

SAS JBOD Expansion Chassis

Installation Manual

Revision 1.0

P/N: PW0020000000341

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Preface

About this manual

This manual provides information regarding the quick installation and hardware features of the **SAS JBOD Expansion Chassis**. Information contained in the manual has been reviewed for accuracy, but not for product warranty because of the various environment/OS/settings. Information and specifications will be changed without further notice.

This manual uses section numbering for every topics being discussed for easy and convenient way of finding information in accordance with the user's needs. The following icons are being used for some details and information to be considered in going through with this manual:



NOTES:

These are notes that contain useful information and tips that the user must give attention to in going through with the subsystem operation.



IMPORTANT!

These are the important information that the user must remember.



WARNING!

These are the warnings that the user must follow to avoid unnecessary errors and bodily injury during hardware and software operation of the subsystem.



CAUTION:

These are the cautions that user must be aware to prevent damage to the equipment and its components.

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Changes

The material in this document is for information only and is subject to change without notice.

FCC Compliance Statement

This equipment has been tested and found to comply with the limits for a Class B digital device, pursuant to Part 15 of the FCC rules. These limits are designed to provide reasonable protection against harmful interference in residential installations. This equipment generates, uses, and can radiate radio frequency energy, and if not installed and used in accordance with the instructions, may cause harmful interference to radio communications.

However, there is not guarantee that interference will not occur in a particular installation. If this equipment does cause interference to radio or television equipment reception, which can be determined by turning the equipment off and on, the user is encouraged to try to correct the interference by one or more of the following measures:

1. Reorient or relocate the receiving antenna
2. Move the equipment away from the receiver
3. Plug the equipment into an outlet on a circuit different from that to which the receiver is powered.
4. Consult the dealer or an experienced radio/television technician for help

All external connections should be made using shielded cables



Before You Begin

Before going through with this manual, you should read and focus on the following safety guidelines. Notes about the product packaging and delivery are also included.

Safety Guidelines

To provide reasonable protection against any harm on the part of the user and to obtain maximum performance, user is advised to be aware of the following safety guidelines particularly in handling hardware components:

Upon receiving of the product:

- ❖ Place the product in its proper location.
- ❖ To avoid unnecessary dropping out, make sure that somebody is around for immediate assistance.
- ❖ It should be handled with care to avoid dropping that may cause damage to the product. Always use the correct lifting procedures.

Upon installing of the product:

- ❖ Ambient temperature is very important for the installation site. It must not exceed 30°C. Due to seasonal climate changes; regulate the installation site temperature making it not to exceed the allowed ambient temperature.
- ❖ Before plugging-in any power cords, cables and connectors, make sure that the power switches are turned off. Disconnect first any power connection if the power supply module is being removed from the enclosure.
- ❖ Outlets must be accessible to the equipment.
- ❖ All external connections should be made using shielded cables and as much as possible should not be performed by bare hand. Using anti-static hand gloves is recommended.
- ❖ In installing each component, secure all the mounting screws and locks. Make sure that all screws are fully tightened. Follow correctly all the listed procedures in this manual for reliable performance.

Packaging, Shipment and Delivery

- ❖ Before removing the subsystem from the shipping carton, you should visually inspect the physical condition of the shipping carton.
- ❖ Unpack the subsystem and verify that the contents of the shipping carton are all there and in good condition.
- ❖ Exterior damage to the shipping carton may indicate that the contents of the carton are damaged.
- ❖ If any damage is found, do not remove the components; contact the dealer where you purchased the subsystem for further instructions.

Unpacking the Subsystem

The package contains the following items:

- JBOD Expansion Chassis
- One external mini SAS cable
- Two power cords
- Installation Manual



Chapter 1 Introduction



The SAS JBOD Expansion Chassis

1.1 Features

- 2 x 12.0 Gbps mini SAS (SFF 8088) host wide ports
- 1 x 12.0 Gbps mini SAS (SFF 8088) JBOD Expansion wide port
- Up to 4 JBOD Expansion Chassis can be cascaded
- Windows Cluster support
- Disk auto spindown support

Key Components

- LSI SAS expander solution
- Back-end:
 - SAS drives support
 - One SAS JBOD down link expansion port to include more drives
- Front-end: Two Host wide ports for servers/RAID controllers
- LCM support for the system easy management purpose
 - To display JBOD WWN
 - To display model name
 - To mute the system alarm
 - To display the status of the environmental parameters
 - To reset this JBOD controller

Host and Drives Connections

- Two 3Gb SAS 4-lane wide ports
- One 3Gb SAS 4-lane wide port for down link
- Up to 16 SAS drives support
- Up to 4 JBOD Expansion Chassis can be cascaded

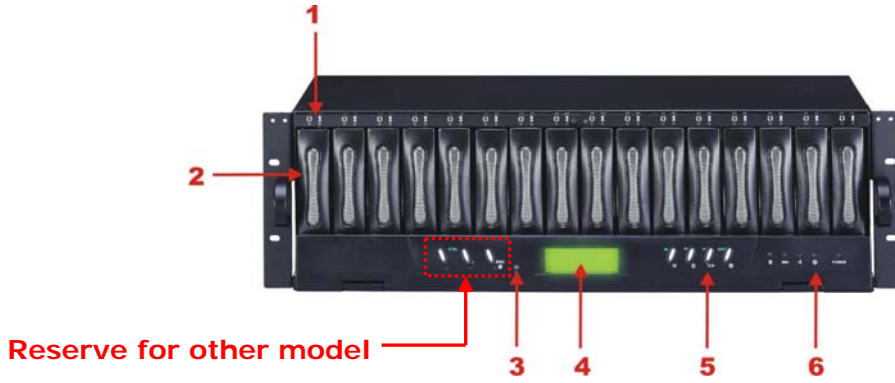
Enclosure Monitoring

- S.E.S. support for standard enclosure management
- System LED indications
 - System Status
 - Host ports status
- Fan speed monitoring
- Redundant power supply monitoring
- System voltages monitoring
- System temperatures monitoring
- System alarm for failure events

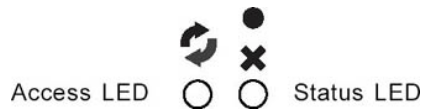
1.2 Identifying Parts of the Subsystem

The illustrations below identify the various parts of the subsystem.

1.2.1 Front View



1. HDD Status Indicator



Parts	Function
HDD Status LEDs ● ✕	Green LED indicates power is on and hard drive status is good for this slot. If hard drive defected in this slot or the hard drive is failure, the LED is orange.
HDD Access LEDs	These LED will blink blue when the hard drive is being accessed.

2. HDD Trays 1 ~ 16 (From right to left)



3. Access LED

The LED will be blinking blue when subsystem is busy or data is being accessed.






4. LCD Display Panel

5. LCM (LCD Control Module) - Smart Front Panel Function Buttons

The LCM provides options to display JBOD WWN, to display the model name, to mute the system alarm, to display the status of the environment parameters, and to reset the JBOD controller.

Parts	Function
Up and Down Arrow buttons 	Use the Up or Down arrow keys to go through the information on the LCD screen. This is also used to move between each menu.
Select button 	This is used to enter the option you have selected.
Exit button EXIT	Press this button to return to the previous menu.

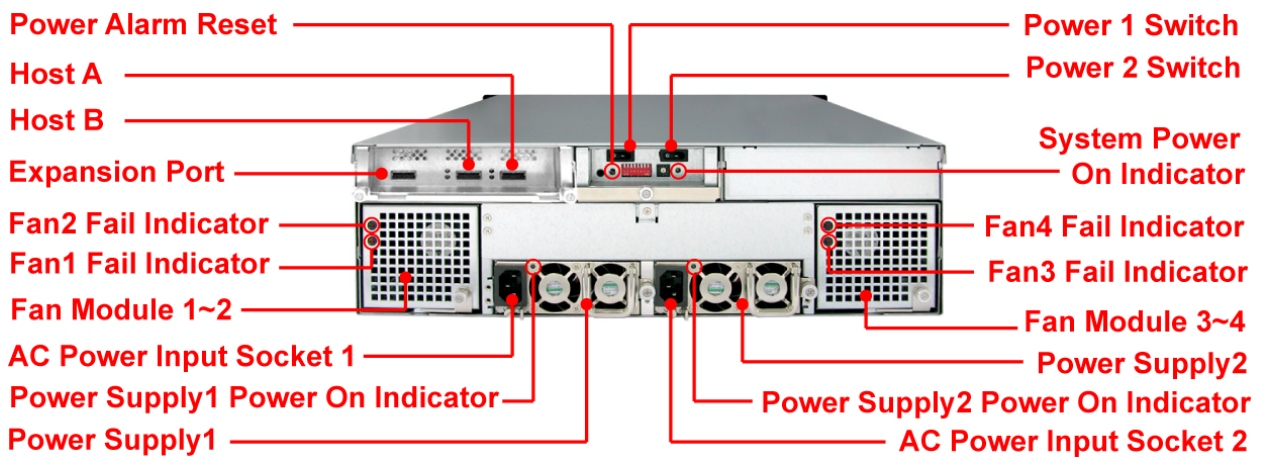
6. Environment Status LEDs

Parts	Function
Power LED	Green LED indicates power is ON.
Power Fail LED 	If a redundant power supply unit fails, this LED will turn to RED and alarm will sound.
Fan Fail LED 	When a fan fails, this LED will turn red and an alarm will sound.
Over Temperature LED 	If temperature irregularities in the system occurs (HDD slot temperature over 45°C), this LED will turn RED and alarm will sound.
Voltage Warning LED 	An alarm will sound warning of a voltage abnormality and this LED will turn red.
Access LED 	This LED will blink blue when the RAID controller is busy / active.

7. Tray Lever

8. Tray Latch

1.2.2 Rear View



1. Power Supply Alarm Reset button

You can push the power supply reset button to stop the power supply buzzer alarm.

2. Expansion Port

Connect to another JBOD Expansion Chassis for daisy-chain or cascading.

3. Host A

Connect to SAS RAID subsystem or to SAS HBA on the host.

4. Host B

Connect to SAS RAID subsystem or to SAS HBA on the host.

5. Fan Fail indicator

If a fan fails, this LED will turn red.

6. Cooling Fan module

Two blower fans are located at the rear of the subsystem. They provide sufficient airflow and heat dispersion inside the chassis. In case a fan fails to function, the "Fan fail" LED will turn red and an alarm will sound.

7. Power Supply Power On Indicator

Green LED indicates power is on.

8. System Power On Indicator

Green LED indicates power is on.

9. Power Supply Unit 1 ~ 2

Two power supplies (power supply 1 and power supply 2) are located at the rear of the subsystem. Turn on the power of these power supplies to power-on the subsystem. The "power" LED at the front panel will turn green.

If a power supply fails to function or a power supply was not turned on, the "Power fail" LED will turn red and an alarm will sound.

Chapter 2 Getting Started

2.1 Installing Hard Drives

This section describes the physical locations of the hard drives supported by the enclosure and give instructions on installing a hard drive. The enclosure supports hot-swapping allowing you to install or replace a hard drive while the subsystem is running.

- a. Pull out an empty disk tray. Press the tray latch towards the right; the tray lever will release. Pull the handle outwards to remove the carrier from the enclosure.
- b. Take off the bracket before installing hard drive.



- c. Place the hard drive in the disk tray.
- d. Install the mounting screws on each side to secure the drive in the tray.

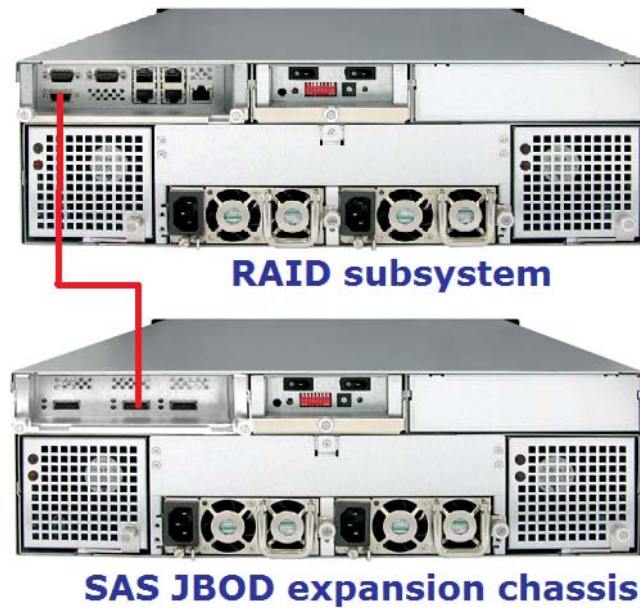


- e. Slide the tray into a slot and close the tray lever until it clicks into place. The HDD status LED will turn green if enclosure is powered on.



2.2 Connecting the JBOD Expansion Chassis to RAID Subsystem

1. Prepare the JBOD expansion chassis.
2. Install the expansion chassis near the RAID subsystem where it will be connected.
3. Connect one end of SAS cable to the SAS Host Port (A or B) of the JBOD Expansion Chassis and the other end to the SAS Expansion Port of the RAID subsystem.



NOTE: The drives can be configured using RAID management GUI of the RAID subsystem.

2.3 Connecting the JBOD to SAS HBA on Host System

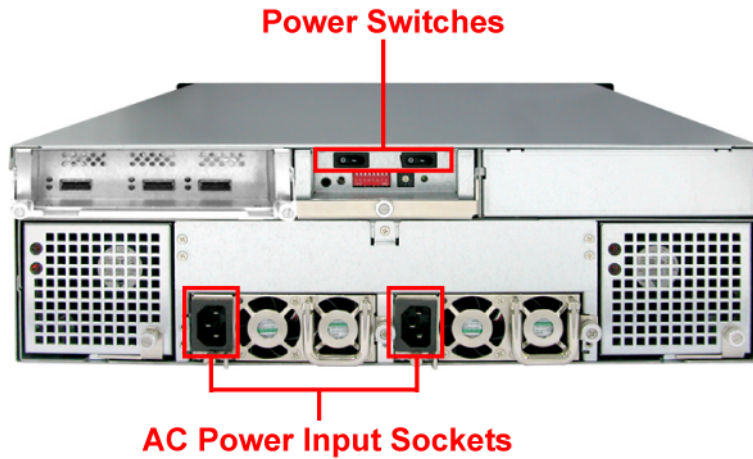
1. Prepare the JBOD expansion chassis.
2. Install the expansion chassis near the Host system where it will be connected.
3. Connect one end of SAS cable to the SAS Host Port (A or B) of the JBOD Expansion Chassis and the other end to the SAS HBA on the Host system.



NOTE: The drives can be configured using the SAS HBA BIOS, or using the management software provided with the SAS HBA (if there is).

2.4 Powering On

1. Plug in the power cords to the AC Power Input Sockets located at the rear of the enclosure and to the power source outlet.



2. Turn on the two Power Switches.
3. The Power LED on the front panel will turn green.

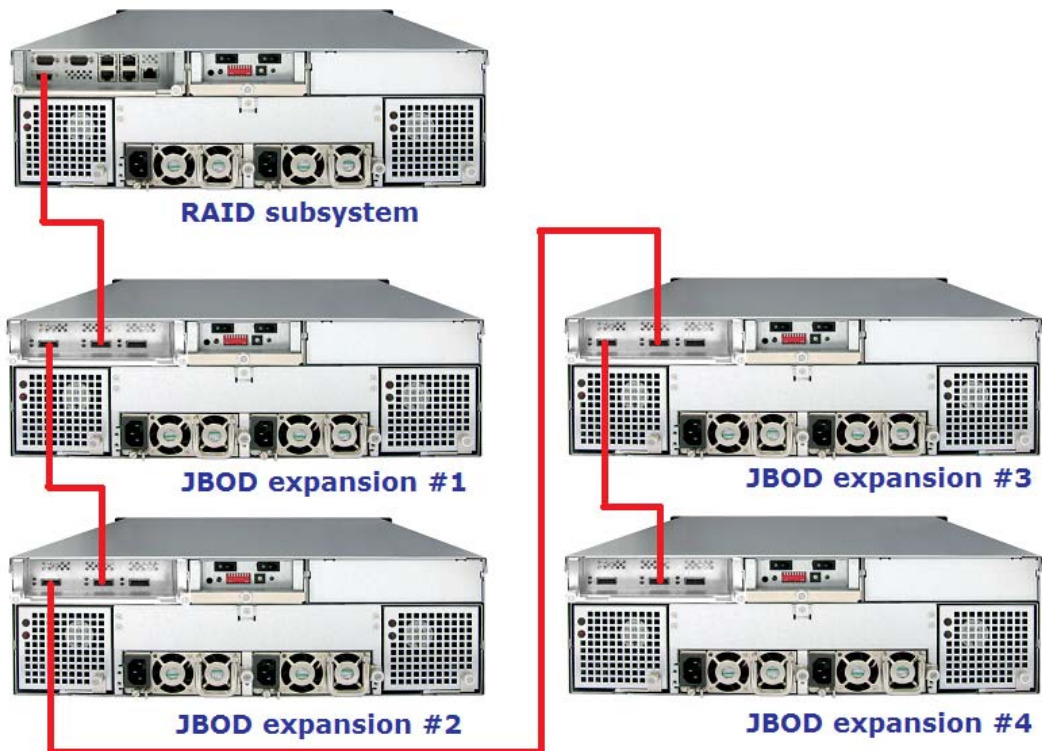


NOTE: The enclosure is equipped with full range redundant power supply with PFC (power factor correction). The enclosure will automatically select voltage.



NOTE: If the JBOD is connected to RAID subsystem, power on first the JBOD then next is the RAID subsystem.

2.5 Daisy-chaining Up to Four JBOD Expansion Chassis



NOTE: Power on first the last JBOD (#4), and next is the second to the last (#3), and next is JBOD # 2, then JBOD #1, and last is the RAID subsystem.