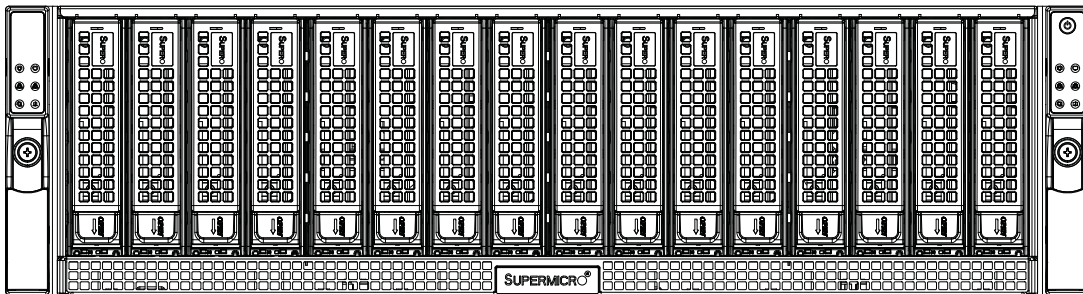


SUPERO®

SBB 937R-E2JB



USER'S MANUAL

1.0

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Manual Revision 1.0
Release Date: December 6, 2010

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Preface

About This Manual

This manual is written for professional system integrators and PC technicians. It provides information for the installation and use of the SBB 937R-E2JB. Installation and maintenance should be performed by experienced technicians only.

The SBB 937R-E2JB is a high-end storage solution based on the SC937 3U rack-mount chassis and two BMB-937-JB expanders.

Manual Organization

Chapter 1: Introduction

The first chapter provides a checklist of the main components included with the server system and describes the main features of the BMB-937-JB serverboard and the SC937ETS-R1200NDBP chassis.

Chapter 2: Server Installation

This chapter describes the steps necessary to install the SBB 937R-E2JB into a rack and check out the server configuration prior to powering up the system.

Chapter 3: System Interface

Refer here for details on the system interface, which includes the functions and information provided by the control panels on the chassis as well the HDD carrier LEDs.

Chapter 4: System Safety

You should thoroughly familiarize yourself with this chapter for a general overview of safety precautions that should be followed when installing and servicing the SBB 937R-E2JB.

Chapter 5: Advanced Chassis Setup

Refer to Chapter 5 for detailed information on the SC937 server chassis. You should follow the procedures given in this chapter when installing, removing or reconfiguring SAS or peripheral drives and when replacing system power supply units and cooling fans.

Appendix A: System Specifications

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Chapter 1

Introduction

1-1 Overview

The SBB 937R-E2JB is a high-end Super Storage Bridge Bay (SBB) JBOD system comprised of two main subsystems: the SC937 chassis and two BMB-937-JB SAS expander cards.

In addition to the chassis and expander cards, various hardware components have been included with the 937R-E2JB, as listed below:

- Six 4-cm fans (FAN-0088L4)

- SAS Accessories
 - One SAS midplane (BPN-SAS-937-O-P)
 - Sixteen hard drive carriers (MCP-220-97303-0B)

- One set of rackmount hardware (MCP-290-00053-ON)

- SBB 937R-E2JB User's Manual

1-2 SAS Expander

The SBB 937R-E2JB includes two BMB-937-JB expanders, which are mounted on hot-swappable trays. The BMB-937-JB utilizes the LSI SAS2x36, which is a 36-port, 6 Gb/s SAS expander.

Cascading

Each BMB-937-JB has a SAS-IN port and a SAS-OUT port, which in turn are connected to an I-SAS port at the rear of the chassis. The I-SAS port may then be used to cascade to another system (must be cascaded to a system with a processor and memory).

SAS

The LSI SAS2x36 is a x36 expander that provides SAS 2.0 support. RAID 0, 1, 10 and 1E modes. Refer to the following ftp site for setup guidelines: <ftp://ftp.supermicro.com/driver/SAS/LSI/LSI_SAS_EmbMRAID_SWUG.pdf> and Supermicro's web site for additional information <<http://www.supermicro.com/support/manuals/>> (RAID is supported by third-party software.)

1-3 Server Chassis Features

System Power

The SC937 features a redundant Gold Level 700W power supply composed of two separate power modules. This power redundancy feature allows you to replace a failed power module without shutting down the system.

SAS/SATA Subsystem

The SC937 supports up to 16 3.5" SAS drives. These drives are hot-swappable units and are connected to a midplane that provides power and control.

Notes: The operating system connected to the SBB system must have RAID support to enable the hot-swap capability of the SAS drives. As an alternative to SAS drives, 3.5" SATA drives can be supported via an interposer (AOL-LSISS9252).

Front Control Panel

Two control panels are included on each end of the SBB 937R-E2JB to provide you with system monitoring and control. LEDs indicate system power, cascade status,

system overheat and power supply failure. Each set of LEDs are associated with the node/serverboard on the same side of the chassis. A single power button is located on the right side control panel. When pressed, both nodes will power on or off.

Cooling System

The SC937 chassis has six fans at the front of each expander, which consists of three sets of two 4-cm counter-rotating fans. This counter-rotating action works to dampen vibration levels while generating exceptional airflow.

1-4 SBB: Storage Bridge Bay

The 937R-E2JB Super SBB was designed to function as a fully redundant, fault-tolerant "cluster-in-a-box" JBOD system. The support for 16 3.5" hot-swap HDDs has been expanded to support cascading with the SBB JBOD 937R-E2JB configuration. The Super SBB provides hot-swappable trays for the BMB-937-JB expanders.

Equipped with 700W (Gold Level) high-efficiency redundant power supplies and redundant cooling fans, the 937R-E2JB is a high-available, high-reliability JBOD storage system at a competitive price.

1-5 Contacting Supermicro

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Web Site: www.supermicro.com.tw

Technical Support:

Email: support@supermicro.com.tw

Tel: 886-2-8228-1366, ext.132 or 139

Chapter 2

Server Installation

2-1 Overview

This chapter provides a quick setup checklist to get your SBB 937R-E2JB up and running. Following these steps in the order given should enable you to have the system operational within a minimum amount of time.

2-2 Unpacking the System

You should inspect the box the SBB 937R-E2JB was shipped in and note if it was damaged in any way. If the server itself shows damage you should file a damage claim with the carrier who delivered it.

Decide on a suitable location for the rack unit that will hold the SBB 937R-E2JB. It should be situated in a clean, dust-free area that is well ventilated. Avoid areas where heat, electrical noise and electromagnetic fields are generated. You will also need it placed near a grounded power outlet. Read the Rack and Server Precautions in the next section.

2-3 Preparing for Setup

The box the SBB 937R-E2JB was shipped in should include two sets of rail assemblies, two rail mounting brackets and the mounting screws you will need to install the system into the rack. Follow the steps in the order given to complete the installation process in a minimum amount of time. Please read this section in its entirety before you begin the installation procedure outlined in the sections that follow.

Choosing a Setup Location

- Leave enough clearance in front of the rack to enable you to open the front door completely (~25 inches) and approximately 30 inches of clearance in the back of the rack to allow for sufficient airflow and ease in servicing.
- This product is for installation only in a Restricted Access Location (dedicated equipment rooms, service closets and the like).

- This product is not suitable for use with visual display work place devices according to §2 of the the German Ordinance for Work with Visual Display Units.



Warnings and Precautions!



Rack Precautions

- Ensure that the leveling jacks on the bottom of the rack are fully extended to the floor with the full weight of the rack resting on them.
- In single rack installation, stabilizers should be attached to the rack. In multiple rack installations, the racks should be coupled together.
- Always make sure the rack is stable before extending a component from the rack.
- You should extend only one component at a time - extending two or more simultaneously may cause the rack to become unstable.

Server Precautions

- Review the electrical and general safety precautions in Chapter 4.
- Determine the placement of each component in the rack *before* you install the rails.
- Install the heaviest server components on the bottom of the rack first, and then work up.
- Use a regulating uninterruptible power supply (UPS) to protect the server from power surges, voltage spikes and to keep your system operating in case of a power failure.
- Allow any hot plug drives and power supply modules to cool before touching them.
- Always keep the rack's front door and all panels and components on the servers closed when not servicing to maintain proper cooling.

Rack Mounting Considerations

Ambient Operating Temperature

If installed in a closed or multi-unit rack assembly, the ambient operating temperature of the rack environment may be greater than the ambient temperature of the room. Therefore, consideration should be given to installing the equipment in an environment compatible with the manufacturer's maximum rated ambient temperature (T_{mra}).

Reduced Airflow

Equipment should be mounted into a rack so that the amount of airflow required for safe operation is not compromised.

Mechanical Loading

Equipment should be mounted into a rack so that a hazardous condition does not arise due to uneven mechanical loading.

Circuit Overloading

Consideration should be given to the connection of the equipment to the power supply circuitry and the effect that any possible overloading of circuits might have on overcurrent protection and power supply wiring. Appropriate consideration of equipment nameplate ratings should be used when addressing this concern.

Reliable Ground

A reliable ground must be maintained at all times. To ensure this, the rack itself should be grounded. Particular attention should be given to power supply connections other than the direct connections to the branch circuit (i.e. the use of power strips, etc.).

2-4 Installing the System into a Rack

This section provides information on installing the SC937 chassis into a rack unit with the quick-release rails provided. There are a variety of rack units on the market, which may mean the assembly procedure will differ slightly. You should also refer to the installation instructions that came with the rack unit you are using.

Installing the Inner Rack Rails

Installing the Inner Rails

1. Extend the inner rail toward the front of the rail assembly as far as possible, then depress the locking tab to pull it completely out.
2. Place the inner rail on the side of the chassis aligning the hooks of the chassis with the rail extension holes.
3. Slide the extension toward the front of the chassis.
4. You may secure the chassis with screws if desired.
5. Repeat steps 1-3 for the other inner rail.

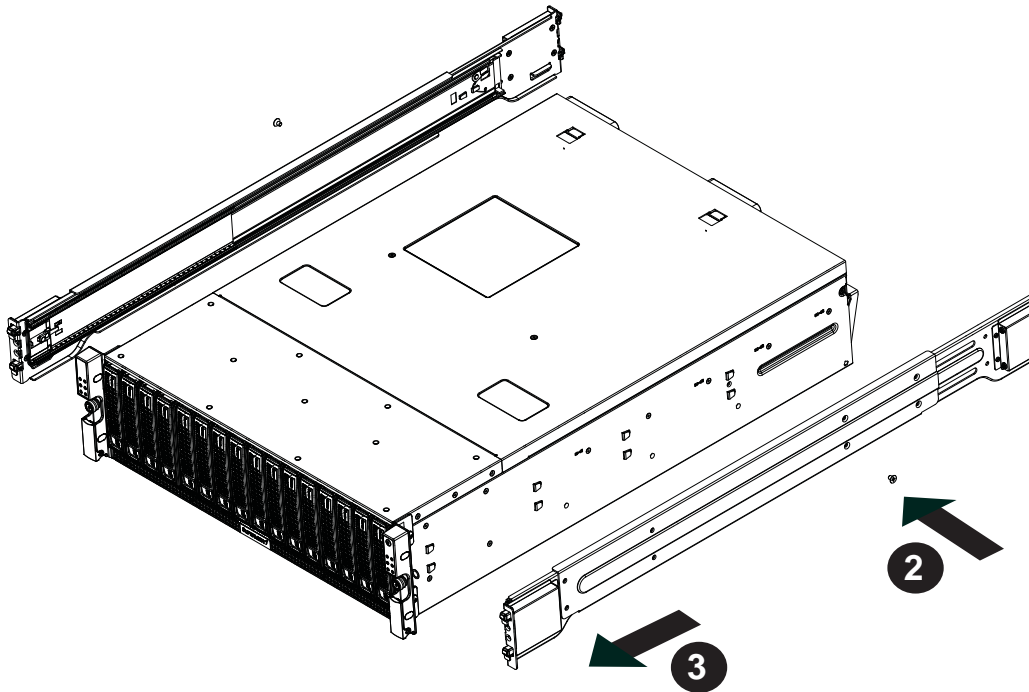


Figure 2-1. Installing the Inner Rack Rails

Installing the Outer Rack Rails

Outer rails attach to the server rack and hold the server in place. The outer rails for the SC937 chassis extend between 30 inches and 33 inches.

Installing the Outer Rails

1. Attach the right outer rail to the rack by inserting the hooks included on the rails into the holes provided on the rack.
2. If desired, screw the rails to the chassis for added support.
3. Repeat these steps for the left outer rail.

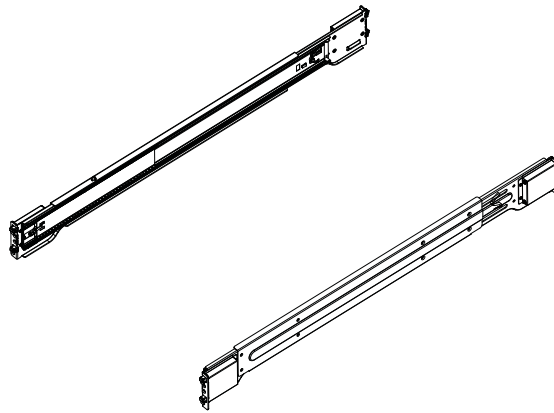


Figure 2-2. Outer Rack Rails

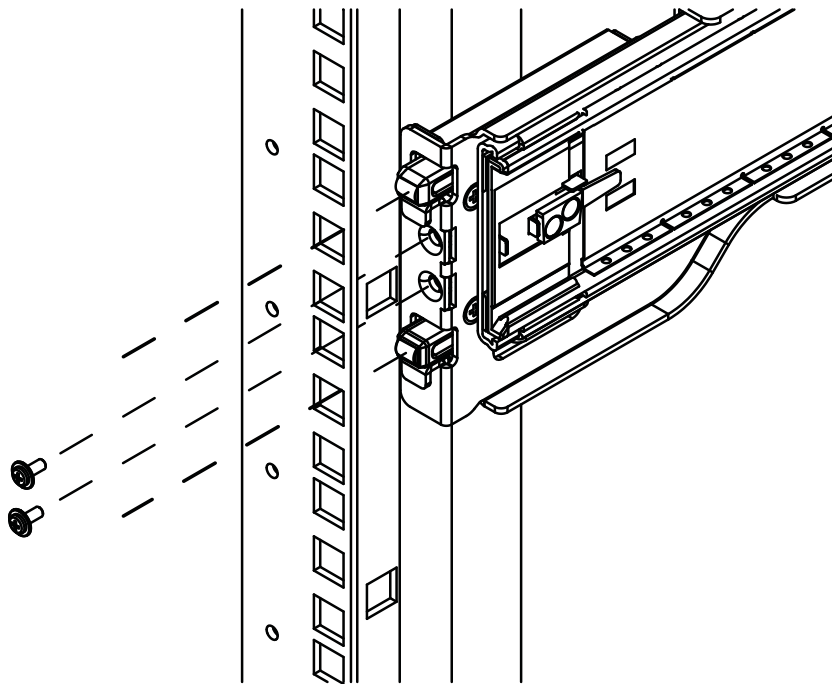


Figure 2-3. Outer Rack Rail Install

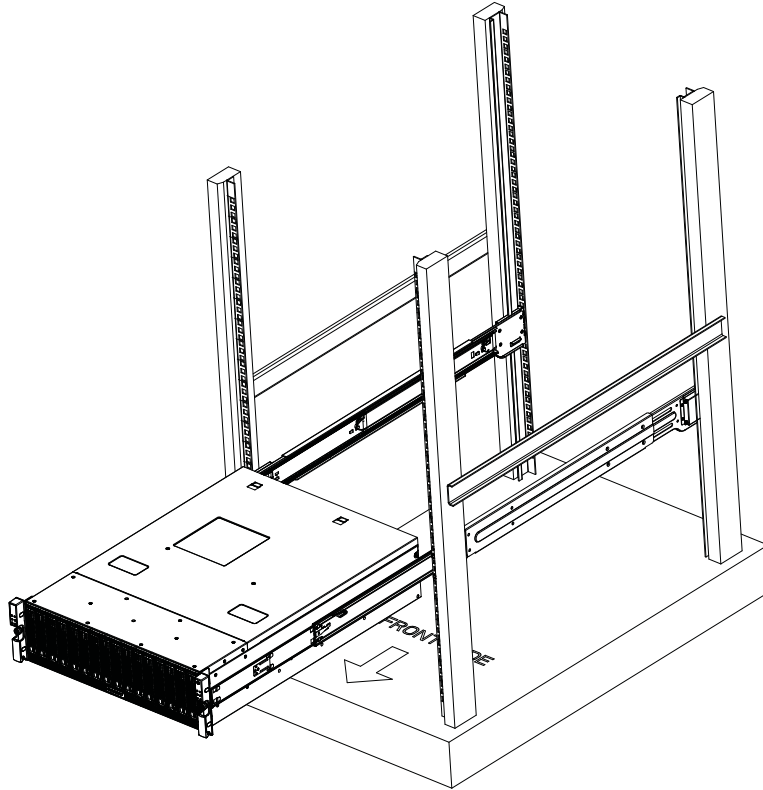


Figure 2-3. Installing the Chassis into the Rack

Installing the Chassis into a Rack

Installing into a Rack

1. Confirm that the inner and outer rails are properly installed.
2. Line up the inner (chassis) rails with the front of the outer (rack) rails.
3. Slide the chassis rails into the rack rails, keeping the pressure even on both sides (you may have to depress the locking tabs when inserting). When the server has been pushed completely into the rack, you should hear the locking tabs "click" into position.
4. (Optional) Insert and tighten the thumbscrews that hold the front of the server to the rack.

2-5 Checking the Serverboard Setup

After you install the 937R-E2JB in the rack, you will need to open the unit to make sure the serverboard is properly installed and all the connections have been made.

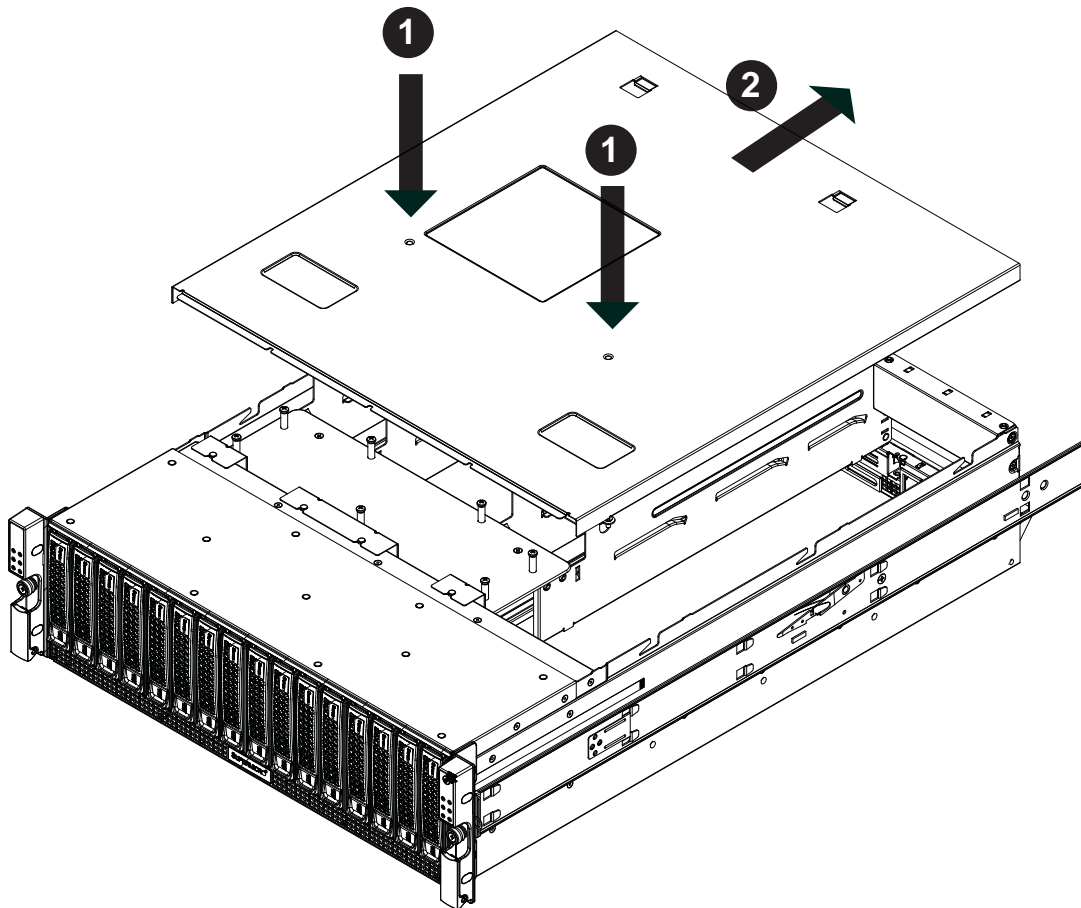
Accessing the Inside of the System (Figure 2-4)

1. Remove the two screws that secure the top cover of the chassis.
2. Slide the cover toward the rear of the chassis and lift the cover off the unit.
3. Make sure all power and data cables are properly connected and not blocking the chassis airflow. Also make sure that no cables are positioned in front of the fans. See Chapter 5 for details on cable connections.



Warning: Except for short periods of time, do NOT operate the server without the cover in place. The chassis cover must be in place to allow proper airflow and prevent overheating.

Figure 2-4. Accessing the Inside of the System



2-6 Checking the Drive Bay Setup

Next, you should check to make sure the peripheral drives and the SAS drives have been properly installed and all connections have been made.

Checking the Drives

1. The hard drives can be installed and removed from the front of the chassis without removing the top chassis cover.
2. Depending upon your system's configuration, your system may have one or more drives already installed. If you need to install hard drives, please refer to Chapter 5.

Checking the Airflow

1. Airflow is provided by 4-cm counter-rotating fans. The system component layout was carefully designed to direct sufficient cooling airflow to the components that generate the most heat. See Chapter 5 for details.
2. Note that all power and data cables have been routed in such a way that they do not block the airflow generated by the fans.

Providing Power

1. Plug the power cord(s) from the power supply unit(s) into a high-quality power strip that offers protection from electrical noise and power surges. It is recommended that you use an uninterruptible power supply (UPS).
2. Depress the power on button on the front of the chassis.

Chapter 3

System Interface

3-1 Overview

There are several LEDs on two control panels as well as others on the drive carriers to keep you constantly informed of the overall status of the system as well as the activity and health of specific components. A main power button is also located on the right side (only) control panel.

3-2 Control Panel Button



Power

The single button located on the right control panel is the power on/off button. Depressing this button will either power both nodes on or off. Turning off system power with this button removes the main power but keeps standby power supplied to the system.

3-3 Control Panel LEDs

The two control panels located on the front of the chassis have several LEDs. With the exception of the power fail LED, these LEDs provide you with critical information related to the node on the same side of the chassis. This section explains what each LED indicates when illuminated and any corrective action you may need to take.



Power Fail

Indicates a power supply module has failed. The second power supply module will take the load and keep the system running but the failed module will need to be replaced. Refer to Chapter 5 for details on replacing the power supply. This LED should be off when the system is operating normally.



Overheat/Fan Fail:

When this LED flashes, it indicates a fan failure. When on continuously it indicates an overheat condition, which may be caused by cables obstructing the airflow in the system or the ambient room temperature being too warm. Check the routing of the cables and make sure all fans are present and operating normally. You should also check to make sure that the chassis covers are installed. Finally, verify that the heatsinks are installed properly (see Chapter 5). This LED will remain flashing or on as long as the indicated condition exists.



Cascading Status

When this LED is illuminated it indicates a cable for cascading has been attached to the system.



Cascading Status

When this LED is illuminated it indicates a cable for cascading has been attached to the system.



Power

Indicates power is being supplied to the system's power supply units. This LED should normally be illuminated when the system is operating.

3-4 Drive Carrier LEDs

Each drive carrier has two LEDs:

- **Green:** When illuminated, the green LED on the drive carrier indicates the drive is powered on. If this LED is not lit, it means no power is being provided for the drive. Please refer to Chapter 5 for instructions on replacing failed drives.
- **Red:** A steady red LED indicates a drive failure. If one of the drives fails, you should be notified by your system management software. Please refer to Chapter 5 for instructions on replacing failed drives. If this LED flashes ~ once per second (1 Hz) it indicates RAID rebuilding activity.

Notes

Chapter 4

System Safety

4-1 Electrical Safety Precautions



Basic electrical safety precautions should be followed to protect yourself from harm and the SBB 937R-E2JB from damage:

- Be aware of the locations of the power on/off switch on the chassis as well as the room's emergency power-off switch, disconnection switch or electrical outlet. If an electrical accident occurs, you can then quickly remove power from the system.
- Do not work alone when working with high voltage components.
- Power should always be disconnected from the system when removing or installing main system components. When disconnecting power, you should first power down the system with the operating system. The unit has more than one power supply cord. Disconnect both power supply cords before servicing to avoid electrical shock.
- When working around exposed electrical circuits, another person who is familiar with the power-off controls should be nearby to switch off the power if necessary.
- Use only one hand when working with powered-on electrical equipment. This is to avoid making a complete circuit, which will cause electrical shock. Use extreme caution when using metal tools, which can easily damage any electrical components or circuit boards they come into contact with.
- Do not use mats designed to decrease static electrical discharge as protection from electrical shock. Instead, use rubber mats that have been specifically designed as electrical insulators.
- The power supply power cords must include a grounding plug and must be plugged into grounded electrical outlets.

- This product may be connected to an IT power system. In all cases, make sure that the unit is also reliably connected to Earth (ground).
- DVD-ROM Laser: **CAUTION** - this server may have come equipped with a DVD-ROM drive. To prevent direct exposure to the laser beam and hazardous radiation exposure, do not open the enclosure or use the unit in any unconventional way.

4-2 General Safety Precautions



Follow these rules to ensure general safety:

- Keep the area around the 937R-E2JB clean and free of clutter.
- The 937R-E2JB weighs approximately 75 lbs (34 kg.) when fully loaded. When lifting the system, two people at either end should lift slowly with their feet spread out to distribute the weight. Always keep your back straight and lift with your legs.
- Place the chassis top cover and any system components that have been removed away from the system or on a table so that they won't accidentally be stepped on.
- While working on the system, do not wear loose clothing such as neckties and unbuttoned shirt sleeves, which can come into contact with electrical circuits or be pulled into a cooling fan.
- Remove any jewelry or metal objects from your body, which are excellent metal conductors that can create short circuits and harm you if they come into contact with printed circuit boards or areas where power is present.
- After accessing the inside of the system, close the system back up and secure it to the rack unit with the retention screws after ensuring that all connections have been made.

4-3 ESD Precautions



Electrostatic Discharge (ESD) is generated by two objects with different electrical charges coming into contact with each other. An electrical discharge is created to neutralize this difference, which can damage electronic components and printed circuit boards. The following measures are generally sufficient to neutralize this difference before contact is made to protect your equipment from ESD:

- Use a grounded wrist strap designed to prevent static discharge.
- Keep all components and printed circuit boards (PCBs) in their antistatic bags until ready for use.
- Touch a grounded metal object before removing the board from the antistatic bag.
- Do not let components or PCBs come into contact with your clothing, which may retain a charge even if you are wearing a wrist strap.
- Handle a board by its edges only; do not touch its components, peripheral chips, memory modules or contacts.
- When handling chips or modules, avoid touching their pins.
- Put the serverboard and peripherals back into their antistatic bags when not in use.
- For grounding purposes, make sure your computer chassis provides excellent conductivity between the power supply, the case, the mounting fasteners and the serverboard.

4-4 Operating Precautions



Care must be taken to assure that the chassis cover is in place when the 937R-E2JB is operating to assure proper cooling. Out of warranty damage to the system can occur if this practice is not strictly followed.

Chapter 5

Advanced Chassis Setup

This chapter covers the steps required to install components and perform maintenance on the SC937 chassis. For component installation, follow the steps in the order given to eliminate the most common problems encountered. If some steps are unnecessary, skip ahead to the step that follows.

Tools Required: The only tool you will need to install components and perform maintenance is a Philips screwdriver.

5-1 Static-Sensitive Devices

Electrostatic Discharge (ESD) can damage electronic components. To prevent damage to any printed circuit boards (PCBs), it is important to handle them very carefully. The following measures are generally sufficient to protect your equipment from ESD damage.

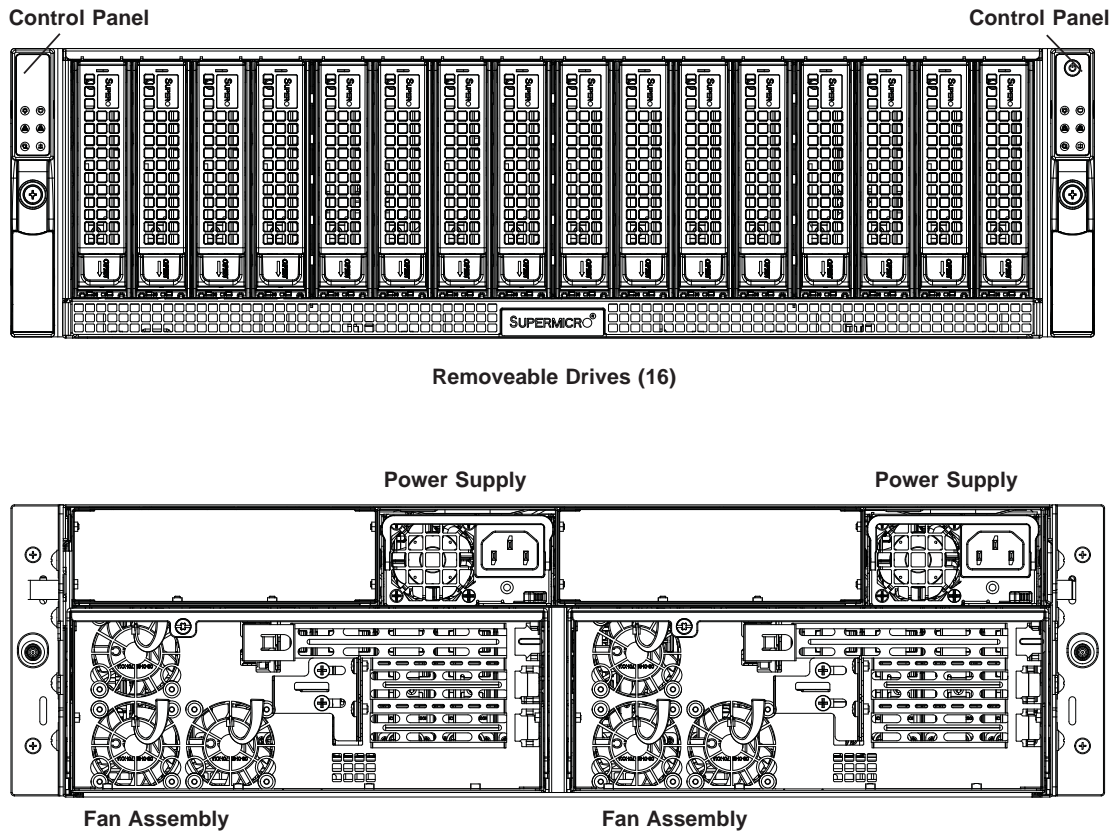
Precautions

- Use a grounded wrist strap designed to prevent static discharge.
- Touch a grounded metal object before removing any board from its antistatic bag.
- Handle a board by its edges only; do not touch its components, peripheral chips, memory modules or gold contacts.
- When handling chips or modules, avoid touching their pins.
- Put the serverboard, add-on cards and peripherals back into their antistatic bags when not in use.
- For grounding purposes, make sure your computer chassis provides excellent conductivity between the power supply, the case, the mounting fasteners and the serverboard.

Unpacking

The serverboard is shipped in antistatic packaging to avoid static damage. When unpacking the board, make sure the person handling it is static protected.

Figure 5-1. Front and Rear Chassis Views



5-2 Control Panel

The LEDs on the control panels are associated with the node on the same side of the chassis. Note that only the right-side control panel includes a power button. Depressing this button will turn both nodes on or off.

See Chapter 3 for details on the LEDs and the control panel buttons.

5-3 System Fans

System cooling is provided by three sets of counter-rotating fans at the front of each expander. Each fan assembly (one for each node) consists of three sets of counter-rotating fans. The counter-rotating action helps dampen vibration levels while generating exceptional airflow.

It is very important that the chassis cover is properly installed and making a good seal for the cooling air to circulate properly through the chassis and cool the components.

System Fan Failure

Fan speed is controlled by system temperature via an expander. If a fan fails, the remaining fans will ramp up to full speed and the overheat/fan fail LED on the control panel (of the same side as the failed fan) will turn on. The counter-rotating fans may also be visually inspected for failure. Replace any failed fan at your earliest convenience with the same type and model (the system can continue to run with a failed fan). Remove the top chassis cover while the system is still running to determine which of the fans has failed.

Replacing System Fans

Replace the failed fan with an identical 4-cm, 12-volt counter-rotating fan (p/n FAN-0088L4, available from Supermicro). See Figures 5-2 and 5-3.

Replacing Fans

1. Shutdown the node with the failed fan(s) and remove the AC power cord.
2. On the node with the failed fan, push the release bar down to unlock the serverboard tray.
3. Use the bar to pull the node/serverboard from the chassis.
4. Remove the failed fan from the assembly and replace it with an identical replacement. You may need to remove the assembly to replace the lower fan.
5. Slide the serverboard tray back into the chassis. When seated, lift the release bar to lock it into place.
6. Reconnect the AC power cord and power up the node.
7. Inspect the replaced fan to verify it is working.

Figure 5-2. Replacing a Fan

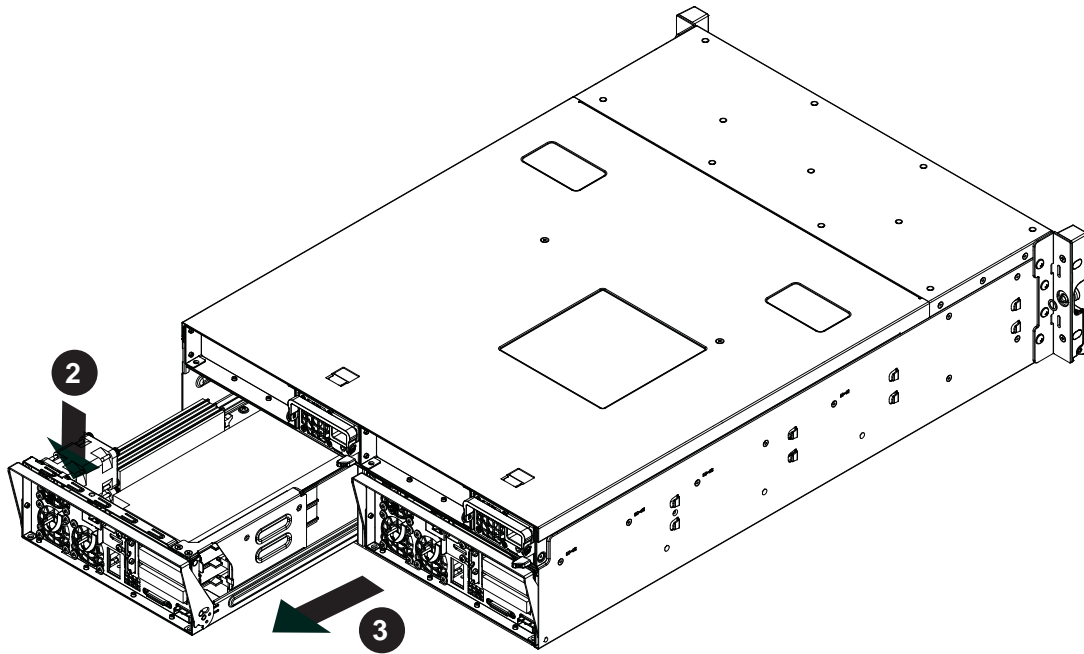
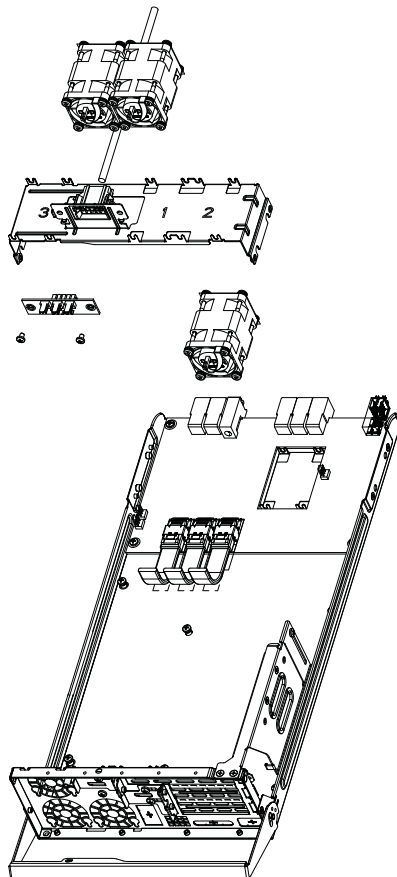


Figure 5-3. Exploded View of Fan Assembly



5-4 Drive Bay Installation/Removal

Accessing the Drive Bays

SAS Drives: You do not need to access the inside of the chassis or remove power to replace or swap SAS drives. Proceed to the next step for instructions. You must use standard 3.5" SAS drives in the system.

Note: Refer to the following ftp site for setup guidelines: <ftp://ftp.supermicro.com/driver/SAS/LSI/LSI_SAS_EmbMRAID_SWUG.pdf> and Supermicro's web site for additional information <<http://www.supermicro.com/support/manuals/>>.

Hard Drive Midplane

The hard drives plug into a midplane that provides power, drive ID and bus termination. A RAID controller can be used with the midplane to provide data security. The operating system you use must have RAID support to enable the hot-swap capability of the hard drives. The midplane is already preconfigured, so no jumper or switch configurations are required.

SAS Drive Installation

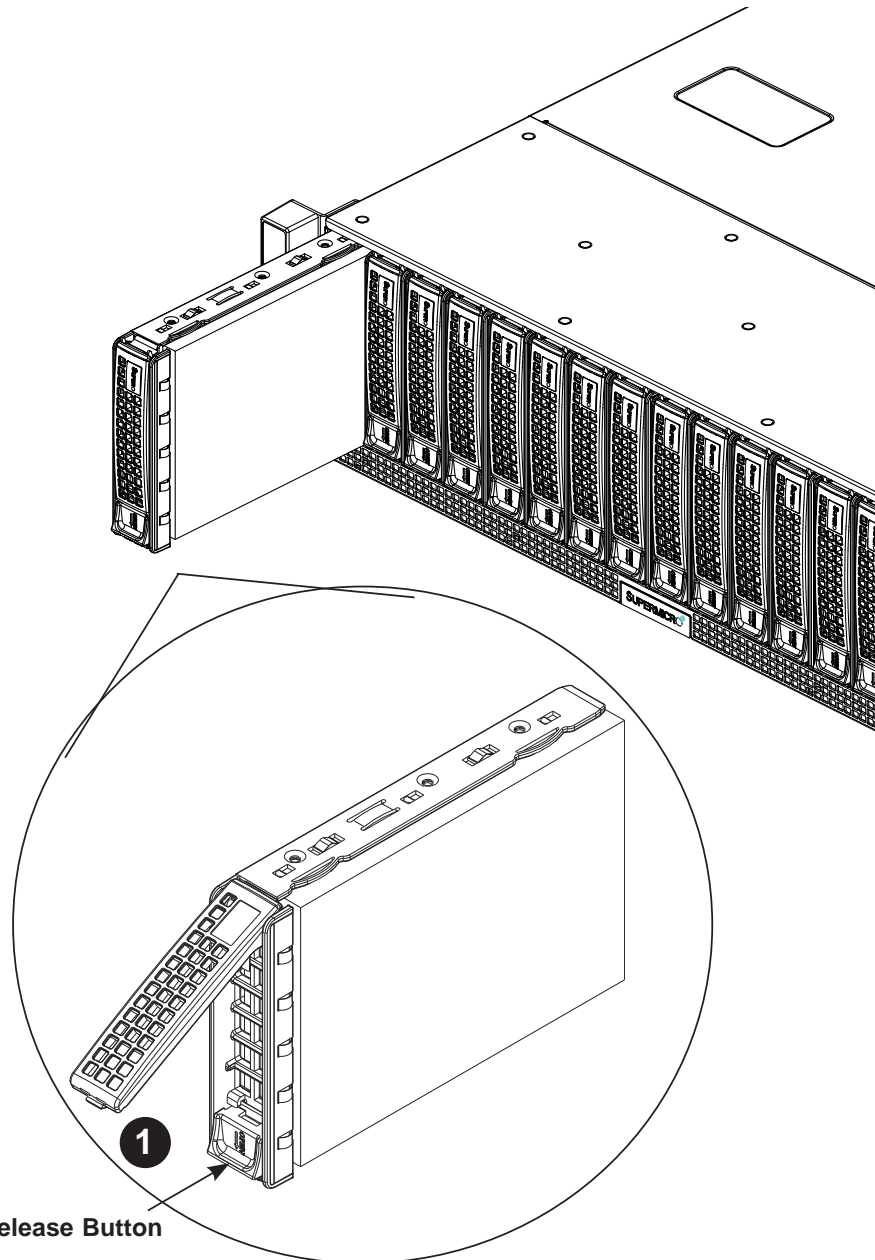
These drives are mounted in drive carriers to simplify their installation and removal from the chassis. The carriers also help promote proper airflow for the drives. For this reason, even empty carriers without hard drives installed must remain in the chassis.

Removing a HDD Carrier from the Chassis (Figure 5-4)

1. Press the release button on the drive tray. This extends the drive tray handle.
2. Use the handle to pull the drive out of the chassis.

Installing a SAS Hard Drive (Figures 5-5 and 5-6)

1. Remove the screws securing the dummy drive to the drive carrier.
2. Remove the dummy drive. Place the carrier on a flat surface.
3. Slide the hard drive into the carrier with the printed circuit board side down.
4. Carefully align the mounting holes in both the drive tray and the hard drive.

Figure 5-4. Removing a HDD Carrier from the Chassis

Enterprise level hard disk drives are recommended for use in Supermicro chassis and servers. For information on recommended HDDs, visit the Supermicro Web site at <http://www.supermicro.com/products/nfo/files/storage/SAS-1-CompList-110909.pdf>



Use caution when working around the midplane. Do not touch the midplane with any metal objects and make sure no cables touch the midplane or obstruct the holes, which aid in proper airflow.



Important: Regardless of how many hard drives are installed, all drive carriers must remain in the drive bays to maintain proper airflow.

5. Secure the hard drive to the tray using the screws provided.
6. Insert the drive carrier into the chassis. Make sure to close the carrier handle to lock the carrier into place.

Figure 5-5. Removing the Dummy Drive from the Carrier

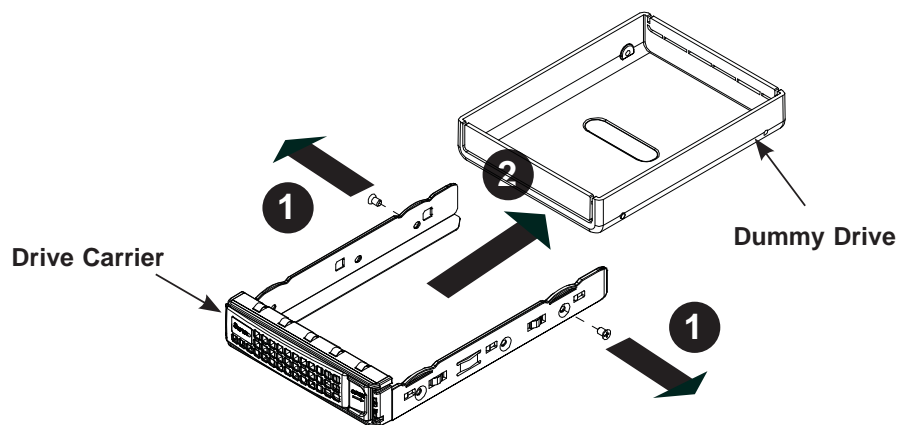
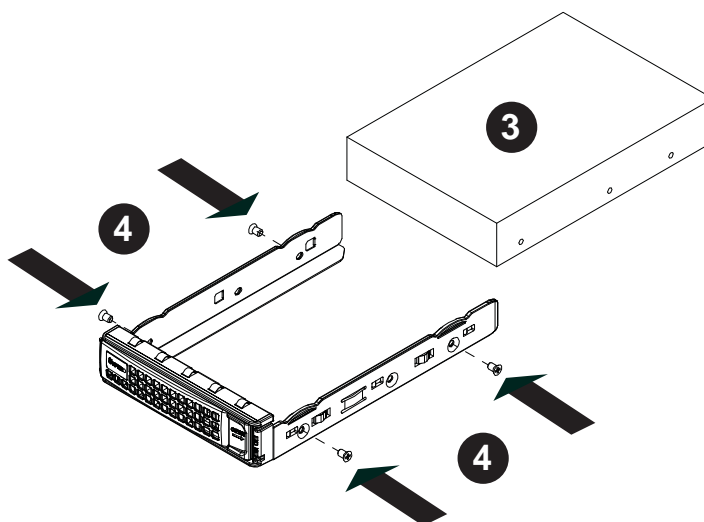


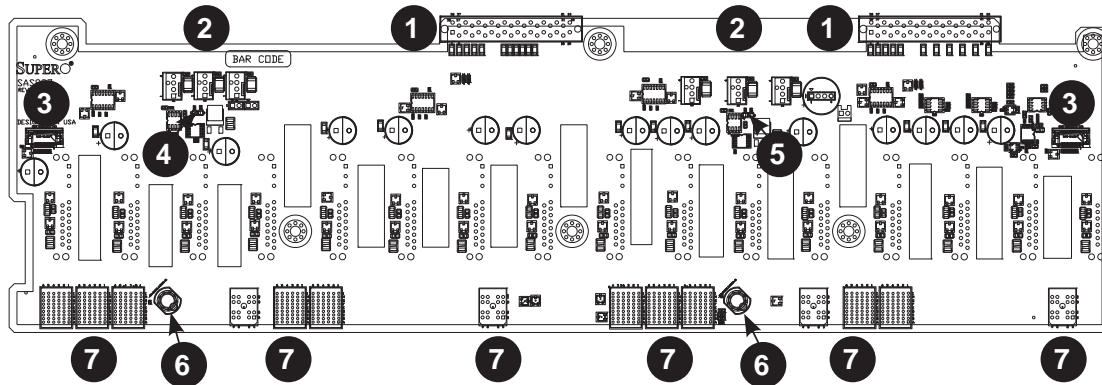
Figure 5-6. Installing a Drive to a Carrier



5-5 Midplane

The midplane supplies power and logic to the hard drives as well as other parts of the system. See Figure 5-7 below for a list of connections to the midplane.

Figure 5-7. Midplane Connections



Item	Description	Connects To
1.	Power Connections	Power Distribution Board
2.	Fan Headers (3 each)	Fan Assemblies (1 for each node)
3.	Control Panel Connections	Control Panel
4.	Overheat LED (for right-side node)	N/A
5.	Overheat LED (for left-side node)	N/A
6.	Node Present/Absent Sensor	Node/Serverboard
7.	SBB (Storage Bridge Bay) Connections	Node/Serverboard

5-6 Power Supply

The SBB 937R-E2JB has a 700 watt redundant power supply consisting of two separate power modules. Each power supply module has an auto-switching capability, which enables it to automatically sense and operate at a 100V - 240V input voltage.

When fully inserted into the chassis, the power supplies connect automatically to a power distribution board (PDB). The PDB in turn connects to the midplane via two black power connectors as shown in Figure 5-7.

Power Supply Failure

If either of the two power supply modules fail, the other module will take the full load and allow the system to continue operation without interruption. The PWR Fail LED will illuminate and remain on until the failed unit has been replaced. Replacement units can be ordered directly from Supermicro. The power supply units have a hot-swap capability, meaning you can replace the failed unit without powering down the system.

Replacing the Power Supply

You do not need to shut down the system to replace a power supply unit. The backup power supply module will keep the system up and running while you replace the failed hot-swap unit. Replace with the same model (see part number in the Appendix), which can be ordered directly from Supermicro.

Replacing the Power Supply

1. The SC937 chassis includes a redundant power supply (at least two power modules), you can leave the server running if you remove only one power supply at a time.
2. Unplug the power supply that you will replace.
3. Push the release tab (on the back of the power supply) as illustrated.
4. Pull the power supply out using the handle provided.
5. Replace the failed power module with the same model.
6. Push the new power supply module into the power bay until you hear a click.
7. Plug the AC power cord back into the module and power up the server.

Notes

Appendix A

System Specifications

Drive Bays

Sixteen hot-swap drive bays to house 16 3.5" SAS drives (or SATA drives with interposer)

Chassis

SBB 937R-E2JB (3U rackmount)

Dimensions: (WxHxD) 17.2 x 5.2 x 24.2 in. (437 x 132 x 615 mm)

Weight (Net): 56 lbs. (25.5 kg.)

Weight

Gross (Bare Bone): 75 lbs. (34 kg.)

System Cooling

Three sets of 4-cm counter-rotating fans at the front of expander in each node (each section contains two fans placed back-to-back)

System Input Requirements

AC Input Voltage: 100-240 VAC

Rated Input Current: 10-4A

Rated Input Frequency: 50 to 60 Hz

Power Supply

Rated Output Power: 700W (Part# PWS-703P-1R)

Rated Output Voltages: +12V (58A), +5Vsb (3A)

Operating Environment

Operating Temperature: 10° to 35° C (50° to 95° F)

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

Operating Relative Humidity: 20% to 95% (non-condensing)

Non-operating Relative Humidity: 5 to 95% (non-condensing)

Regulatory Compliance

Electromagnetic Emissions: FCC Class A, EN 55022 Class A, EN 61000-3-2/-3-3, CISPR 22 Class A

Electromagnetic Immunity: EN 55024/CISPR 24, (EN 61000-4-2, EN 61000-4-3, EN 61000-4-4, EN 61000-4-5, EN 61000-4-6, EN 61000-4-8, EN 61000-4-11)

Safety: CSA/EN/IEC/UL 60950-1 Compliant, UL or CSA Listed (USA and Canada), CE Marking (Europe)

California Best Management Practices Regulations for Perchlorate Materials:

This Perchlorate warning applies only to products containing CR (Manganese Dioxide) Lithium coin cells. "Perchlorate Material-special handling may apply. See www.dtsc.ca.gov/hazardouswaste/perchlorate"

(continued from front)

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