up to 3 Gbps and is compatible with older Parallel ATA standards. It has an additional advantage parallel ATA in that cables are thinner, so airflow within computer cases is less impeded, and can extend to one meter in length (against only 40 cm for parallel ATA).

PCI-EXPRESS X 4

Developed by Intel in 2002 PCI-Express has been developed to match the speed of CPUs. It provides a serial communications channel that provides up to 2.5 Gbits/sec in each direction of a pair of wires. The 4 refers to the number of pairs of wires, therefore allowing a maximum of 10 Gbits/sec transfer.

FIRMWARE

Appropriate firmware must be loaded into the card for it to function. ACS-61020 and are shipped with firmware preloaded. Check the installation disk that came with the package to find a backup firmware copy. You can also periodically check the vendor's web site to find the latest firmware version for use with the card.

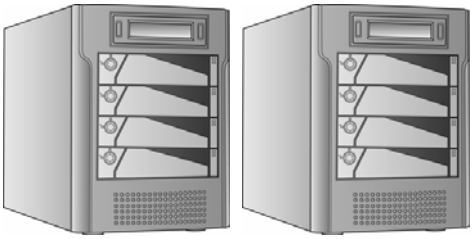
BIOS and EFI

The ACS-61020 contains an internal BIOS and EFI which can be used to configure a RAID Array instead of using the RAIDGuard X GUI. The BIOS and EFI are accessed as the card boots up and contains all the functionality of the RAIDGuard X GUI. The BIOS and EFI may be upgraded using the RAIDGuard X GUI, see **www.accusys.com.tw** for upgrades.

Before you begin

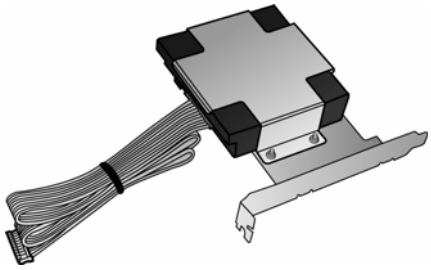
WHAT'S IN THE BOX

Some vendors may ship certain components as standard, while other vendors treat the same component as optional. In its most basic configuration, your package should include the following:

ACS-61020 4 bays	ACS-61020 4 bays x2	ACS-61020 8 bays
		
1 x 4 drive ACS-61020 card 1 x 4 bay chassis 2 x Keys (same key for all bays) 1 x External SAS cable (2M) 1 x SES management cable (1 to 1) 1 x Quick Guide 1 x Installation CD	1 x 8 drive ACS-61020 card 2 x 4 bay chassis 2 x Keys (same key for all bays) 2 x External SAS cables (2M) 1 x SES management cable (1 to 2) 1 x Quick Guide 1 x Installation CD	1 x 8 drive ACS-61020 card 1 x 8 bay chassis 2 x External SAS cables (2M) 1 x SES management cable (1 to 1) 1 x Quick Guide 1 x Installation CD

OPTIONAL ITEMS

- Battery Backup Module (BBM) – the BBM stores the cached data in the event of power supply failure.



WHAT ELSE YOU NEED

- LBA 48 bit Hard disk drives (HDDs) Note:Different RAID levels requires different numbers of HDDs. See the RAIDGuard X User Manual to determine how many HDDs you require.
- Host computer with spare PCI-e x 4 slot.
- Static grounding strap or electrostatic discharge (ESD) safe work area.

Note

The hard drives in a RAID should match in size and speed. All drives in any array should be identical models with the same firmware versions. The smallest drive will determine the size of the array.

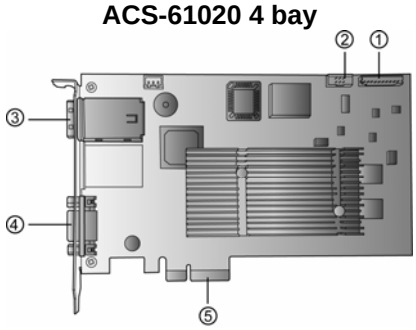
Caution

The PCI-e slot s on some motherboards for graphics cards only. Check with the motherboards, vendor for compatibility.

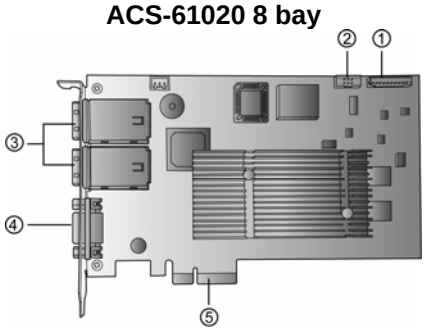
Familiarizing yourself with the RAID card

OVERVIEW

ACS-61020 4 bay

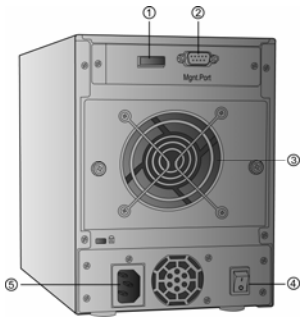


ACS-61020 8 bay



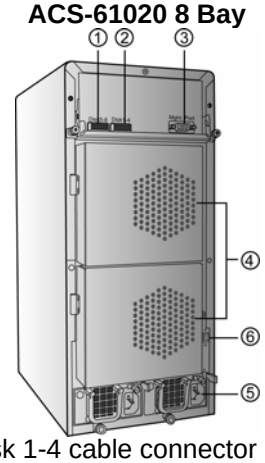
1. Battery module connector
2. Serial cable connector
3. External SAS connectors (1 or 2 depending on the model purchased)
4. SES Management connector
5. PCI Express x 4 Connector

ACS-61020 4 Bay



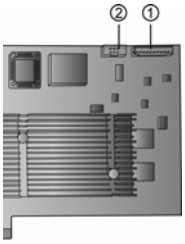
1. Disk cable connector
2. Mgnt Port
3. Fan
4. On/Off switch
5. Power supply socket

ACS-61020 8 Bay



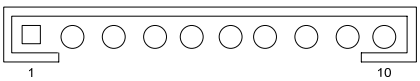
1. Disk 1-4 cable connector
2. Disk 5-8 cable connector
3. Mgnt Port
4. Fans
5. Hot-swappable power supplies
6. On/Off Switch

PIN SETTINGS



The PIN settings on the card are as follows:

Battery Module Connector (1)



Serial Cable Connectors (2)

Connect the red strip of the serial connector cable to pin 1.

PART TWO

Installation

Chapter 2

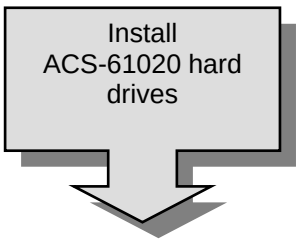
Installation

This chapter presents:

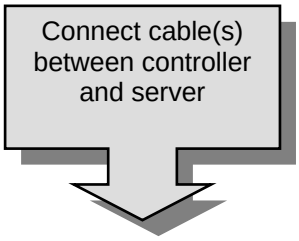
- ⇨ **Instructions on installing the ACS-61020 RAID card in the host system.**
- ⇨ **Instructions on installing hard drives in the 4 or 8 bay chassis.**

Installation flowchart

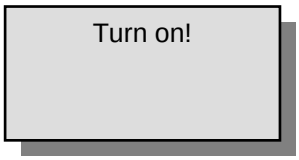
Installation of the ACS-61020 is simple. This chapter will lead you though the steps:



- Install the ACS-61020 card in a host server.
- Install the hard drives into the chassis.
- Connect the power cable(s) to the chassis.



- Connect an External SAS cable from each RAID HBA to the chassis.
- Connect the SES management cable from the RAID HBA to each chassis.



- Turn on the chassis.
- Turn on the server.

Note

This manual provides full installation and setup instructions for the ACS-61020 RAID card.

Pre-installation notices

Caution

Before starting any kind of hardware installation, please ensure that all power switches have been turned off and all power cords disconnected to prevent personal injury and damage to the hardware.

Caution

To avoid overheating, ACS-61020 should be installed in a well-ventilated area and in such a way that sufficient airflow is maintained across the card chips.

Caution

Static electricity can damage electronic components. To guard against such damage:

Work in a static-free environment

Wear a grounded anti-static wrist strap

Store uninstalled components in anti-static bags

Handle PCBs by their edges and avoid touching chips and connectors.

Caution

Environmental requirements

Operating Temperature: 0°C to 50°C (32°F to 122°F)

Storage Temperature: -40°C to 70°C (-40°F to 158°F)

Operating Humidity: 5-85%, non-condensing

Storage Humidity:5-95%, non-condensing

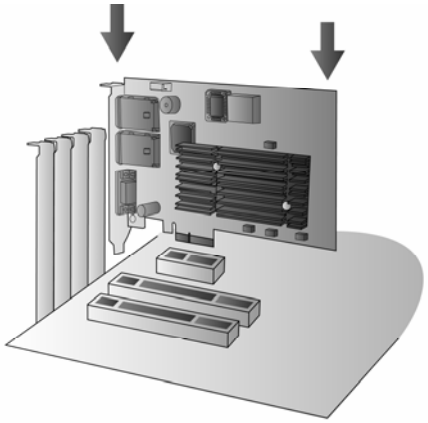
Caution

1. A trained service technician shall disconnect all power supply cable to reduce the risk of electric shock before servicing the system.
2. Switches indicated secondary of the power on or off
3. The installation instructions indicate use in a RESTRICTED ACCESS LOCATION only. The ITE is not intended to be installed and used in a home, school or public area accessible to the general population.
4. The thumbscrews should be tightened with a tool after both initial installation and subsequent access to the panel.

Card Installation

> **Caution**
>
> *Read the pre-installation notices earlier in this chapter before proceeding.*

1. Remove the blanking plate from the PCI-e slot.
2. Position the connector of the card over the expansion slot.
3. Press the connector of the card gently but firmly into the expansion slot until it is correctly and securely seated.
4. Secure the metal bracket of the card to the system case with a screw.
5. Go to the **Hard drive connection**.

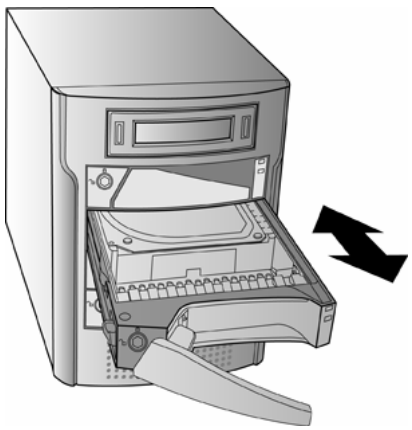


> **Note**
>
> *Many mother boards only come with 1 PCI-Express interface, before installation ensure there is one free.*

Hard Drive Installation

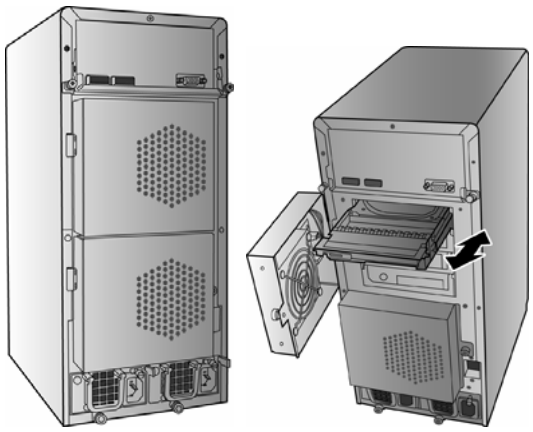
ACS-61020 4 bays

1. Pull the handle to open the drive bay.
2. Screw the hard disk into the drive bay.
3. Re-insert the bay and push the handle to close.
4. Lock the tray.



ACS-61020 8 bays

1. Go to the back of the chassis.
2. Unscrew the fans.
3. Press the silver button to release the handle.
4. Pull the handle to remove the drive bay.
5. Screw the hard disk into the drive bay.
6. Push the drive bay back into the chassis.
7. Push the handle down to lock.
8. Re-screw the fan.



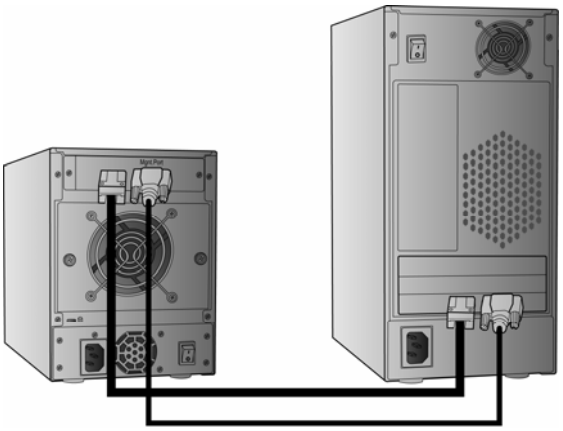
Caution

Make sure that the fan is locked into place to avoid the possibility of overheating.

Cable Connection

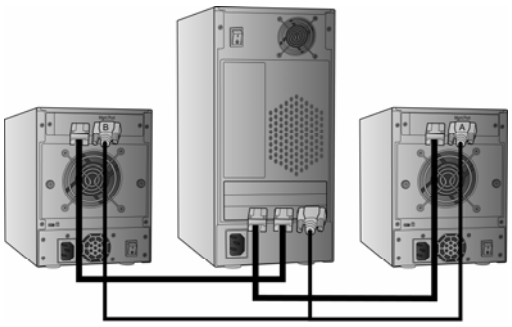
ACS-61020 4 bays

1. Connect the External SAS cable between the External SAS connector on the chassis and the RAID card in the server.
2. Connect the SES management cables between the management connector on the chassis and the RAID card in the server.



ACS-61020 4 bays x 2

1. Connect the External SAS cables between the External SAS connectors on the chassis and the RAID card in the server.
2. Connect the SES management cables between the management connector on the chassis and the RAID card in the server.

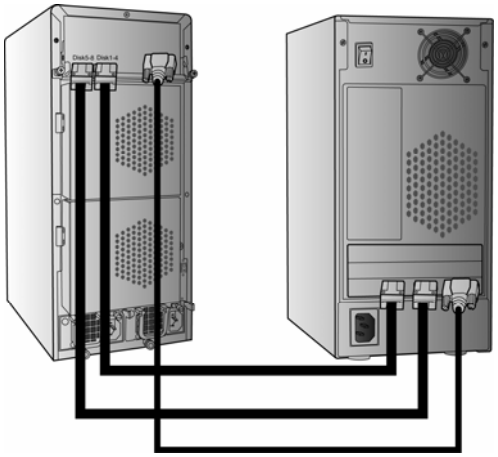


Note

*The "**A**" SES connector is connect to disk 1~4 chassis, "**B**" connector is connect to 5~8 chassis. If you only have one 4 bays chassis, please connect "**A**" SES connector.*

ACS-61020 8 bays

1. Connect the External SAS cable between the External SAS connector on the chassis and the RAID card in the server.
2. Connect the SES management cables between the management connector on the chassis and the RAID card in the server.



Note

External SAS and SES management cables must be connected in the following order:

*External SAS - Connect from Disk **1-4** on the chassis to Disk **1-4** on the server and Disk **5-8** should be connected to Disk **5-8**.*

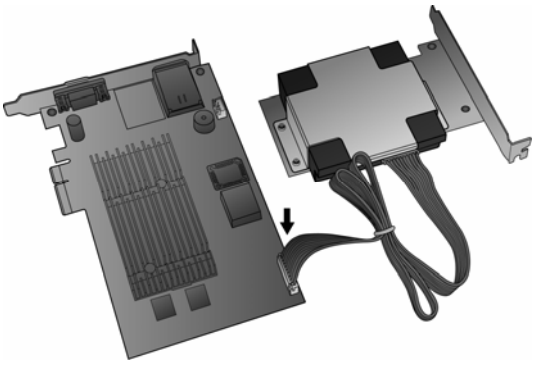
SES - Connect the management cable from the Mgnt. Port on the server to the Mgnt. Port on the chassis.

Caution

*Do **NOT** remove the cables when in use as this will cause data loss.*

Battery Backup Module (Optional) Installation

1. Open the case of the host computer and remove a blanking plate from the rear.
2. Connect the cables of the BBM to the 61020 card, as shown.
3. Secure the BBM to the space left by the blanking plate.
4. Close the case.



Note

The BBM is approximately 2cm high; ensure that your computer case has sufficient room.

PART THREE

Configuration

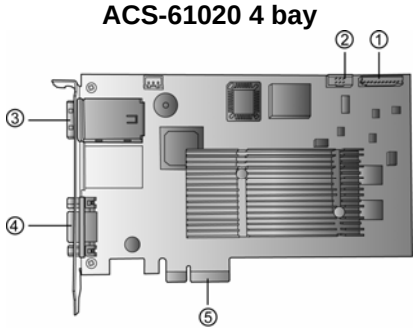
Chapter 3

Card Connections

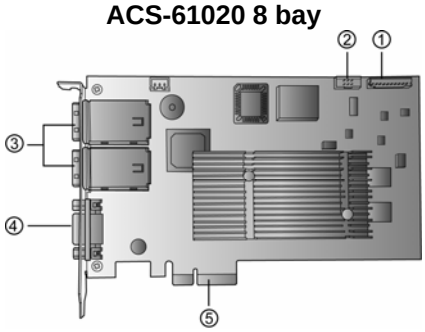
This chapter details the usage of the connectors on the ACS-61020 Cards.

In addition to the ports used for connecting to HDDs; the ACS-61020 also includes connectors for external devices.

ACS-61020 4 bay



ACS-61020 8 bay



1. Battery module connector
2. Serial cable connector
3. Mini SAS connectors (1 or 2 depending on the model purchased)
4. I2C Management Cable connector
5. PCI-Express x 4 connector

BATTERY CONNECTOR PORT (1)

The battery connector port is used to attach an ACS-1161 or ACS-1162 battery backup module (optional). In the event of the PSU failing on the server during saving and transmission of data the module will keep the data in the cache memory until the card resume its work. The BBM occupies 1 rear blanking slot and once charged the BBM will last for more than 72 hours (on board memory).

SERIAL CONNECTOR PORT (2)

The serial connectors (2 supplied) allow engineers to configure the card from a terminal connection. Since this requires specialized knowledge it is recommended that the included GUI is used.

EXTERNAL SAS CONNECTORS (3)

Used for connecting the interface cables to Hard Disk Drives. See **Part 2 Hard Drive Connection**.

SES MANAGEMENT CABLE CONNECTOR (4)

Used for connecting the SES management cable between the RAID card and chassis.

PCI-EXPRESS X 4 CONNECTOR (5)

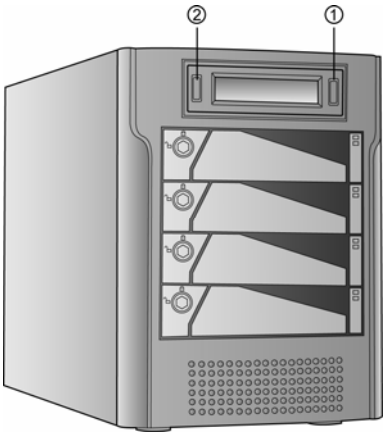
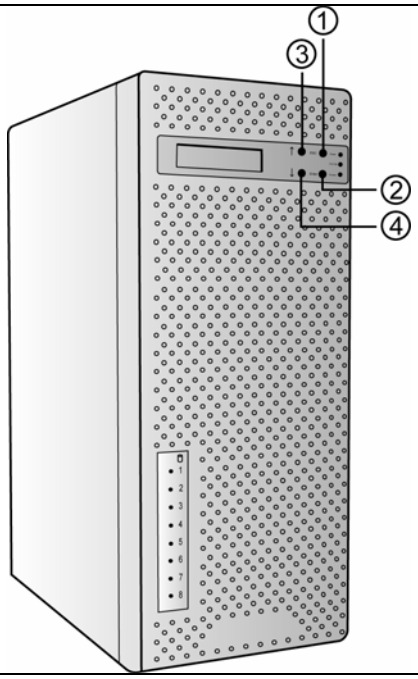
Used for connecting the card into the server. See **Part 2 Card Installation**.

Chapter 4

Unit Descriptions

This chapter describes how to use the ACS-61020 RAID controllers.

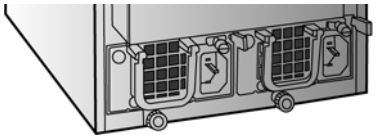
Buttons

ACS-61020 4 bays and 2 x 4 bays	ACS-61020 8 bays
	
1. Menu Button – Press to move forward through the menus. 2. Enter Button – Press to make the selection. 3. Both Buttons – Press both buttons together to return to the previous menu item.	1. ESC – Return to the previous menu item. 2. Enter – Press to make the selection. 3. ⇧ – Go up through the menu tree. 4. ⇩ – Go down through the menu tree.

LEDS

Each drive bay has the following LED's: • Upper – Blue when the disk is being accessed. Off when the disk isn't being accessed. • Lower – Green when the drive is operating normally. Red when the disk has failed.	The lights on the front display the following: • Power – Green when the power is on. • P/S Fail – Red when the primary power supply has failed and the secondary power supply is in use. • Access – Orange when the disks are being accessed. • HD Lights –Green when the drive is installed and Red when the drive has failed.

Power Supply

	
The power supply in the 4 bay unit is not hot-swappable. If the unit fails take it to your reseller for a replacement.	The 8 bay unit contains 2 hot-swappable power supplies. One of these is a backup in case of failure. The backup automatically starts when the main one fails. The LED on the front will light when that occurs. To change the power supply: 1. Undo the screw below the power supply. 2. Undo the screw for the catch and pull the catch to the left to release. 3. Pull the handle to remove the unit.

Fan Specification

Voltage 12V InputWatts 6.0~7.2 W Speed RPM 4800 RPM Air Flow CFM 60.04~69.51CFM Noise dBA 43.6~48.1 dBA	Voltage 12V InputWatts 2.3 W Speed RPM 3000 RPM Air Flow CFM 39.50 CFM Noise dBA 33 dBA

Power Supply -

Input requirements: 115V 60Hz or 230V 50Hz 200W power supply	Input requirements:100~240V 50Hz/60Hz 300 W redundant power supply

PART FOUR

Card BIOS and LCD Menu

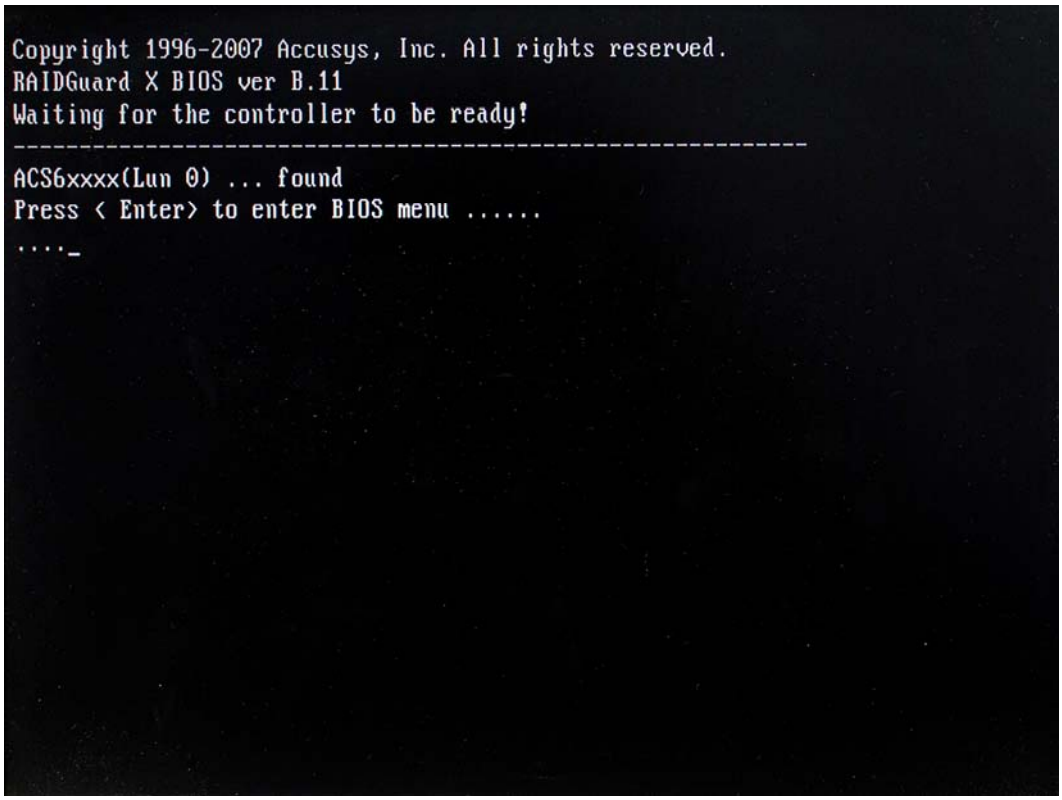
Chapter 5

Configuring the BIOS

This chapter details the usage of the BIOS on the ACS-61020.

The BIOS functionality is similar to that of the RAIDGUARD X application. Below is a menu tree detailing the menu structure of the BIOS.

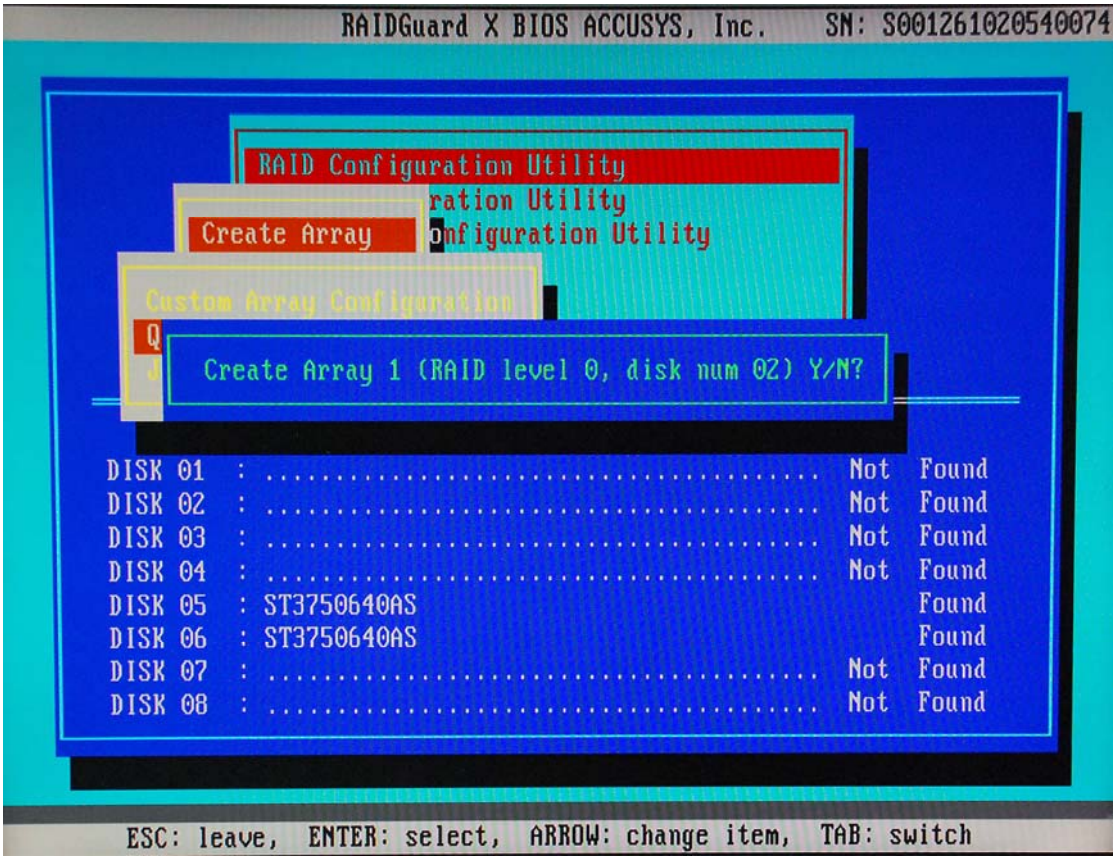
1. Start the server and watch the screen. When it gets to the position shown below press **Enter**.



2. Enter the password (the default is 00000000 (8 zeros) and press **Enter**.

QUICK ARRAY CONFIGURATION

1. For first time use go **RAID Configuration** > **Create Array** > **Quick Array Configuration**. The BIOS will recognize how many drives are installed and provide the best solution. Type **Y** to begin configuration.



Note

1. If there are only 2 disks installed the default RAID array is R0 (striping).

2. If there are more than 2 disks the default RAID array is R5 (Data protection).

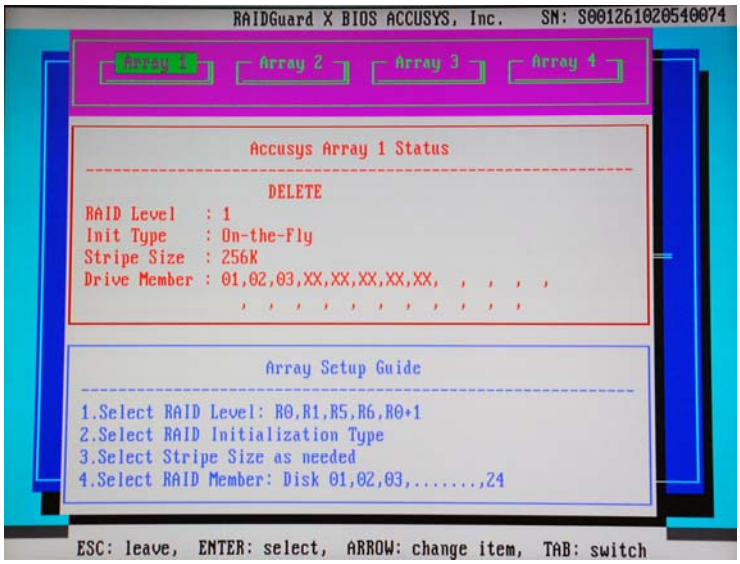
CUSTOM ARRAY CONFIGURATION

1. Go to custom RAID Config.
2. Select Array

3. Enter the RAID Level, Init Type, Stripe Size and Disks

4. Go up to CREATE

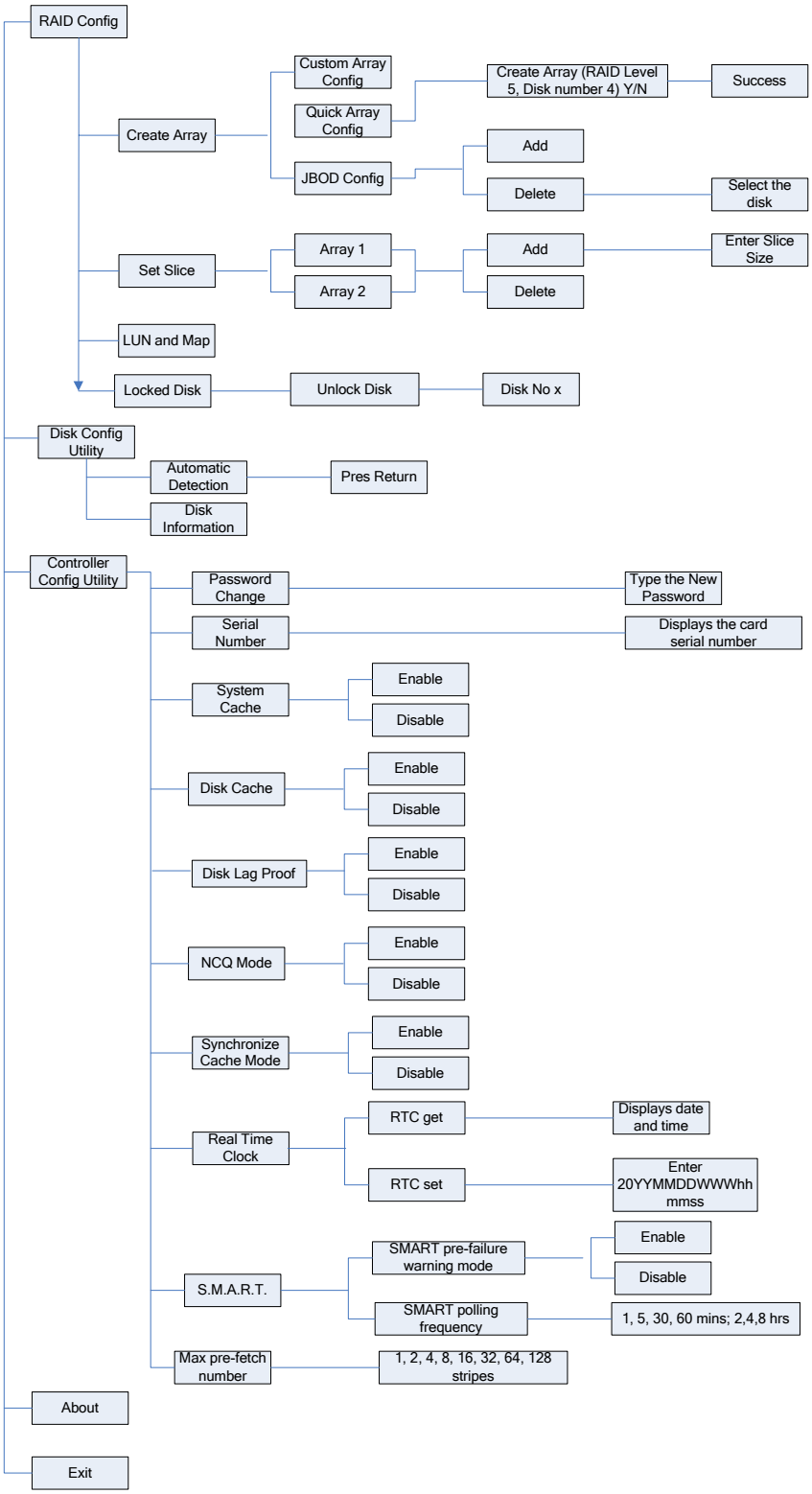
1. To change the details of an Array go to **RAID Configuration** > **Create Array** > **Custom Array Configuration**. See the screen below for configuration details.
2. Use the ←→ arrow keys to select the array. Press **Enter**.



3. Use ↓ to select:
   - 3.1 RAID Level. Press **Enter**.
     - 3.1.1 Use ↓↑ to select the RAID Level between 0,1,5,6, 0+1. Press **Enter**.
   - 3.2 Init Type. Press **Enter**.
     - 3.2.1 Use ↓↑ to select On-The-Fly or Evaluation. Press **Enter**.
     - ***Note:*** On-The-Fly is the recommended type as it contains parity.
   - 3.3 Stripe Size. Press **Enter**.
     - 3.3.1 Use ↓↑ to select between 8k, 16k, 32k, 64k, 128k or 256k.
     - ***Note:*** The recommended stripe size is 256k.
   - 3.4 Drive Member. Press **Enter**.
     - 3.4.1 Use ↓↑ to select **Add**.
     - 3.4.2 Use ↓↑ to select the disk to add. Press **Enter**.
     - 3.4.3 Repeat step 3.4 as necessary to add all required disks.
4. Use ↓↑ to go to **CREATE**. Press **Enter**.

BIOS Menu Structure

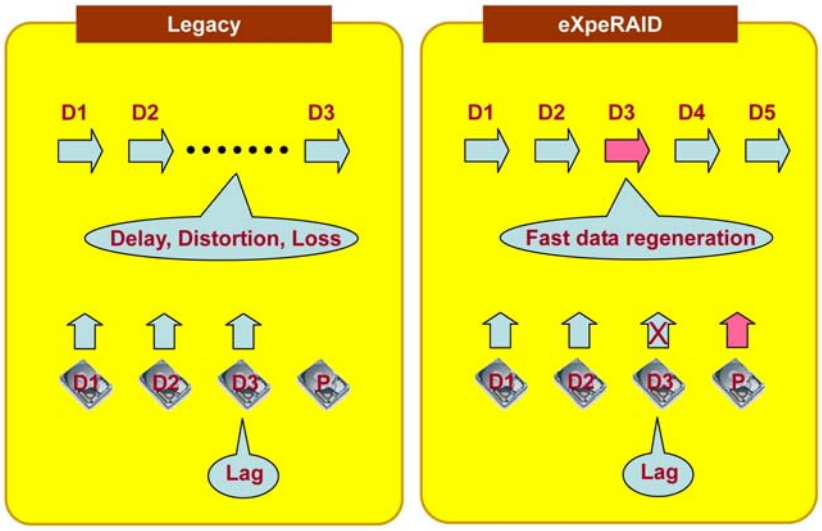
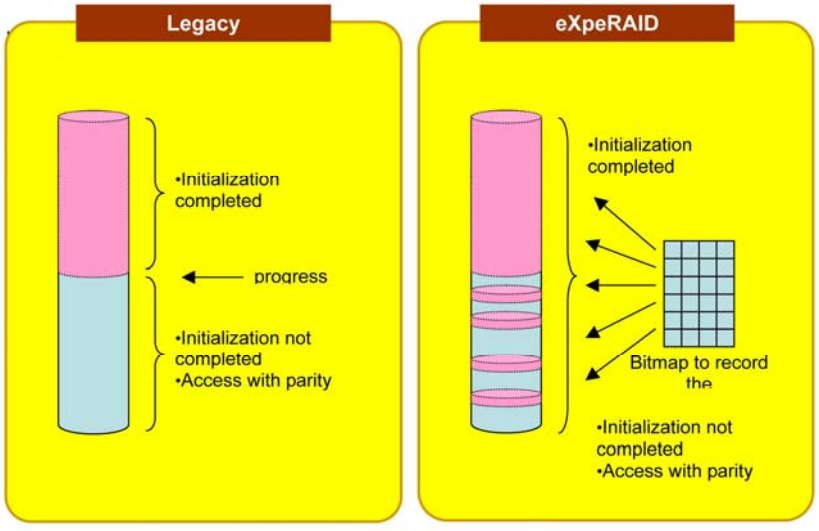
The BIOS menu structure details how the commands in the BIOS relate to each other. The BIOS manages the same information as the RAIDGuard X application, see its user manual for further details on these functions.



BIOS Menu

The menu below gives brief information about the functions of the BIOS menu, for further details see the RAIDGuard X user manual.

RAID Config	
Create Array	Quickly create and array, administer the details of a current and array and configure a JBOD. A collection of disks from one or more commonly accessible disk controllers, combined with a body of Array Management Software. Array Management Software controls the disks and presents them to the array operating environment as one or more virtual disks.
Set Slice	Add and delete slices. Unlike striping, slicing allows the creation of arrays from a single disk without a loss of speed as the disk fills up. This is because when striping across disks the center of the disk fills up and when it's being written to it slows down. Slicing creates new disk partitions with similar characteristics, therefore keeping the speed the same.
LUN and Map	Display details and sets LUNs and Maps. A LUN (Logical Unit Number) is a unique identifier used on a SCSI bus that enables it to differentiate between up to eight separate devices (or logical unit). Each LUN is a unique number that identifies a specific logical unit, which may be an end user, a file, or an application.
Locked Disk	Unlock locked disks. Disks that' have locked because of an error can be unlocked.
Refresh Array	Refresh an array to improve performance.
RAID Checking	Check that the RAID is functioning correctly.
RAID Expansion	Expand the disks of an array. When extra disks are added to the chassis the number of disks in an array can be expanded without needing to reconfigure the entire array.
RAID Migration	Migrate an array from one RAID type to another eg from RAID 5 to RAID 1.
Disk Config Utility	
Automatic Detection	Detects installed disks. Before a new disk can be added to an array it first needs to be detected.
Disk Information	Displays manufacturer and speed details of the installed disks.
Controller Config Utility	
Password Change	Change the BIOS password.
Serial Number	Display the serial number of the RAID card.
System Cache	Activate and disable the system cache. Controller memory used to speed up data transfer to and from a disk.
Disk Cache	Activate and disable disk caching. Controller memory used to speed up data transfer to and from a disk.

Disk Lag Proof	Activate and disable disk lag proof mode. Disk Lag Proof ensures streaming continuity and lossless recording.
	 Legacy RAID algorithms read only data stripes and wait for slow reads. It reads parity stripe and regenerates only when read fails. eXpeRAID reads both data and parity stripes concurrently. It bypasses the slow reads and returns data to host by the regenerated data.
NCQ Mode	Activate and disable NCQ mode. NCQ allows several outstanding commands to be given to the drives at one time. The commands are carried out in sequence instead of the order they are given. Rather like pressing buttons in a lift, the lift goes to the next floor in the list not the order that the buttons are pressed. This speeds up the disk access and reduces the load on the drives.
On-The-Fly	 Legacy RAID algorithms only record the progress. Sectors having been initialized might have to be initialized again and accessed with resync overhead. eXpeRAID records the initialized sectors in bitmap. All sectors are initialized only once. The whole initialization will be done faster and performance will be better during the initialization.

Synchronize Cache Mode	Activate and disable synchronize cache mode.
Real Time Clock	Display and set the BIOS clock.
S.M.A.R.T.	Activate and disable S.M.A.R.T. warnings and polling frequency.
Max pre-fetch number	Set the maximum number of stripes that can be pre-fetched by the array.
About	Displays the BIOS version and company information
Exit	Exits the BIOS

Chapter 6

Configuring the LCD Menu

This chapter details the usage of the LCD on the ACS-61020.

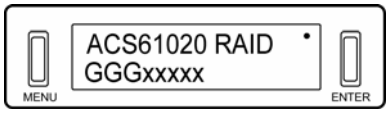
RAID PARAMETER CONFIGURATION

1. Turn on the chassis.
2. Go RAID Editor.

3. Select the following:
   - RAID Level
   - Stripe Size
   - Disk Members
   - RAID Type

4. Confirm creation.

1. Turn the RAID chassis on.
2. Press **Enter**.



Note: The GGGxxxxxx at the bottom of the panel it indicates that an array has not been setup.
G=>Globe spare
1~4=>Array 1~4
X=>Disk not exist
L=>Lock disk
R=>Remove disk

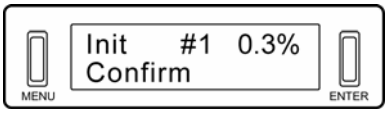
3. RAID Param. Press **Enter**.
4. RAID Editor. Press **Enter**.
5. Use **MENU** to Select an Array between 1 and 4. Press **Enter**.
6. RAID Level. Press **Enter**.
   6.1 Use **MENU** to select between 0,1,5,6, 0+1. Press **Enter**.
7. Stripe Size. Press **Enter**.
   7.1 **MENU** to select between 8k, 16k, 32k, 64k, 128k or 256k. Press **Enter**.

Note: The recommended stripe size is 256k.

8. Disk Member. Press **Enter**.
   8.1 Use **MENU** to select the disk to add. Press **Enter**.
   8.2 Repeat step 8.1 as necessary to add all required disks.
9. RAID Type. Press **Enter**.
   9.1 Use **MENU** to select On-The-Fly or Evaluation. Press **Enter**.

Note: On-The-Fly is the recommended type as it contains parity.

10 Confirm. Press **Enter**.
   10.1 Use **MENU** to select Yes or No. Press **Enter**.

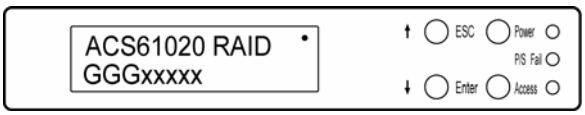


1. Turn on the chassis.
2. Go RAID Editor.

3. Select the following:
   - RAID Level
   - Stripe Size
   - Disk Members
   - RAID Type

4. Confirm creation.

1. Turn the RAID chassis on.
2. Press **Enter**.



Note: The GGGxxxxxx at the bottom of the panel it indicates that an array has not been setup.
G=>Globe spare
1~4=>Array 1~4
X=>Disk not exist
L=>Lock disk
R=>Remove disk

3. RAID Param. Press **Enter**.
4. RAID Editor. Press **Enter**.
5. Use ↓↑ to Select an Array between 1 and 4. Press **Enter**.
6. RAID Level. Press **Enter**.
   6.1 Use ↓↑ to select between 0,1,5,6, 0+1. Press **Enter**.
7. Stripe Size. Press **Enter**.
   7.1 ↓↑ to select between 8k, 16k, 32k, 64k, 128k or 256k. Press **Enter**.

Note: The recommended stripe size is 256k.

8. Disk Member. Press **Enter**.
   8.1 Use ↓↑ to select the disk to add. Press **Enter**.
   8.2 Repeat step 8.1 as necessary to add all required disks.
9. RAID Type. Press **Enter**.
   9.1 Use ↓↑ to select On-The-Fly or Evaluation. Press **Enter**.

Note: On-The-Fly is the recommended type as it contains parity.

10 Confirm. Press **Enter**.
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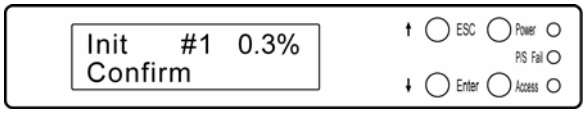

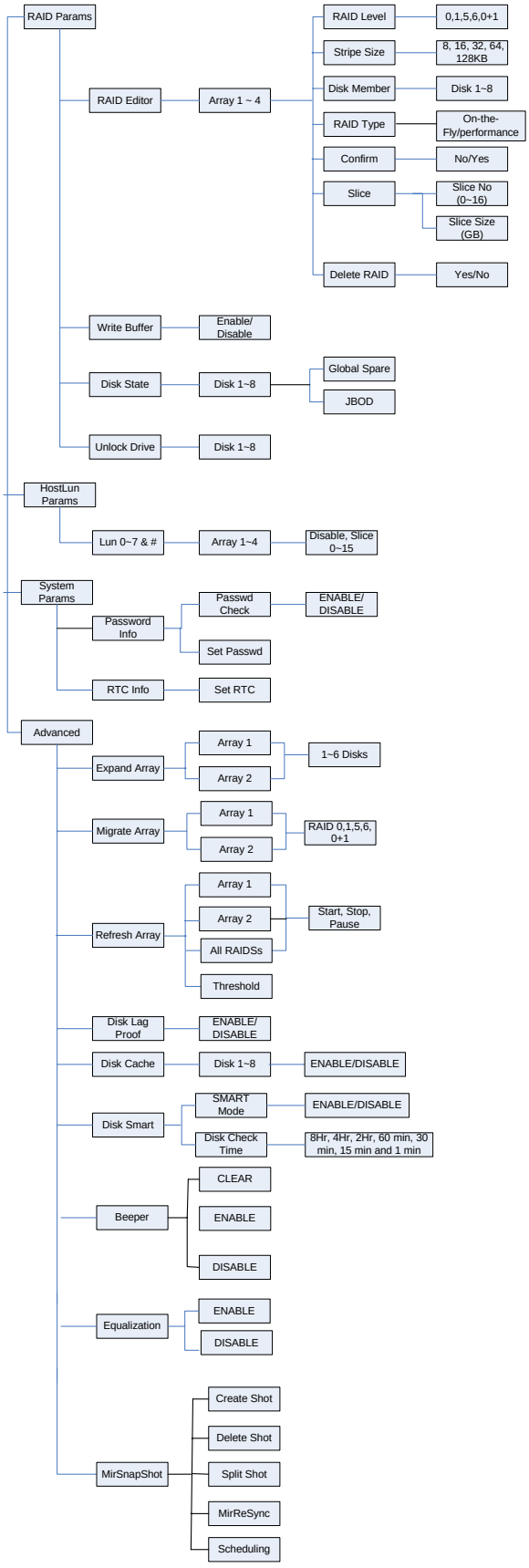
RAID Params
RAID Editor
Array 1 ~ 4
RAID Level
0,1,5,6,0+1
Stripe Size
8, 16, 32, 64, 128KB
Disk Member
Disk 1~8
RAID Type
On-the-Fly/performance
Confirm
No/Yes
Slice
Slice No (0~16)
Slice Size (GB)
Delete RAID
Yes/No
Write Buffer
Enable/ Disable
Disk State
Disk 1~8
Global Spare
JBOD
Unlock Drive
Disk 1~8
HostLun Params
Lun 0~7 & #
Array 1~4
Disable, Slice 0~15
System Params
Password Info
Passwd Check
ENABLE/ DISABLE
Set Passwd
RTC Info
Set RTC
Advanced
Expand Array
Array 1
Array 2
1~6 Disks
Migrate Array
Array 1
Array 2
RAID 0,1,5,6, 0+1
Refresh Array
Array 1
Array 2
All RAIDSs
Threshold
Start, Stop, Pause
Disk Lag Proof
ENABLE/ DISABLE
Disk Cache
Disk 1~8
ENABLE/DISABLE
Disk Smart
SMART Mode
ENABLE/DISABLE
Disk Check Time
8Hr, 4Hr, 2Hr, 60 min, 30 min, 15 min and 1 min
Beeper
CLEAR
ENABLE
DISABLE
Equalization
ENABLE
DISABLE
MirSnapShot
Create Shot
Delete Shot
Split Shot
MirReSync
Scheduling

PART FIVE

Appendices

Appendix A

Specifications

CPU	Intel 80333
R6 support	Yes
Disk	
Disk Interface	SATAII/SATA
Disk Channel	8 (max.), one or two external SAS connectors.
Disk Interface Chip	Marvell 6081 x 1
Host	
Host Channel	PCI-e x 4
Memory	
Memory type	On board DDR 2 memory chip 256MB with 64-bit DDR II 400 with ECC
Battery backup interface	Yes, one on-board connector support
HW monitoring	ADM1031
Temperature sensor	Yes, one temperature sensor
Dimensions	
RAID card Board size	178mm (L) x 111.15mm (H)
PCB thickness	1.6 mm
4 bay chassis (WxHxL):	152.8 x 206.4 x 286.5 (mm)
8 bay chassis (WxHxL)	175.8 x 313.2 x 400 (mm)
Operating parameters	
Operating Temperature	0°C~50°C
Operating Humidity	5%~85%, Non-condensing
Storage Humidity	5%~95%
Storage Temperature	-40°C~70°C (-40°F to 158°F)
Power Supplies	
8 Bays	
Input requirements	100~240V 50Hz/60Hz
Wattage	300W
4 Bays	
Input requirements	115V 60Hz or 230V 50Hz
Wattage	200W
Fans	
8 Bays	
Voltage	12V
Input Watts	2.3W
Speed RPM	3000 RPM
Air Flow CFM	39.50 CFM
Noise dBA	33 dBA
4Bays	
Voltage	12V
Input Watts	6.0~7.2W
Speed RPM	4800 RPM
Air Flow CFM	60.04~69.51 CFM
Noise dBA	43.6~48.1 dBA

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