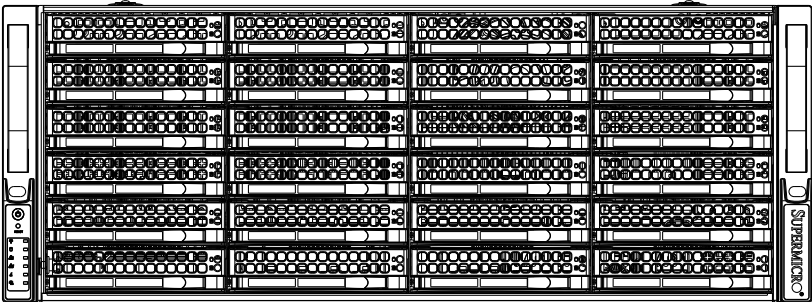




## SC846X CHASSIS



## USER'S MANUAL

Revision 1.0

The information in this User's Manual has been carefully reviewed and is believed to be accurate. The vendor assumes no responsibility for any inaccuracies that may be contained in this document, makes no commitment to update or to keep current the information in this manual, or to notify any person or organization of the updates. **Please Note: For the most up-to-date version of this manual, please see our web site at [www.supermicro.com](http://www.supermicro.com).**

Super Micro Computer, Inc. ("Supermicro") reserves the right to make changes to the product described in this manual at any time and without notice. This product, including software and documentation, is the property of Supermicro and/or its licensors, and is supplied only under a license. Any use or reproduction of this product is not allowed, except as expressly permitted by the terms of said license.

IN NO EVENT WILL SUPERMICRO BE LIABLE FOR DIRECT, INDIRECT, SPECIAL, INCIDENTAL, SPECULATIVE OR CONSEQUENTIAL DAMAGES ARISING FROM THE USE OR INABILITY TO USE THIS PRODUCT OR DOCUMENTATION, EVEN IF ADVISED OF THE POSSIBILITY OF SUCH DAMAGES. IN PARTICULAR, SUPERMICRO SHALL NOT HAVE LIABILITY FOR ANY HARDWARE, SOFTWARE, OR DATA STORED OR USED WITH THE PRODUCT, INCLUDING THE COSTS OF REPAIRING, REPLACING, INTEGRATING, INSTALLING OR RECOVERING SUCH HARDWARE, SOFTWARE, OR DATA.

Any disputes arising between manufacturer and customer shall be governed by the laws of Santa Clara County in the State of California, USA. The State of California, County of Santa Clara shall be the exclusive venue for the resolution of any such disputes. Super Micro's total liability for all claims will not exceed the price paid for the hardware product.

FCC Statement: This equipment has been tested and found to comply with the limits for a Class A digital device pursuant to Part 15 of the FCC Rules. These limits are designed to provide reasonable protection against harmful interference when the equipment is operated in a commercial environment. This equipment generates, uses, and can radiate radio frequency energy and, if not installed and used in accordance with the manufacturer's instruction manual, may cause harmful interference with radio communications. Operation of this equipment in a residential area is likely to cause harmful interference, in which case you will be required to correct the interference at your own expense.

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](http://www.dtsc.ca.gov/hazardouswaste/perchlorate)"

**WARNING: Handling of lead solder materials used in this product may expose you to lead, a chemical known to the State of California to cause birth defects and other reproductive harm.**

Manual Revision 1.0

Release Date: April 30, 2015

mk

Unless you request and receive written permission from Super Micro Computer, Inc., you may not copy any part of this document.

Information in this document is subject to change without notice. Other products and companies referred to herein are trademarks or registered trademarks of their respective companies or mark holders.

Copyright © 2015 by Super Micro Computer, Inc.  
All rights reserved.

**Printed in the United States of America**

# 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 chassis. Installation and maintenance should be performed by experienced technicians only.

This document lists compatible parts available when this document was published. Refer to the Supermicor web site for updates on supported parts and configurations.

## Warnings

Special attention should be given to the following symbols used in this manual.



**Warning!** Indicates important information given to prevent equipment/property damage or personal injury.



**Warning!** Indicates high voltage may be encountered when performing a procedure.

---

---

## Contents

Contacting Supermicro .....	7
<b>Chapter 1 Introduction.....</b>	<b>1-1</b>
1-1 Overview .....	1-1
1-2 Shipping List.....	1-1
Part Numbers .....	1-1
1-3 Components.....	1-2
Drives .....	1-2
Power Supply .....	1-2
Cooling .....	1-2
Expansion Slots .....	1-2
Motherboard .....	1-2
Mounting Rails .....	1-3
1-4 Where to get Replacement Components.....	1-3
1-5 Returning Merchandise for Service.....	1-3
<b>Chapter 2 Standardized Warning Statements for AC Systems.....</b>	<b>2-1</b>
About Standardized Warning Statements .....	2-1
Warning Definition .....	2-1
Installation Instructions.....	2-4
Circuit Breaker .....	2-5
Power Disconnection Warning.....	2-6
Equipment Installation .....	2-8
Restricted Area.....	2-9
Battery Handling.....	2-10
Redundant Power Supplies .....	2-12
Backplane Voltage .....	2-13
Comply with Local and National Electrical Codes .....	2-14
Product Disposal .....	2-15
Hot Swap Fan Warning.....	2-16
Power Cable and AC Adapter .....	2-18
<b>Chapter 3 System Interface.....</b>	<b>3-1</b>
3-1 Overview .....	3-1
3-2 Control Panel Buttons .....	3-2
3-3 Control Panel LEDs .....	3-2
Overheating.....	3-3
Overheat Temperature Setting .....	3-3
Responses.....	3-3

---

3-4	Drive Carrier LEDs.....	3-4
3-5	Power Supply LEDs.....	3-4
<b>Chapter 4 Chassis Setup and Maintenance .....</b>		<b>4-1</b>
4-1	Overview .....	4-1
4-2	Removing Power from the System .....	4-2
4-3	Removing the Chassis Cover .....	4-3
4-4	Installing Hard Drives.....	4-4
	Primary Hot-Swap Drives.....	4-4
	Optional HDDs in the Rear of the Chassis.....	4-7
	Installing the Optional Hot-Swap 2.5" HDD Carrier .....	4-10
4-5	Installing the Serverboard.....	4-12
	Installing the I/O Shield .....	4-12
	Standoffs .....	4-12
	Mounting Procedure.....	4-13
4-6	Expansion Cards .....	4-14
4-7	Installing the Air Shroud.....	4-15
4-8	System Fans .....	4-16
	Checking the Server Air Flow .....	4-17
4-9	Power Supply .....	4-18
	Optional Battery Backup Power.....	4-18
<b>Chapter 5 Rack Installation.....</b>		<b>5-1</b>
5-1	Unpacking the System.....	5-1
5-2	Preparing for Setup.....	5-1
	Choosing a Setup Location.....	5-1
5-3	Warnings and Precautions.....	5-2
	Rack Precautions.....	5-2
	General Server Precautions.....	5-2
	Rack Mounting Considerations.....	5-3
	Ambient Operating Temperature .....	5-3
	Sufficient Airflow .....	5-3
	Circuit Overloading.....	5-3
	Reliable Ground .....	5-3
5-4	Procedure for Rack Mounting .....	5-4
	Identifying the Inner Rack Rails.....	5-4
	Installing the Inner Rails on the Chassis.....	5-5
	Installing the Outer Rails onto the Rack.....	5-6
	Installing the Chassis into a Rack.....	5-7
	Removing the Chassis from the Rack.....	5-8

---

***Appendix A SC846X Cables and Hardware ..... A-1***  
***Appendix B Power Supply Specifications..... B-1***  
***Appendix C BPN-SAS3\_846EL Backplane Specifications ..... C-1***

## Contacting Supermicro

### Headquarters

Address: Super Micro Computer, Inc.  
980 Rock Ave.  
San Jose, CA 95131 U.S.A.

Tel: +1 (408) 503-8000

Fax: +1 (408) 503-8008

Email: [marketing@supermicro.com](mailto:marketing@supermicro.com) (General Information)  
[support@supermicro.com](mailto:support@supermicro.com) (Technical Support)

Web Site: [www.supermicro.com](http://www.supermicro.com)

### Europe

Address: Super Micro Computer B.V.  
Het Sterrenbeeld 28, 5215 ML  
's-Hertogenbosch, The Netherlands

Tel: +31 (0) 73-6400390

Fax: +31 (0) 73-6416525

Email: [sales@supermicro.nl](mailto:sales@supermicro.nl) (General Information)  
[support@supermicro.nl](mailto:support@supermicro.nl) (Technical Support)  
[rma@supermicro.nl](mailto:rma@supermicro.nl) (Customer Support)

Web Site: [www.supermicro.nl](http://www.supermicro.nl)

### Asia-Pacific

Address: Super Micro Computer, Inc.  
3F, No. 150, Jian 1st Rd.  
Zhonghe Dist., New Taipei City 235  
Taiwan (R.O.C)

Tel: +886-(2) 8226-3990

Fax: +886-(2) 8226-3992

Email: [support@supermicro.com.tw](mailto:support@supermicro.com.tw)

Web Site: [www.supermicro.com.tw](http://www.supermicro.com.tw)

## Notes



# Chapter 1

## Introduction

### 1-1 Overview

Optimized for enterprise-level high capacity storage applications, Supermicro's SC846X chassis features 24 hot-swap 3.5" SAS/SATA hard drive trays and up to six internal hard drive bays in a 4U space. The chassis design offers maximum HDD per space ratio in a 4U form factor, high power efficiency, optimized HDD signal trace routing and improved HDD tray design to dampen HDD vibrations and maximize performance. Equipped with 1280W (Platinum Level) high-efficiency redundant power supplies and five hot-plug redundant cooling fans, the chassis is a reliable and trouble-free storage system.

<b>SC846X Chassis Models</b>			
<b>Model</b>	<b>HDD</b>	<b>PCI Slots</b>	<b>Power Supply</b>
<b>SC846XA-R1K28B</b>	24x SAS/SATA	13x FF	1280W Redundant
<b>SC846XE2C-R1K28B</b>	24x SAS/SATA	13x FF	1280W Redundant
<b>SC846XE1C-R1K28B</b>	24x SAS/SATA	13x FF	1280W Redundant

FF is full-height, full-width expansion card

### 1-2 Shipping List

#### Part Numbers

Please visit the Supermicro website for the latest shipping lists and part numbers for your particular chassis model <http://www.supermicro.com/>

## 1-3 Components

### Drives

The chassis supports twenty-four hot-swap 3.5" SAS or SATA hard disk drives in the front. The drives are supported by a backplane.

In addition, you have the option to add up to six drives at the rear of the chassis. That can be some combination of:

- Two 2.5" hot-swap drives
- One to three fixed 3.5" internal hard drives
- One to six fixed 2.5" internal hard drives

### Power Supply

The chassis features two 1280W redundant high-efficiency digital power supplies with PMBus 1.2 and 80 Plus Platinum level certification. It also can accommodate two optional battery backup power (BBP) modules.

### Cooling

The chassis includes four 92 mm heavy-duty, hot-swap fans and one 80 mm exhaust fan. System fans are powered and controlled by 4-pin connectors.

An air shroud helps channel cooling air where needed.

### Expansion Slots

The chassis supports up to thirteen PCI-E expansion cards. The total expansion card capacity may be less depending on the motherboard.

### Motherboard

The chassis supports serverboards up to 15.2" x 13.2", including E-ATX and ATX form factors. Other form factors can be used, although this may impact the PCI card capacity.

### Mounting Rails

Rack mount rails allow you to mount the chassis in a rack. The rails feature snap-in installation and quick release, and support modern square hole racks. Round hole rack are supported with a conversion kit.

## 1-4 Where to get Replacement Components

Though not frequently, you may need replacement parts for your system. To ensure the highest level of professional service and technical support, we strongly recommend purchasing exclusively from our Supermicro Authorized Distributors/System Integrators/Resellers. A list of Supermicro Authorized Distributors/System Integrators/Resellers can be found at: <http://www.supermicro.com>. Click the Where to Buy link.

## 1-5 Returning Merchandise for Service

A receipt or copy of your invoice marked with the date of purchase is required before any warranty service will be rendered. You can obtain service by calling your vendor for a Returned Merchandise Authorization (RMA) number. When returning to the manufacturer, the RMA number should be prominently displayed on the outside of the shipping carton, and mailed prepaid or hand-carried. Shipping and handling charges will be applied for all orders that must be mailed when service is complete.

For faster service, RMA authorizations may be requested online (<http://www.supermicro.com/support/rma/>).

Whenever possible, repack the chassis in the original Supermicro carton, using the original packaging material. If these are no longer available, be sure to pack the chassis securely, using packaging material to surround the chassis so that it does not shift within the carton and become damaged during shipping.

This warranty only covers normal consumer use and does not cover damages incurred in shipping or from failure due to the alteration, misuse, abuse or improper maintenance of products.

During the warranty period, contact your distributor first for any product problems.

# Notes

## Chapter 2

# Standardized Warning Statements for AC Systems

## 2-1 About Standardized Warning Statements

The following statements are industry standard warnings, provided to warn the user of situations which have the potential for bodily injury. Should you have questions or experience difficulty, contact Supermicro's Technical Support department for assistance. Only certified technicians should attempt to install or configure components.

Read this appendix in its entirety before installing or configuring components in the Supermicro chassis.

These warnings may also be found on our web site at [http://www.supermicro.com/about/policies/safety\\_information.cfm](http://www.supermicro.com/about/policies/safety_information.cfm).

### Warning Definition



#### Warning!

This warning symbol means danger. You are in a situation that could cause bodily injury. Before you work on any equipment, be aware of the hazards involved with electrical circuitry and be familiar with standard practices for preventing accidents.

#### 警告の定義

この警告サインは危険を意味します。

人身事故につながる可能性がありますので、いずれの機器でも動作させる前に、電気回路に含まれる危険性に注意して、標準的な事故防止策に精通して下さい。

此警告符号代表危險。

您正处于可能受到严重伤害的工作环境中。在您使用设备开始工作之前，必须充分意识到触电的危险，并熟练掌握防止事故发生的标准工作程序。请根据每项警告结尾的声明号码找到此设备的安全性警告说明的翻译文本。

此警告符號代表危險。

您正處於可能身體可能會受損傷的工作環境中。在您使用任何設備之前，請注意觸電的危險，並且要熟悉預防事故發生的標準工作程序。請依照每一注意事項後的號碼找到相關的翻譯說明內容。

## Warnung

### WICHTIGE SICHERHEITSHINWEISE

Dieses Warnsymbol bedeutet Gefahr. Sie befinden sich in einer Situation, die zu Verletzungen führen kann. Machen Sie sich vor der Arbeit mit Geräten mit den Gefahren elektrischer Schaltungen und den üblichen Verfahren zur Vorbeugung vor Unfällen vertraut. Suchen Sie mit der am Ende jeder Warnung angegebenen Anweisungsnummer nach der jeweiligen Übersetzung in den übersetzten Sicherheitshinweisen, die zusammen mit diesem Gerät ausgeliefert wurden.

BEWAHREN SIE DIESE HINWEISE GUT AUF.

### INSTRUCCIONES IMPORTANTES DE SEGURIDAD

Este símbolo de aviso indica peligro. Existe riesgo para su integridad física. Antes de manipular cualquier equipo, considere los riesgos de la corriente eléctrica y familiarícese con los procedimientos estándar de prevención de accidentes. Al final de cada advertencia encontrará el número que le ayudará a encontrar el texto traducido en el apartado de traducciones que acompaña a este dispositivo.

GUARDE ESTAS INSTRUCCIONES.

### IMPORTANTES INFORMATIONS DE SÉCURITÉ

Ce symbole d'avertissement indique un danger. Vous vous trouvez dans une situation pouvant entraîner des blessures ou des dommages corporels. Avant de travailler sur un équipement, soyez conscient des dangers liés aux circuits électriques et familiarisez-vous avec les procédures couramment utilisées pour éviter les accidents. Pour prendre connaissance des traductions des avertissements figurant dans les consignes de sécurité traduites qui accompagnent cet appareil, référez-vous au numéro de l'instruction situé à la fin de chaque avertissement.

CONSERVEZ CES INFORMATIONS.

## **תקנת הצהרות אזהרה**

הצהרות הבאות הן אזהרות על פי תקני התעשייה, על מנת להזהיר את המשתמש מפני חבלה פיזית אפשרית. במידה ויש שאלות או היתקלות בבעיה כלשהי, יש ליצור קשר עם מחלקת תמיכה טכנית של סופרמיקרו. טכנאים מוסמכים בלבד רשאים להתקין או להגדיר את הרכיבים.

יש לקרוא את הנספח במלואו לפני התקנת או הגדרת הרכיבים במארוזי סופרמיקרו.

تحذير! هذا الرمز يعني خطر انك في حالة يمكن أن تتسبب في اصابة جسدية .  
قبل أن تعمل على أي معدات، كن على علم بالمخاطر الناجمة عن الدوائر  
الكهربائية  
وكن على دراية بالممارسات الوقائية لمنع وقوع أي حوادث  
استخدم رقم البيان المنصوص في نهاية كل تحذير للعثور ترجمتها

안전을 위한 주의사항

경고!

이 경고 기호는 위험이 있음을 알려 줍니다. 작업자의 신체에 부상을 야기 할 수 있는 상태에 있게 됩니다. 모든 장비에 대한 작업을 수행하기 전에 전기회로와 관련된 위험요소들을 확인하시고 사전에 사고를 방지할 수 있도록 표준 작업절차를 준수해 주시기 바랍니다.

해당 번역문을 찾기 위해 각 경고의 마지막 부분에 제공된 경고문 번호를 참조하십시오

#### BELANGRIJKE VEILIGHEIDSINSTRUCTIES

Dit waarschuwings symbool betekent gevaar. U verkeert in een situatie die lichamelijk letsel kan veroorzaken. Voordat u aan enige apparatuur gaat werken, dient u zich bewust te zijn van de bij een elektrische installatie betrokken risico's en dient u op de hoogte te zijn van de standaard procedures om ongelukken te voorkomen. Gebruik de nummers aan het eind van elke waarschuwing om deze te herleiden naar de desbetreffende locatie.

BEWAAR DEZE INSTRUCTIES

## Installation Instructions



### Warning!

Read the installation instructions before connecting the system to the power source.

設置手順書

システムを電源に接続する前に、設置手順書をお読み下さい。

警告

将此系统连接电源前，请先阅读安装说明。

警告

將系統與電源連接前，請先閱讀安裝說明。

Warnung

Vor dem Anschließen des Systems an die Stromquelle die Installationsanweisungen lesen.

¡Advertencia!

Lea las instrucciones de instalación antes de conectar el sistema a la red de alimentación.

Attention

Avant de brancher le système sur la source d'alimentation, consulter les directives d'installation.

יש לקרוא את הוראות התקנה לפני חיבור המערכת למקור מתח.

اقر إرشادات التركيب قبل توصيل النظام إلى مصدر للطاقة

시스템을 전원에 연결하기 전에 설치 안내를 읽어주십시오.

Waarschuwing

Raadpleeg de installatie-instructies voordat u het systeem op de voedingsbron aansluit.



## Circuit Breaker



### Warning!

This product relies on the building's installation for short-circuit (overcurrent) protection. Ensure that the protective device is rated not greater than: 250 V, 20 A.

サーキット・ブレーカー

この製品は、短絡(過電流)保護装置がある建物での設置を前提としています。

保護装置の定格が250 V、20 Aを超えないことを確認下さい。

### 警告

此产品的短路(过载电流)保护由建筑物的供电系统提供,确保短路保护设备的额定电流不大于250V,20A。

### 警告

此产品的短路(过载电流)保护由建筑物的供电系统提供,确保短路保护设备的额定电流不大于250V,20A。

### Warnung

Dieses Produkt ist darauf angewiesen, dass im Gebäude ein Kurzschluss- bzw. Überstromschutz installiert ist. Stellen Sie sicher, dass der Nennwert der Schutzvorrichtung nicht mehr als: 250 V, 20 A beträgt.

### ¡Advertencia!

Este equipo utiliza el sistema de protección contra cortocircuitos (o sobrecorrientes) del edificio. Asegúrese de que el dispositivo de protección no sea superior a: 250 V, 20 A.

### Attention

Pour ce qui est de la protection contre les courts-circuits (surtension), ce produit dépend de l'installation électrique du local. Vérifiez que le courant nominal du dispositif de protection n'est pas supérieur à :250 V, 20 A.

מוצר זה מסתמך על הגנה המותקנת במבנים למניעת קצר חשמלי. יש לוודא כי המכשיר המגן מפני הקצר החשמלי הוא לא יותר מ-250 V, 20 A

هذا المنتج يعتمد على معدات الحماية من الدوائر القصيرة التي تم تثبيتها في المبنى

تأكد من أن تقييم الجهاز الوقائي ليس أكثر من: 20A, 250V

경고!

이 제품은 전원의 단락(과전류)방지에 대해서 전적으로 건물의 관련 설비에 의존합니다. 보호장치의 정격이 반드시 250V(볼트), 20A(암페어)를 초과하지 않도록 해야 합니다.

#### Waarschuwing

Dit product is afhankelijk van de kortsluitbeveiliging (overspanning) van uw elektrische installatie. Controleer of het beveiligde apparaat niet groter gedimensioneerd is dan 220V, 20A.

### Power Disconnection Warning



#### Warning!

The system must be disconnected from all sources of power and the power cord removed from the power supply module(s) before accessing the chassis interior to install or remove system components.

#### 電源切斷の警告

システムコンポーネントの取り付けまたは取り外しのために、シャーシ内部にアクセスするには、

システムの電源はすべてのソースから切斷され、電源コードは電源モジュールから取り外す必要があります。

#### 警告

在你打开机箱并安装或移除内部器件前，必须将系统完全断电，并移除电源线。

#### 警告

在您打開機殼安裝或移除內部元件前，必須將系統完全斷電，並移除電源線。

#### Warnung

Das System muss von allen Quellen der Energie und vom Netzanschlusskabel getrennt sein, das von den Spg.Versorgungsteilmodulen entfernt wird, bevor es auf den Chassisinnenraum zurückgreift, um Systemsbestandteile anzubringen oder zu entfernen.

¡Advertencia!

El sistema debe ser disconnected de todas las fuentes de energía y del cable eléctrico quitado de los módulos de fuente de alimentación antes de tener acceso el interior del chasis para instalar o para quitar componentes de sistema.

Attention

Le système doit être débranché de toutes les sources de puissance ainsi que de son cordon d'alimentation secteur avant d'accéder à l'intérieur du châssis pour installer ou enlever des composants de système.

**אזהרה!**

יש לנתק את המערכת מכל מקורות החשמל ויש להסיר את כבל החשמלי מהספק לפני גישה לחלק הפנימי של המארז לצורך התקנת או הסרת רכיבים.

يجب فصل النظام من جميع مصادر الطاقة وإزالة سلك الكهرباء من وحدة امداد الطاقة قبل الوصول إلى المناطق الداخلية للهيكल لتثبيت أو إزالة مكونات الجهاز

경고!

시스템에 부품들을 장착하거나 제거하기 위해서는 새시 내부에 접근하기 전에 반드시 전원 공급장치로부터 연결되어있는 모든 전원과 전기코드를 분리해주어야 합니다.

Waarschuwing

Voordat u toegang neemt tot het binnenwerk van de behuizing voor het installeren of verwijderen van systeem onderdelen, dient u alle spanningsbronnen en alle stroomkabels aangesloten op de voeding(en) van de behuizing te verwijderen

## Equipment Installation



### Warning!

Only trained and qualified personnel should be allowed to install, replace, or service this equipment.

### 機器の設置

トレーニングを受け認定された人だけがこの装置の設置、交換、またはサービスを許可されています。

### 警告

只有经过培训且具有资格的人员才能进行此设备的安装、更换和维修。

### 警告

只有經過受訓且具資格人員才可安裝、更換與維修此設備。

### Warnung

Das Installieren, Ersetzen oder Bedienen dieser Ausrüstung sollte nur geschultem, qualifiziertem Personal gestattet werden.

### ¡Advertencia!

Solamente el personal calificado debe instalar, reemplazar o utilizar este equipo.

### Attention

Il est vivement recommandé de confier l'installation, le remplacement et la maintenance de ces équipements à des personnels qualifiés et expérimentés.

### אזהרה!

צוות מוסמך בלבד רשאי להתקין, להחליף את הציוד או לתת שירות עבור הציוד.

يجب أن يسمح فقط للموظفين المؤهلين والمدربين لتثبيت واستبدال أو خدمة هذا الجهاز

### 경고!

훈련을 받고 공인된 기술자만이 이 장비의 설치, 교체 또는 서비스를 수행할 수 있습니다.

## Waarschuwing

Deze apparatuur mag alleen worden geïnstalleerd, vervangen of hersteld door geschoold en gekwalificeerd personeel.

## Restricted Area



### Warning!

This unit is intended for installation in restricted access areas. A restricted access area can be accessed only through the use of a special tool, lock and key, or other means of security. (This warning does not apply to workstations).

## アクセス制限区域

このユニットは、アクセス制限区域に設置されることを想定しています。

アクセス制限区域は、特別なツール、鍵と錠前、その他のセキュリティの手段を用いてのみ出入りが可能です。

## 警告

此部件应安装在限制进出的场所，限制进出的场所指只能通过使用特殊工具、锁和钥匙或其它安全手段进出的场所。

## 警告

此裝置僅限安裝於進出管制區域，進出管制區域係指僅能以特殊工具、鎖頭及鑰匙或其他安全方式才能進入的區域。

## Warnung

Diese Einheit ist zur Installation in Bereichen mit beschränktem Zutritt vorgesehen. Der Zutritt zu derartigen Bereichen ist nur mit einem Spezialwerkzeug, Schloss und Schlüssel oder einer sonstigen Sicherheitsvorkehrung möglich.

## ¡Advertencia!

Esta unidad ha sido diseñada para instalación en áreas de acceso restringido. Sólo puede obtenerse acceso a una de estas áreas mediante la utilización de una herramienta especial, cerradura con llave u otro medio de seguridad.

## Attention

Cet appareil doit être installée dans des zones d'accès réservés. L'accès à une zone d'accès réservé n'est possible qu'en utilisant un outil spécial, un mécanisme de verrouillage et une clé, ou tout autre moyen de sécurité.

## אזור עם גישה מוגבלת

### אזהרה!

יש להתקין את היחידה באזורים שיש בהם הגבלת גישה. הגישה ניתנת בעזרת כלי אבטחה בלבד (מפתח, מנעול וכד').

تم تخصيص هذه الوحدة لت تركيبها في مناطق محظورة .  
يمكن الوصول إلى منطقة محظورة فقط من خلال استخدام أداة خاصة،  
قفل ومفتاح أو أي وسيلة أخرى للالأمان

경고!

이 장치는 접근이 제한된 구역에 설치하도록 되어있습니다. 특수도구, 잠금 장치 및 키, 또는 기타 보안 수단을 통해서만 접근 제한 구역에 들어갈 수 있습니다.

Waarschuwing

Dit apparaat is bedoeld voor installatie in gebieden met een beperkte toegang. Toegang tot dergelijke gebieden kunnen alleen verkregen worden door gebruik te maken van speciaal gereedschap, slot en sleutel of andere veiligheidsmaatregelen.

## Battery Handling



### Warning!

There is the danger of explosion if the battery is replaced incorrectly. Replace the battery only with the same or equivalent type recommended by the manufacturer. Dispose of used batteries according to the manufacturer's instructions

電池の取り扱い

電池交換が正しく行われなかった場合、破裂の危険性があります。交換する電池はメーカーが推奨する型、または同等のものを使用下さい。使用済電池は製造元の指示に従って処分して下さい。

警告

電池更換不當會有爆炸危險。請只使用同類電池或製造商推薦的功能相當的電池更換原有電池。請按製造商的說明處理廢舊電池。

警告

電池更換不當會有爆炸危險。請使用製造商建議之相同或功能相當的電池更換原有電池。請按照製造商的說明指示處理廢棄舊電池。

### Warnung

Bei Einsetzen einer falschen Batterie besteht Explosionsgefahr. Ersetzen Sie die Batterie nur durch den gleichen oder vom Hersteller empfohlenen Batterietyp. Entsorgen Sie die benutzten Batterien nach den Anweisungen des Herstellers.

### Attention

Danger d'explosion si la pile n'est pas remplacée correctement. Ne la remplacer que par une pile de type semblable ou équivalent, recommandée par le fabricant. Jeter les piles usagées conformément aux instructions du fabricant.

### ¡Advertencia!

Existe peligro de explosión si la batería se reemplaza de manera incorrecta. Reemplazar la batería exclusivamente con el mismo tipo o el equivalente recomendado por el fabricante. Desechar las baterías gastadas según las instrucciones del fabricante.

### **אזהרה!**

קיימת סכנת פיצוץ של הסוללה במידה והוחלפה בדרך לא תקינה. יש להחליף את הסוללה בסוג התואם מחברת יצרן מומלצת.

סילוק הסוללות המשומשות יש לבצע לפי הוראות היצרן.

هناك خطر من انفجار في حالة استبدال البطارية بطريقة غير صحيحة فعليك استبدال البطارية فقط بنفس النوع أو ما يعادلها كما أوصت به الشركة المصنعة تخلص من البطاريات المستعملة وفقا لتعليمات الشركة الصانعة

### 경고!

배터리가 올바르게 교체되지 않으면 폭발의 위험이 있습니다. 기존 배터리와 동일하거나 제조사에서 권장하는 동등한 종류의 배터리로만 교체해야 합니다. 제조사의 안내에 따라 사용된 배터리를 처리하여 주십시오.

### Waarschuwing

Er is ontploffingsgevaar indien de batterij verkeerd vervangen wordt. Vervang de batterij slechts met hetzelfde of een equivalent type die door de fabrikant aanbevolen wordt. Gebruikte batterijen dienen overeenkomstig fabrieksvoorschriften afgevoerd te worden.

## Redundant Power Supplies



### Warning!

This unit might have more than one power supply connection. All connections must be removed to de-energize the unit.

#### 冗長電源装置

このユニットは複数の電源装置が接続されている場合があります。  
ユニットの電源を切るためには、すべての接続を取り外さなければなりません。

#### 警告

此部件连接的电源可能不止一个，必须将所有电源断开才能停止给该部件供电。

#### 警告

此装置连接的电源可能不只一个，必须切断所有电源才能停止对该装置的供电。

#### Warnung

Dieses Gerät kann mehr als eine Stromzufuhr haben. Um sicherzustellen, dass der Einheit kein Strom zugeführt wird, müssen alle Verbindungen entfernt werden.

#### ¡Advertencia!

Puede que esta unidad tenga más de una conexión para fuentes de alimentación. Para cortar por completo el suministro de energía, deben desconectarse todas las conexiones.

#### Attention

Cette unité peut avoir plus d'une connexion d'alimentation. Pour supprimer toute tension et tout courant électrique de l'unité, toutes les connexions d'alimentation doivent être débranchées.

**אם קיים יותר מספק אחד**

**אזהרה!**

ליחידה יש יותר מחיבור אחד של ספק. יש להסיר את כל החיבורים על מנת לרוקן את היחידה.



قد يكون لهذا الجهاز عدة اتصالات بوحدات امداد الطاقة.  
يجب إزالة كافة الاتصالات لعزل الوحدة عن الكهرباء

경고!

이 장치에는 한 개 이상의 전원 공급 단자가 연결되어 있을 수 있습니다. 이 장치에 전원을 차단하기 위해서는 모든 연결 단자를 제거해야만 합니다.

Waarschuwing

Deze eenheid kan meer dan één stroomtoevoeraansluiting bevatten. Alle aansluitingen dienen verwijderd te worden om het apparaat stroomloos te maken.

### Backplane Voltage



**Warning!**

Hazardous voltage or energy is present on the backplane when the system is operating. Use caution when servicing.

バックプレーンの電圧

システムの稼働中は危険な電圧または電力が、バックプレーン上にかかっています。

修理する際にはご注意ください。

警告

当系統正在进行时，背板上有很危险的电压或能量，进行维修时务必小心。

警告

當系統正在進行時，背板上有危險的電壓或能量，進行維修時務必小心。

Warnung

Wenn das System in Betrieb ist, treten auf der Rückwandplatine gefährliche Spannungen oder Energien auf. Vorsicht bei der Wartung.

¡Advertencia!

Cuando el sistema está en funcionamiento, el voltaje del plano trasero es peligroso. Tenga cuidado cuando lo revise.

Attention

Lorsque le système est en fonctionnement, des tensions électriques circulent sur le fond de panier. Prendre des précautions lors de la maintenance.

## מתח בפנל האחורי

אזהרה!  
קיימת סכנת מתח בפנל האחורי בזמן תפעול המערכת. יש להיזהר במהלך העבודה.

هناك خطر من التيار الكهربائي أو الطاقة الموجودة على اللوحة  
عندما يكون النظام يعمل كن حذرا عند خدمة هذا الجهاز

경고!

시스템이 동작 중일 때 후면판 (Backplane)에는 위험한 전압이나 에너지가 발생  
합니다. 서비스 작업 시 주의하십시오.

Waarschuwing

Een gevaarlijke spanning of energie is aanwezig op de backplane wanneer het  
systeem in gebruik is. Voorzichtigheid is geboden tijdens het onderhoud.

## Comply with Local and National Electrical Codes



### Warning!

Installation of the equipment must comply with local and national electrical codes.

地方および国の電気規格に準拠

機器の取り付けはその地方および国の電気規格に準拠する必要があります。

警告

设备安装必须符合本地与本国电气法规。

警告

設備安裝必須符合本地與本國電氣法規。

Warnung

Die Installation der Geräte muss den Sicherheitsstandards entsprechen.

¡Advertencia!

La instalación del equipo debe cumplir con las normas de electricidad locales y  
nacionales.

Attention

L'équipement doit être installé conformément aux normes électriques nationales et locales.

**תיאום חוקי החשמל הארצי**

**אזהרה!**

התקנת הציוד חייבת להיות תואמת לחוקי החשמל המקומיים והארציים.

تركيب المعدات الكهربائية يجب أن يمتثل للقوانين المحلية والوطنية المتعلقة بالكهرباء

경고!

현 지역 및 국가의 전기 규정에 따라 장비를 설치해야 합니다.

Waarschuwing

Bij installatie van de apparatuur moet worden voldaan aan de lokale en nationale elektriciteitsvoorschriften.

**Product Disposal**



**Warning!**

Ultimate disposal of this product should be handled according to all national laws and regulations.

**製品の廃棄**

この製品を廃棄処分する場合、国の関係する全ての法律・条例に従い処理する必要があります。

**警告**

本製品の废弃処理应根据所有国家的法律和规章进行。

**警告**

本產品的廢棄處理應根據所有國家的法律和規章進行。

**Warnung**

Die Entsorgung dieses Produkts sollte gemäß allen Bestimmungen und Gesetzen des Landes erfolgen.

¡Advertencia!

Al deshacerse por completo de este producto debe seguir todas las leyes y reglamentos nacionales.

Attention

La mise au rebut ou le recyclage de ce produit sont généralement soumis à des lois et/ou directives de respect de l'environnement. Renseignez-vous auprès de l'organisme compétent.

## סילוק המוצר

אזהרה!

סילוק סופי של מוצר זה חייב להיות בהתאם להנחיות וחוקי המדינה.

عند التخلص النهائي من هذا المنتج ينبغي التعامل معه وفقا لجميع القوانين واللوائح الوطنية

경고!

이 제품은 해당 국가의 관련 법규 및 규정에 따라 폐기되어야 합니다.

Waarschuwing

De uiteindelijke verwijdering van dit product dient te geschieden in overeenstemming met alle nationale wetten en reglementen.

## Hot Swap Fan Warning



### Warning!

The fans might still be turning when you remove the fan assembly from the chassis. Keep fingers, screwdrivers, and other objects away from the openings in the fan assembly's housing.

ファン・ホットスワップの警告

シャーシから冷却ファン装置を取り外した際、ファンがまだ回転している可能性があります。ファンの開口部に、指、ドライバー、およびその他のものを近づけないで下さい。

警告

当您从机架移除风扇装置，风扇可能仍在转动。小心不要将手指、螺丝起子和其他物品太靠近风扇

**警告**

當您從機架移除風扇裝置，風扇可能仍在轉動。小心不要將手指、螺絲起子和其他物品太靠近風扇。

**Warnung**

Die Lüfter drehen sich u. U. noch, wenn die Lüfterbaugruppe aus dem Chassis genommen wird. Halten Sie Finger, Schraubendreher und andere Gegenstände von den Öffnungen des Lüftergehäuses entfernt.

**¡Advertencia!**

Los ventiladores podran dar vuelta cuando usted quite el montaje del ventilador del chasis. Mantenga los dedos, los destornilladores y todos los objetos lejos de las aberturas del ventilador

**Attention**

Il est possible que les ventilateurs soient toujours en rotation lorsque vous retirez le bloc ventilateur du châssis. Prenez garde à ce que doigts, tournevis et autres objets soient éloignés du logement du bloc ventilateur.

**אזהרה!**

כאשר מסירים את חלקי המאוורר מהמארז, יתכן והמאווררים עדיין עובדים. יש להרחיק למרחק בטוח את האצבעות וכלי עבודה שונים מהפתחים בתוך המאוורר

من الممكن أن المراوح لا تزال تدور عند إزالة كتلة المروحة من الهيكل يجب إبقاء الأصابع ومفكات البراغي وغيرها من الأشياء بعيدا عن الفتحات في كتلة المروحة.

**경고!**

새시로부터 팬 조립품을 제거할 때 팬은 여전히 회전하고 있을 수 있습니다. 팬 조립품 외관의 열려있는 부분들로부터 손가락 및 스크류드라이버, 다른 물체들이 가까이 하지 않도록 배치해 주십시오.

**Waarschuwing**

Het is mogelijk dat de ventilator nog draait tijdens het verwijderen van het ventilatorsamenstel uit het chassis. Houd uw vingers, schroevendraaiers en eventuele andere voorwerpen uit de buurt van de openingen in de ventilatorbehuizing.

## Power Cable and AC Adapter



### Warning!

When installing the product, use the provided or designated connection cables, power cables and AC adaptors. Using any other cables and adaptors could cause a malfunction or a fire. Electrical Appliance and Material Safety Law prohibits the use of UL or CSA -certified cables (that have UL/CSA shown on the code) for any other electrical devices than products designated by Supermicro only.

### 電源コードとACアダプター

製品を設置する場合、提供または指定された接続ケーブル、電源コードとACアダプターを使用下さい。他のケーブルやアダプタを使用すると故障や火災の原因になることがあります。電気用品安全法は、ULまたはCSA認定のケーブル(UL/CSEマークがコードに表記)をSupermicroが指定する製品以外に使用することを禁止しています。

### 警告

安裝此產品時，請使用本身提供的或指定的連接線，電源線和電源適配器。使用其它線材或適配器可能會引起故障或火災。除了Supermicro所指定的產品，電氣用品和材料安全法律規定禁止使用未經UL或CSA認證的線材。(線材上會顯示UL/CSA符號)。

### 警告

安裝此產品時，請使用本身提供的或指定的連接線，電源線和電源適配器。使用其它線材或適配器可能會引起故障或火災。除了Supermicro所指定的產品，電氣用品和材料安全法律規定禁止使用未經UL或CSA認證的線材。(線材上會顯示UL/CSA符號)。

### Warnung

Bei der Installation des Produkts, die zur Verfügung gestellten oder benannt Anschlusskabel, Stromkabel und Netzteile. Verwendung anderer Kabel und Adapter kann zu einer Fehlfunktion oder ein Brand entstehen. Elektrische Geräte und Material Safety Law verbietet die Verwendung von UL-oder CSA-zertifizierte Kabel, UL oder CSA auf der Code für alle anderen elektrischen Geräte als Produkte von Supermicro nur bezeichnet gezeigt haben.

### ¡Advertencia!

Al instalar el producto, utilice los cables de conexión previstos o designados, los cables y adaptadores de CA. La utilización de otros cables y adaptadores podría ocasionar un mal funcionamiento o un incendio. Aparatos Eléctricos y la Ley de Seguridad del Material prohíbe el uso de UL o CSA cables certificados que tienen UL o CSA se muestra en el código de otros dispositivos eléctricos que los productos designados por Supermicro solamente.

## Attention

Lors de l'installation du produit, utilisez les bables de connection fournis ou désigné. L'utilisation d'autres cables et adaptateurs peut provoquer un dysfonctionnement ou un incendie. Appareils électroménagers et de loi sur la sécurité Matériel interdit l'utilisation de UL ou CSA cables certifiés qui ont UL ou CSA indiqué sur le code pour tous les autres appareils électriques que les produits désignés par Supermicro seulement.

## חשמליים ומתאמי AC

!אזהרה

כאשר מתקינים את המוצר, יש להשתמש בכבלים, ספקים ומתאמים AC אשר נועדו וסופקו לשם כך. שימוש בכל כבל או מתאם אחר יכול לגרום לתקלה או קצר חשמלי. על פי חוקי שימוש במכשירי חשמל וחוקי בטיחות, קיים איסור להשתמש בכבלים המוסמכים ב- UL או ב- CSA (כשאר מופיע עליהם קוד של UL/CSA) עבור כל מוצר חשמלי אחר שלא צויין על ידי סופרמיקרו בלבד.

عند تركيب الجهاز يجب استخدام كابلات التوصيل، والكابلات الكهربائية ومحولات التيار المتردد التي . أن استخدام أي كابلات ومحولات أخرى يتسبب في حدوث عطل أو حريق. تم توفيرها لك مع المنتج الأجهزة الكهربائية ومواد قانون السلامة يحظر استخدام الكابلات CSA أو UL معتمدة من قبل لأي أجهزة كهربائية أخرى غير المنتجات المعينة من قبل Supermicro (التي تحمل علامة UL/CSA)

경고!

제품을 설치할 때에는 제공되거나 지정된 연결케이블과 전원케이블, AC 어댑터를 사용해야 합니다. 그 밖의 다른 케이블들이나 어댑터들은 고장 또는 화재의 원인이 될 수 있습니다. 전기용품안전법 (Electrical Appliance and Material Safety Law)은 슈퍼마이크로에서 지정한 제품들 외에는 그 밖의 다른 전기 장치들을 위한 UL 또는 CSA에서 인증한 케이블(전선 위에 UL/CSA가 표시)들의 사용을 금지합니다.

## Waarschuwing

Bij het installeren van het product, gebruik de meegeleverde of aangewezen kabels, stroomkabels en adapters. Het gebruik van andere kabels en adapters kan leiden tot een storing of een brand. Elektrisch apparaat en veiligheidsinformatiebladen wet verbiedt het gebruik van UL of CSA gecertificeerde kabels die UL of CSA die op de code voor andere elektrische apparaten dan de producten die door Supermicro alleen.

## Notes



# Chapter 3

## System Interface

### 3-1 Overview

The server includes a control panel on the front that houses power buttons and status monitoring lights, status lights on the externally accessible hard drives, and status lights for the power supply visible from the back of the chassis.

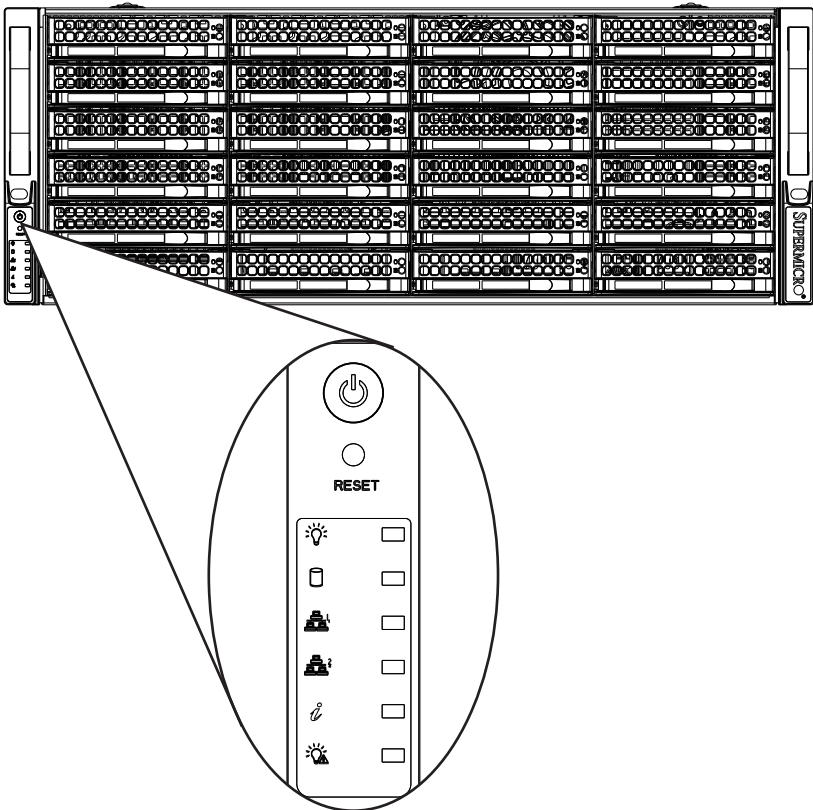


Figure 3-1. Control Panel

## 3-2 Control Panel Buttons

The chassis includes two push-buttons that control power to the system.



### Power

The main power switch applies or removes primary power from the power supply to the server but maintains standby power. To perform most maintenance tasks, unplug the system to remove all power..



RESET

### Reset

The reset button is used to reboot the system.

## 3-3 Control Panel LEDs

There are six LEDs that provide status information about the system.



### Power

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



### HDD

Indicates activity on the hard disk drive when flashing.



### NIC2

Indicates network activity on GLAN2 when flashing.



### NIC1

Indicates network activity on GLAN1 when flashing.



### Information LED

Alerts operator to several states, as noted in the table below.

Information LED	
Status	Description
Continuously on and red	An overheat condition has occurred. (This may be caused by cable congestion.)
Blinking red (1Hz)	Fan failure, check for an inoperative fan.
Blinking red (0.25Hz)	Power failure, check for a non-operational power supply.
Solid blue	Local UID has been activated. Use this function to locate the server in a rack mount environment.
Blinking blue	Remote UID is on. Use this function to identify the server from a remote location.



### Power Fail

Indicates a power supply module has failed.

## Overheating

There are several possible responses if the system overheats.

### ***Overheat Temperature Setting***

Some backplanes allow the overheat temperature to be set at 45, 50, or 55 by changing a jumper setting. For more information, consult the backplane user manual at [www.supermicro.com](http://www.supermicro.com). (Click Support, then the Manuals link.)

### ***Responses***

#### ***If the server overheats:***

1. Use the LEDs to determine the nature of the overheating condition.
2. Confirm that the chassis covers are installed properly.
3. Check the routing of the cables and make sure all fans are present and operating normally.
4. Verify that the heatsinks are installed properly.

## 3-4 Drive Carrier LEDs

The chassis includes externally accessible SAS/SATA drives. Each drive carrier displays two status LEDs on the front of the carrier.

	LED Color	Blinking Pattern	Behavior for Device
<b>Activity LED</b>	Blue	Solid On	SAS/NVMe drive installed
	Blue	Blinking	I/O activity
<b>Status LED</b>	Red	Solid On	Failure of drive with RSTe support
	Red	Blinking at 1 Hz	Rebuild drive with RSTe support
	Red	Blinking with two blinks and one stop at 1 Hz	Hot spare for drive with RSTe support
	Red	On for five seconds, then off	Power on for drive with RSTe support
	Red	Blinking at 4 Hz	Identify drive with RSTe support

### 3-5 Power Supply LEDs

On the rear of the power supply module, an LED displays the status.

- **Solid Green:** When illuminated, indicates that the power supply is on.
- **Solid Amber:** When illuminated, indicates the power supply is plugged in and turned off, or the system is off but in an abnormal state.
- **Blinking Amber:** When blinking, this system power supply temperature has reached 63C. The system will automatically power-down when the power supply temperature reaches 70C and restart when the power supply temperature goes below 60C.

# Notes

## Chapter 4

# Chassis Setup and Maintenance

### 4-1 Overview

This chapter covers the steps required to install components and perform maintenance on the chassis. The only tool required is a Phillips screwdriver.

Review the warnings and precautions listed in the manual before setting up or servicing this chassis. These include information in Chapter 2: System Safety and the warning/precautions listed in the setup instructions.

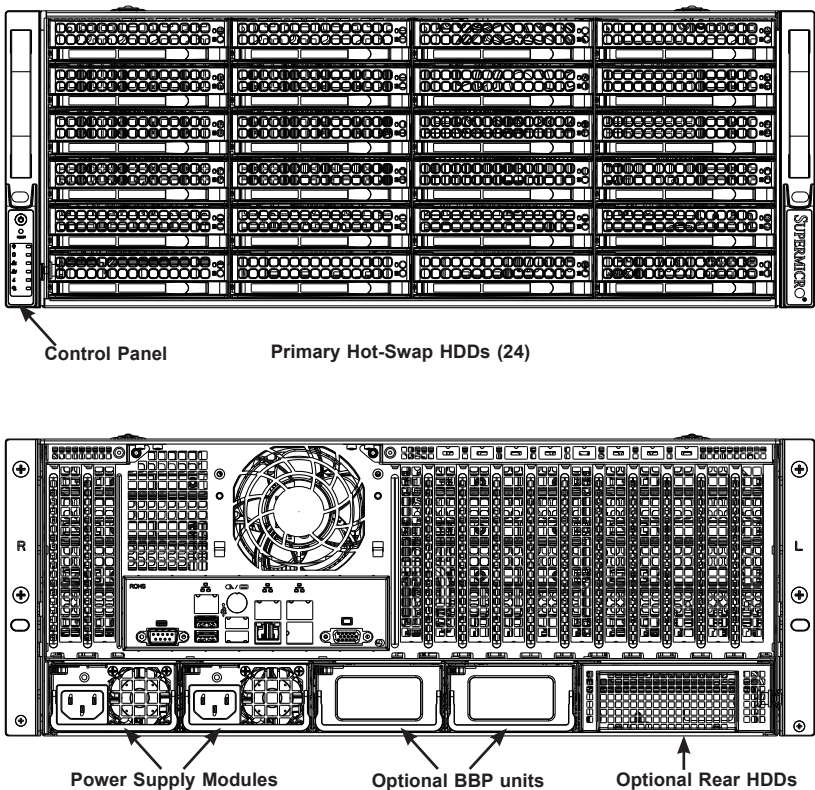


Figure 4-1. Front and Rear View (SC846XA Model shown)

## 4-2 Removing Power from the System

Before performing some setup or maintenance tasks, use the following procedure to ensure that power has been removed from the system.

1. Use the operating system to power down the node, following the on-screen prompts.
2. After the system has completely shut-down, carefully grasp the head of the power cord and gently pull it out of the back of the power supply. If your system has dual power supplies, remove the cords from both power supplies.
3. Disconnect the cord from the power strip or wall outlet.



## 4-3 Removing the Chassis Cover

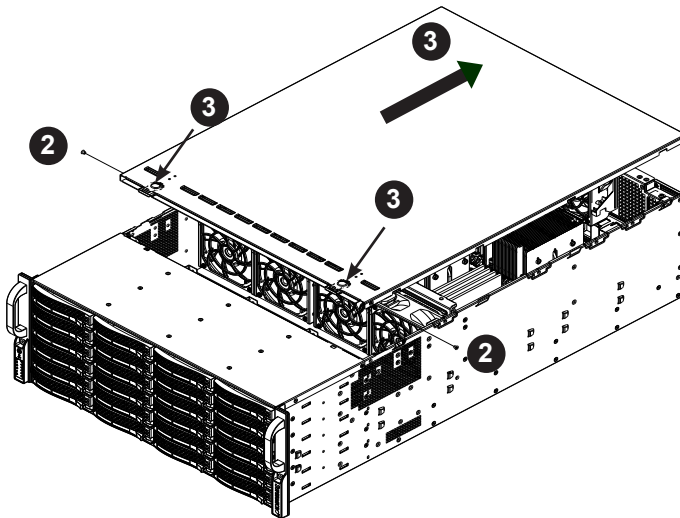


Figure 4-2. Removing the Chassis Cover

### *Removing the Chassis Cover*

1. If necessary, unplug the chassis from any power source
2. Remove the two screws securing the cover to the side of the chassis.
3. Depress the two release buttons, pushing the cover toward the rear of the chassis, and lift it up and off.

**Caution:** 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.

## 4-4 Installing Hard Drives

### Primary Hot-Swap Drives

The drives are mounted in drive carriers to simplify their installation and removal from the chassis. These carriers also help to promote proper airflow for the drive bays.

Enterprise level hard disk drives are recommended for use in Supermicro chassis and servers.

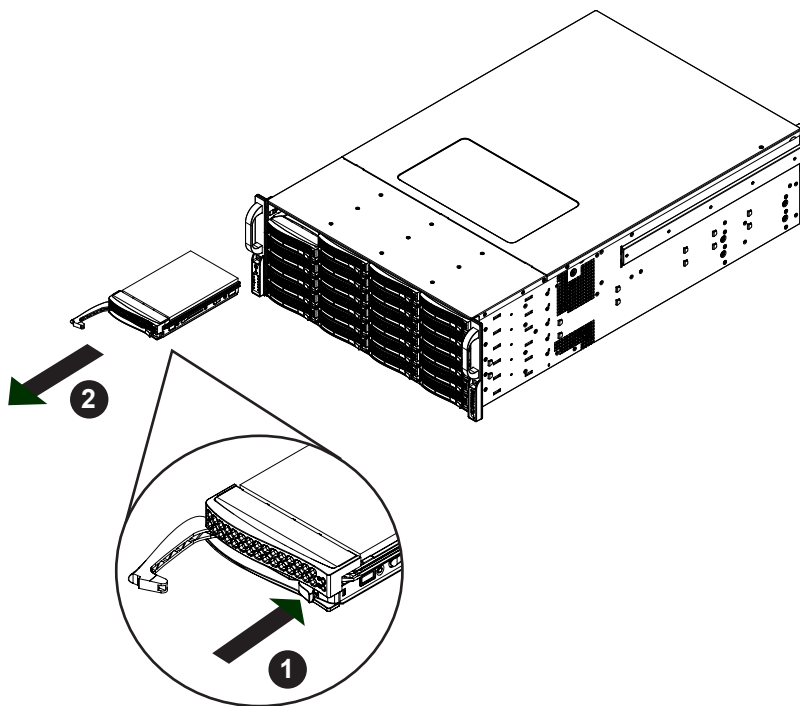
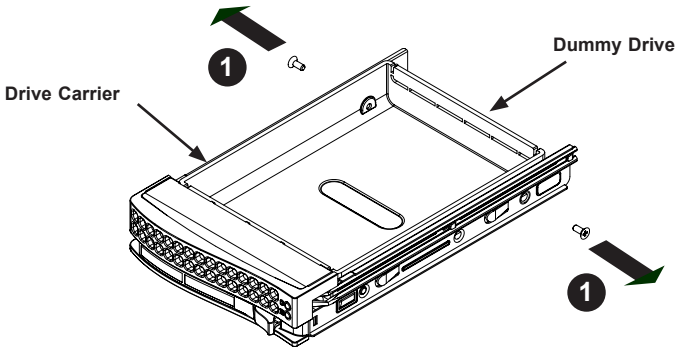


Figure 4-3. Removing Hard Drive

### *Removing Hard Drive Carriers from the Chassis*

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

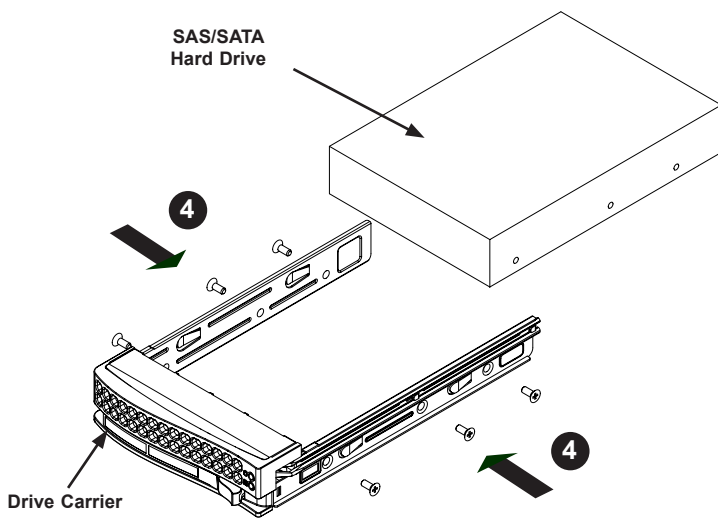
**Caution:** Except for short periods of time, such as while swapping hard drives, do not operate the server with the carriers removed from the chassis drive bays.



**Figure 4-4. Removing the Dummy Drive from the Carrier**

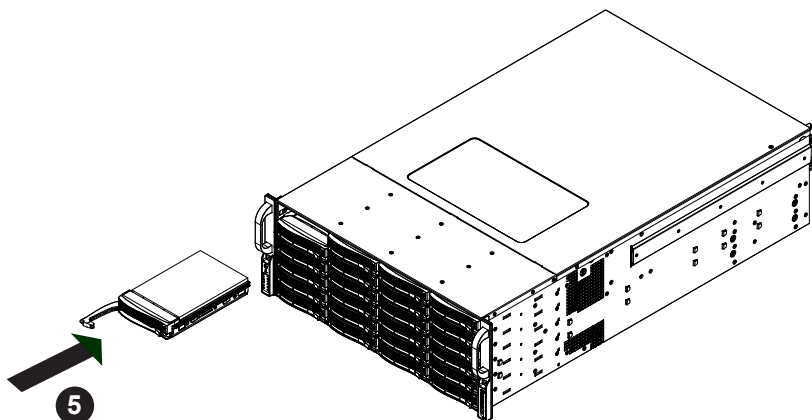
#### ***Installing a Hard Drive into the Hard Drive Carrier***

1. Remove the two screws securing the dummy drive to the drive carrier and remove the dummy drive. Place the hard drive carrier on a flat surface such as a desk, table or work bench.
2. Slide the hard drive into the carrier with the printed circuit board side facing down.
3. Carefully align the mounting holes in both the drive carrier and the hard drive.



**Figure 4-5. Installing the Hard Drive into the Carrier**

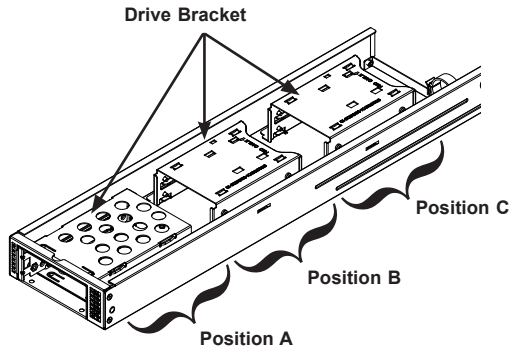
4. Secure the hard drive to the carrier using six screws.
5. Replace the drive tray into the chassis. Make sure to close the drive carrier handle to lock the drive carrier into place.



**Figure 4-6. Installing the Hard Drive**

## Optional HDDs in the Rear of the Chassis

The chassis offers the option of adding up to six hard disk drives in a special purpose drawer accessible from the rear of the chassis. Some configurations require an optional mounting bracket or kit.



**Figure 4-7. Drive Drawer with the Hot-Swap Drive Kit**

Drives can be installed in one or more of three positions in the drawer, as labeled in the diagram above, positions A, B, and C.

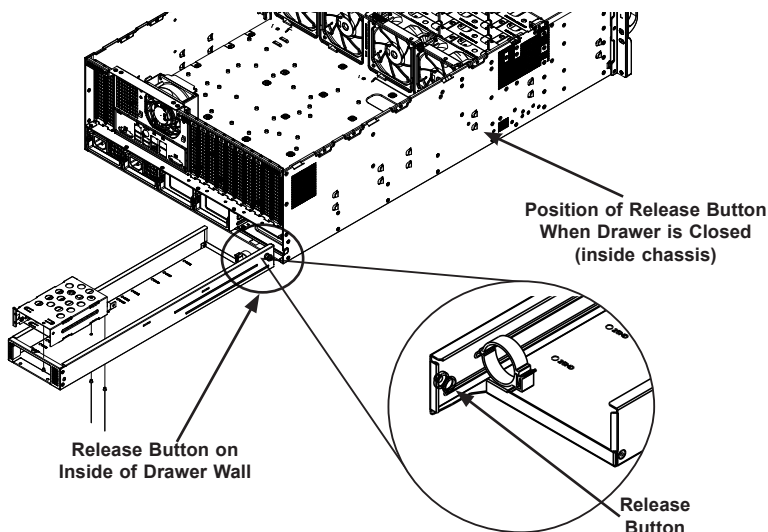
Drives Configurations	
Position A	Two 2.5" hot-swap or two 2.5" fixed or one 3.5" fixed
Position B	Two 2.5" fixed or one 3.5" fixed
Position C	Two 2.5" fixed or one 3.5" fixed

Optional Bracket or Kit Required	
Drive Configuration	Part Number
Two hot-swap 2.5" HDDs, using a kit	MCP-220-82609-0N
Two slim 2.5" HDDs in a bracket	MCP-220-00044-0N
One 3.5" HDD	No bracket required

To install drives in the rear drive drawer, first remove the drawer from the rear of the chassis.

### **Removing the Rear Drive Drawer**

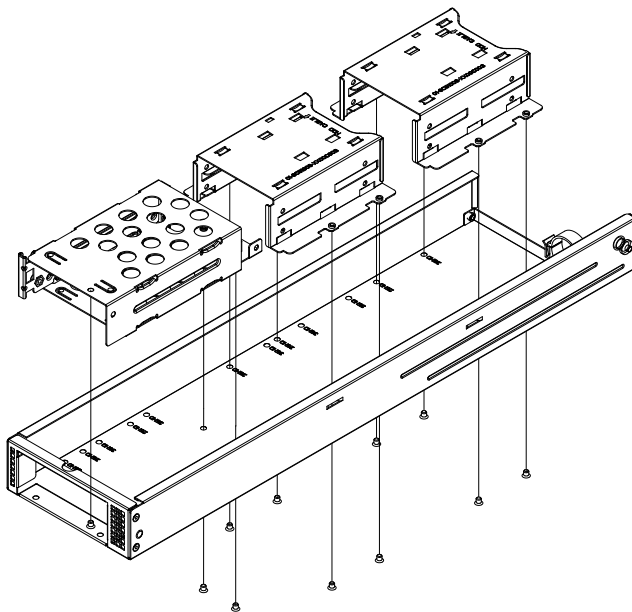
1. Power down the system as described in Section 5-2 and remove the chassis cover.
2. If any drives are already installed, disconnect the existing power and data cables from the serverboard and the power distributor board. Otherwise the cables will prevent the drawer from sliding all the way out.
3. Identify the drive drawer release button. It is on the inside left wall of the chassis under the chassis shelf that holds the serverboard and fans. See the diagram below.
4. Reach into the chassis in front of the fans, and pull the release button while pushing the drawer toward the rear of the chassis.
5. From the rear of the chassis, pull the drawer out.



**Figure 4-8. Drive Drawer Release Latch**

### ***Installing Drives***

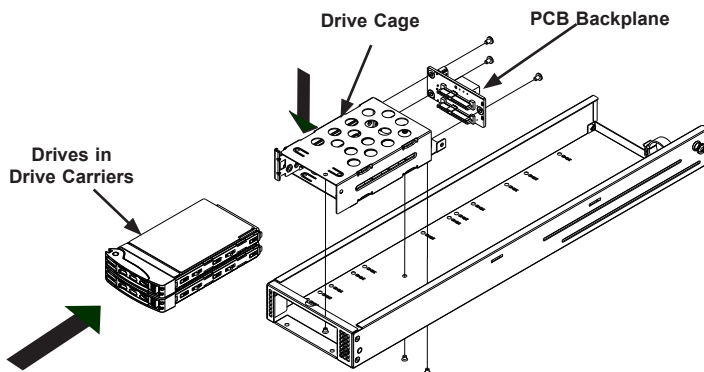
1. Remove the rear drive drawer.
2. Obtain the appropriate mounting brackets as described in the table on page 4-7.
3. If a bracket or kit is required, mount the drives into the bracket. For the hot-swap kit, see the instructions in the following procedure.
4. Mount the brackets and/or drives onto the drawer floor using screws through the bottom of the drawer.
5. Route the cables through the drive drawer as described in Figure 4-13.
6. Slide the drawer into the chassis, taking care with the cables. The drawer release button should click into place.
7. Connect the appropriate cables to the serverboard and power distributor board.
8. Replace the chassis cover and power up.



**Figure 4-9. Installing Drive Bracket in the Drawer**

### ***Installing the Optional Hot-Swap 2.5" HDDs***

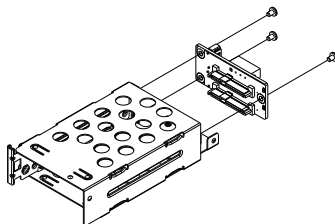
The user can install two 2.5" hot-swap hard drives in the drive drawer.



**Figure 4-10. Drive Drawer with the Hot-Swap Drive Kit**

### ***Installing the Hot-Swap Drive Kit***

1. Remove the rear drive drawer.
2. Remove the small external cover plate from the rear of the drive drawer by removing the screws.



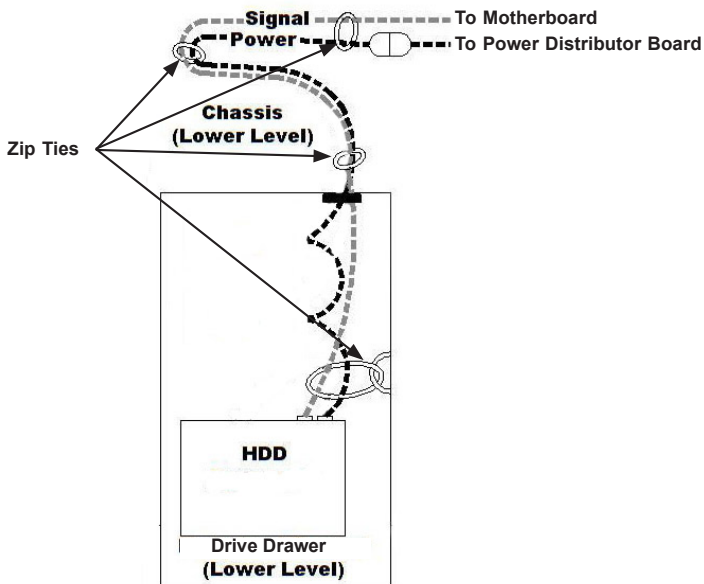
**Figure 4-11. Mounting the Backplane PCB from the Hot-Swap HDD Cage**

3. Mount the small backplane PCB (from the kit) onto the mounting cage at the end opposite where the drives will be inserted using three screws.
4. Slide two 2.5" hard drives mounted in hard drive carriers into the tray.
5. Secure the drive cage assembly to the drawer with screws through the bottom of the drawer.
6. Remove the external cover on the back of the



### ***Routing Cables in the Drive Drawer***

1. Connect the power and signal cables to the devices in the drawer.
2. Route the cables through the O-clip at the front of the drawer.
3. Use zip ties to bundle the cables where indicated in the diagram below.
4. Push the drawer back into the chassis, while pulling the cables that lead to the drawer without breaking or disconnecting the cables, until the drawer clicks into the locked position.
5. Connect the power cable to the 4-pin peripheral connector from the power distributor board.
6. Route the signal cables through the holes under the fan brackets to the upper level and connect them to the serverboard and power distributor.



**Figure 4-12. Routing Power and Signal Cables**

## 4-5 Installing the Serverboard

### Installing the I/O Shield

The I/O shield holds the serverboard input/output ports in place. It should be included with your serverboard. Install the I/O shield before installing the serverboard.

#### *Installing the I/O Shield*

- With the illustrations facing outward, place the shield into the space provided at the rear of the chassis, beneath the exhaust fan.

### Standoffs

Standoffs prevent short circuits by securing space between the serverboard and the chassis surface. Some standoffs are pre-installed, but some serverboards require additional standoffs. The chassis accessory box contains standoffs and mounting screws.

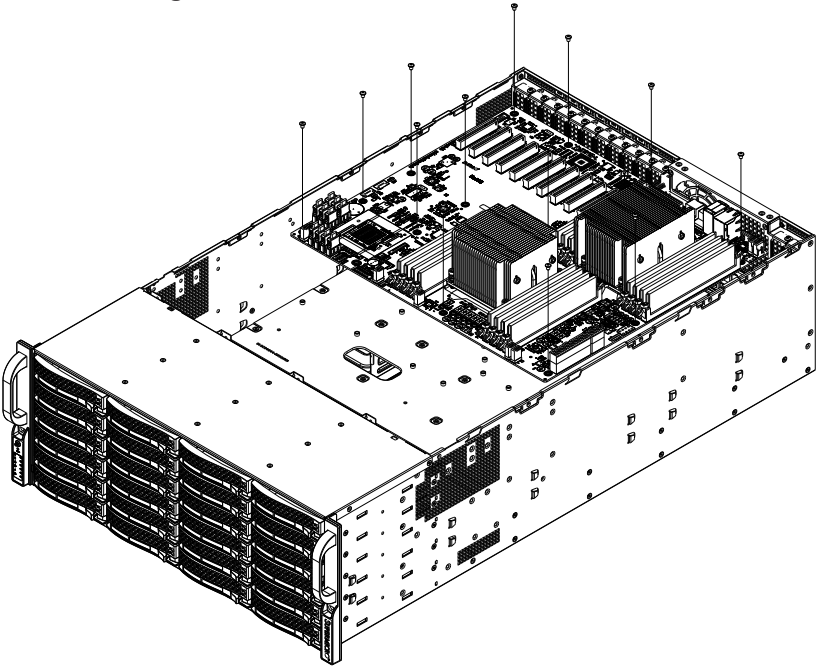
Compare the mounting holes in the serverboard to those in the chassis and add or remove standoffs as needed. Secure the hexagonal standoff, rounded side up, by screwing it into the mounting base of the chassis. Once all standoffs are in place, you are ready to mount the serverboard.



M/B standoff  
6-32 to 6-32

**Figure 4-13. Chassis Standoffs**

## Mounting Procedure



**Figure 4-14. Secure the Serverboard onto the Chassis**

### *Installing the Serverboard*

1. Review your serverboard documentation. Become familiar with component placement, requirements, precautions, and cable connections.
2. Open the chassis cover and remove the chassis from any power source.
3. Lay the serverboard on the standoffs.
4. Secure the serverboard to the standoffs using the rounded, Phillips head mounting screws. Do not exceed eight inch-pounds of torque.
5. Secure the CPUs, heatsinks, and other components to the serverboard as described in the serverboard documentation.
6. Connect the cables between the serverboard, backplane, chassis, front panel, and power supply, as needed.

## 4-6 Expansion Cards

The chassis includes thirteen PCI slots for full-height, full-length expansion cards..

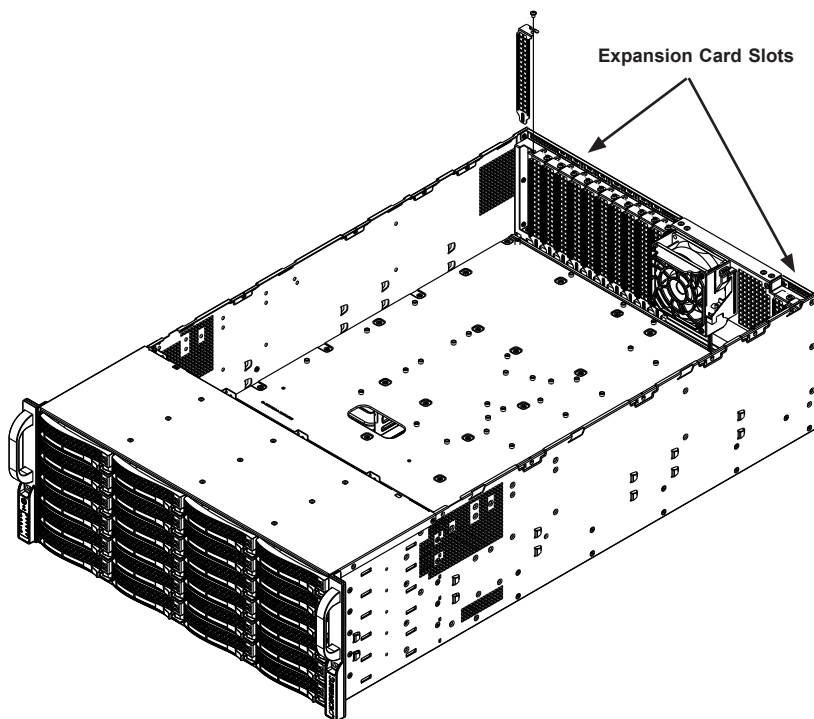
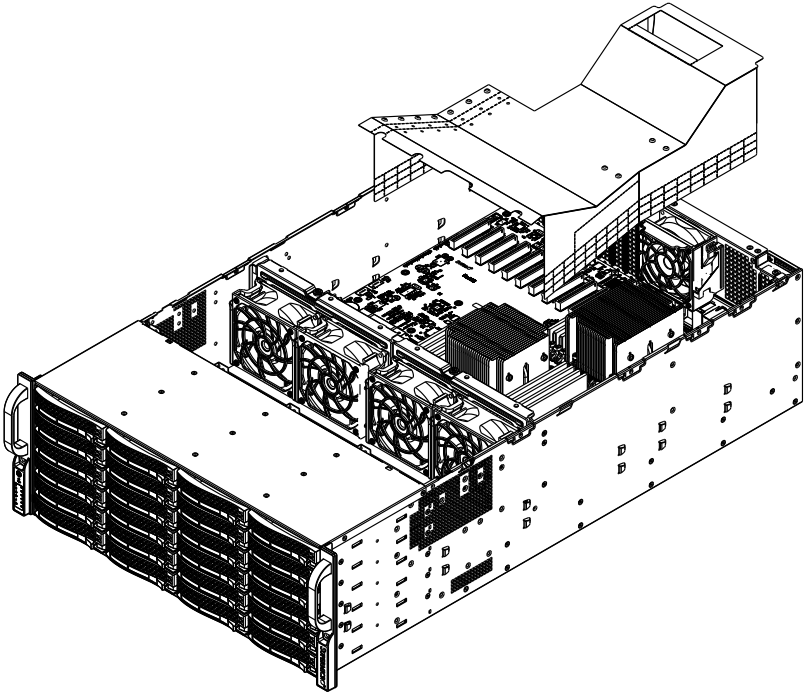


Figure 4-15. Expansion Slots

### *Installing Expansion Cards*

1. Power down the system as described in Section 4-2, lay the chassis on a flat surface, and open the chassis cover.
2. Remove the screw holding the chassis slot shield in place.
3. Insert the expansion card into the serverboard slot, while aligning the expansion card shield with the slot in the rear of the chassis.
4. Secure expansion card shield to the chassis using the screw previously removed.

## 4-7 Installing the Air Shroud



**Figure 4-15. Air Shroud Installation**

Air shrouds concentrate airflow to maximize fan effectiveness. It does not require screws for its installation. It is designed with removeable break-away tabs that allow the air shroud to be adjusted to fit a variety of serverboards.

### ***Installing the Air Shroud***

1. Power down the system as described in Section 4-2 and remove the cover.
2. Place the air shroud in the chassis. The air shroud fits behind the fans and beside to the power supply.
3. After checking the fit of the air shroud, remove any break-away tabs necessary to ensure a proper fit with the serverboard.

## 4-8 System Fans

Four hot-swappable, heavy-duty fans provide cooling from the middle of the chassis, augmented by one rear exhaust fan. Two optional rear external fans can be mounted to help cool expansion cards.

### Mid-Chassis and Internal Rear Fans

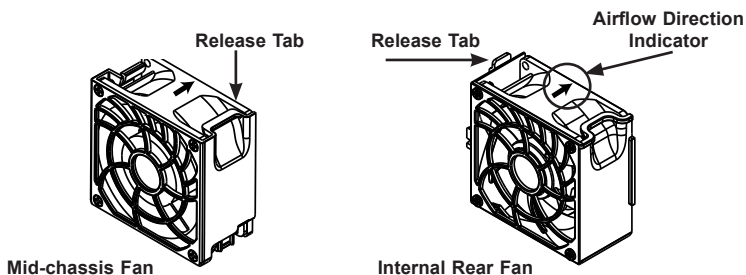


Figure 4-16. System Fans

#### *Replacing a System Fan*

1. Use IPMI or another monitoring tool, if available, to determine which fan has failed.
2. Open the chassis cover. If a monitoring tool is not available, observe which fan has failed. (Never run the server for an extended period of time with the chassis cover open.)
3. Remove the failed fan's power cord from the serverboard.
4. Press the fan release tab to lift the failed fan from the chassis and pull it completely out of the chassis.
5. Place the new fan into the vacant space in the housing while making sure the arrows on the top of the fan (indicating airflow direction) point in the same direction as the arrows on the other fans.
6. Check that the fan is working properly before replacing the chassis cover.

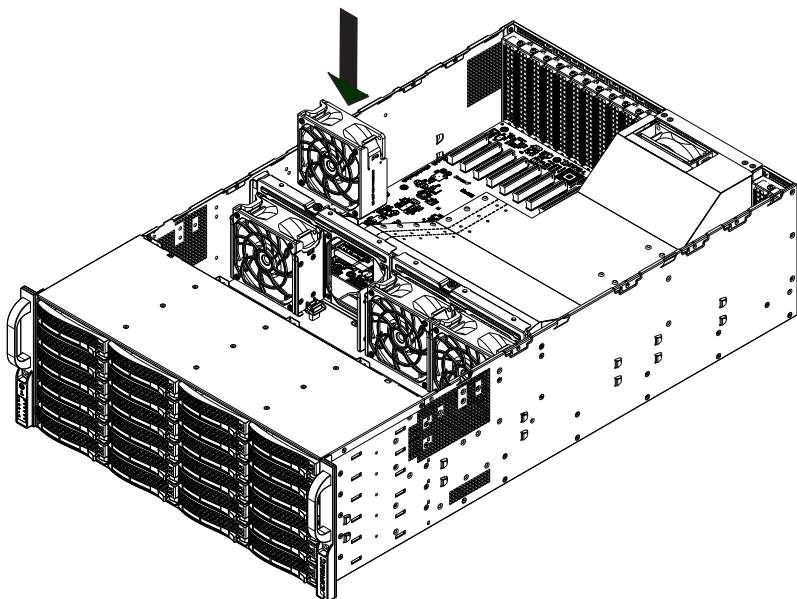
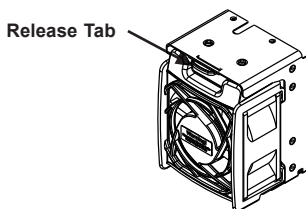


Figure 4-17. Placing the System Fan

## Optional External Rear Fans



**Figure 4-18. External Fan in the Bracket**

The chassis can support two additional external system fans for those expansion cards without cable outlets. If you are installing an external fan for the first time, follow the instructions below. If you are replacing an existing fan, see the instructions on the following page.

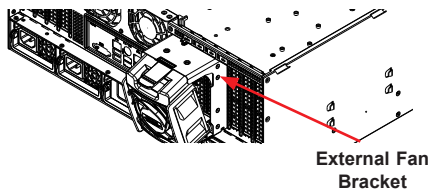
### *Installing a New External System Fan*

1. Power down the system as described in Section 4-2 and remove the cover.
2. Locate the external fan brackets posts and screws included with the fan package. Secure the posts onto the bracket.



**Figure 4-19. External Fan Brackets and Screws**

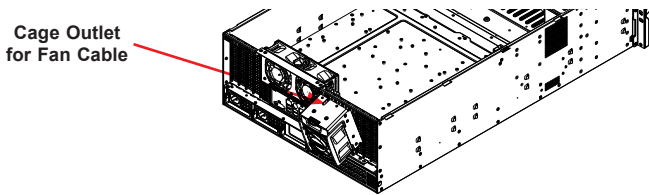
3. Secure the external fan bracket on the rear of the chassis as illustrated using the screws provided.



**Figure 4-20. Securing the External System Fan Brackets**

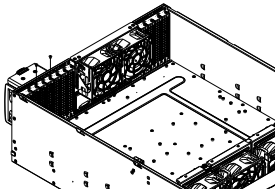


4. Tie off any excess fan cable inside the fan cage. Insert the holes on the base of the external fan cage onto the posts of the external fan bracket, with the fan cage at a slight angle as shown below. Guide the fan cable through the cage outlet.



**Figure 4-21. External Fan Cage**

5. Bring the external fan cage to an upright position against the rear of the chassis and secure it with two screws as illustrated. Open the breakable cover next to the fan and pass the fan connector through the opening.

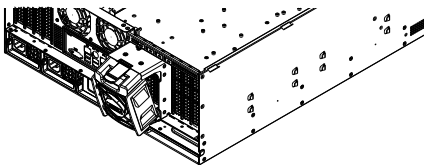


**Figure 4-22. Securing the External Fan**

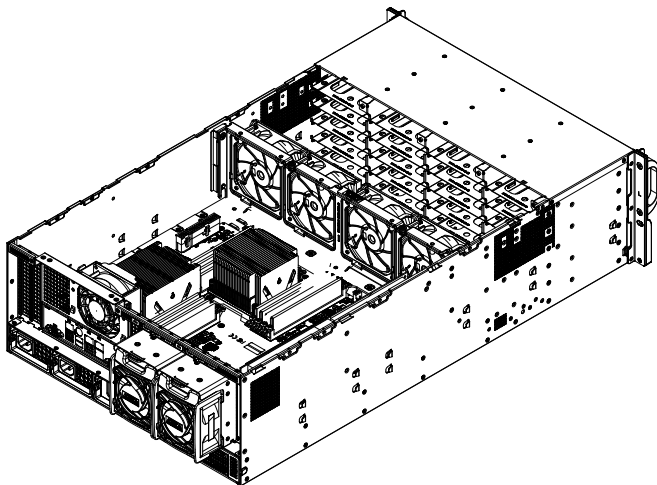
### ***Replacing an Existing External System Fan***

An external fan may be replaced without powering down the system.

1. Press the latch on the top of the fan.
2. Pull the fan away from the rear of the fan cage at a slight angle and lift the posts on the base of the fan out of the holes in the fan cage.
3. Remove the fan power cables.



**Figure 4-23. Removing the External Fan**



**Figure 4-24. External Fans Mounted**

## Checking the Server Air Flow

### *Checking the Air Flow*

- Make sure there are no objects to obstruct airflow in and out of the server. In addition, if you are using a front bezel, make sure the bezel's filter is replaced periodically.
- Do not operate the server without drives or drive trays in the drive bays. Use only recommended server parts.
- Make sure no wires or foreign objects obstruct air flow through the chassis. Pull all excess cabling out of the airflow path or use shorter cables.

The control panel LEDs inform you of system status. See "Chapter 4: System Interface" for details on the LEDs and the control panel buttons.

## 4-9 Power Supply

The chassis features redundant power supplies. They are hot-swappable, meaning they can be changed without powering down the system. New units can be ordered directly from Supermicro or authorized distributors.

These power supplies are auto-switching capable. This feature enables them to automatically sense the input voltage and operate at a 100-120v or 180-240v. An amber light will be illuminated on the power supply when the power is off. An illuminated green light indicates that the power supply is operating.

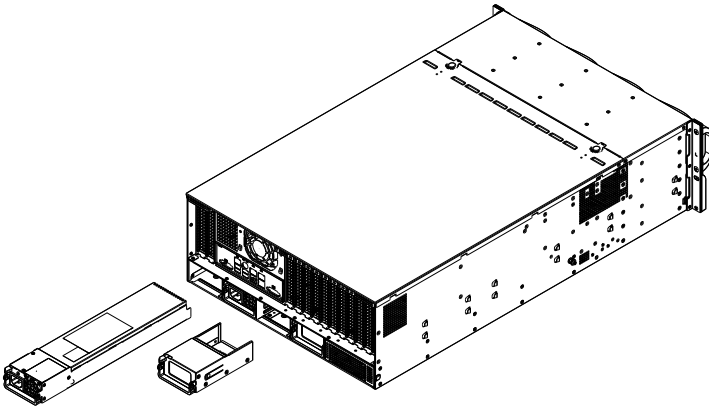


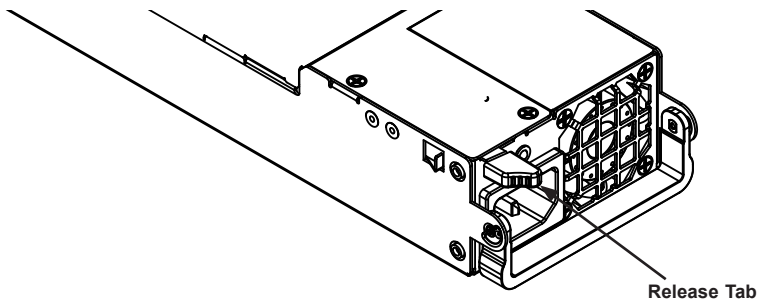
Figure 4-25. Power Supply Module and Dummy Cover for BBP Module

### Optional Battery Backup Power

The chassis supports one or two optional battery backup modules. They can be inserted next to the standard power supply modules.

***Changing the Power Supply:***

1. Unplug the AC cord from the module to be replaced.
2. Push the release tab on the back of the power supply as illustrated.



**Figure 4-26. Power Supply Release Tab**

3. Pull the power supply out using the handle provided.
4. Replace the failed power module with the same model.
5. Push the new power supply module into the power bay until it clicks.
6. Plug the AC power cord back into the module.

## Notes

# Chapter 5

## Rack Installation

This chapter provides instructions for preparing and mounting your chassis in a rack.

### 5-1 Unpacking the System

You should inspect the box the chassis was shipped in and note if it was damaged in any way. If the chassis itself shows damage, file a damage claim with the carrier who delivered it.

### 5-2 Preparing for Setup

Decide on a suitable location for the rack unit that will hold your chassis. It should be a clean, dust-free area that is well ventilated. Avoid areas where heat, electrical noise and electromagnetic fields are generated. A nearby grounded power outlet is required.

The box your chassis was shipped in should include two sets of rail assemblies, two rail mounting brackets and the mounting screws to mount the system into the rack. Please read this chapter in its entirety before beginning the installation procedure.

#### Choosing a Setup Location

- Leave at least 25 inches clearance in front of the rack to open the front door completely.
- Leave approximately 30 inches of clearance in the back of the rack to allow for sufficient airflow and access for servicing.
- It should be a restricted access location, such as a dedicated equipment room or a service closet.

## 5-3 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 installations, stabilizers should be attached to the rack.
- In multiple rack installations, the racks should be coupled together.
- Always make sure that the rack is stable before extending a component from the rack.
- Only one chassis should be extended from the rack at a time. Extending two or more chassis simultaneously may cause the rack to become unstable.
- When initially installing the server to a rack, test that the rail locking tabs engage to prevent the server from being overextended. Have a rack lift in place as a precaution in case the test fails.
- In any instance of pulling the system from the rack, always use a rack lift and follow all associated safety precautions.

### General Server Precautions

- Review the electrical and general safety precautions that came with the components you are adding to your chassis.
- 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 upward.
- 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 the hot-swappable hard 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 (TMRA).

### Sufficient Airflow

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

### 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.).



**Warning:** To prevent bodily injury when mounting or servicing this unit in a rack, you must take special precautions to ensure that the system remains stable. The following guidelines are provided to ensure your safety:

- This unit should be mounted at the bottom of the rack if it is the only unit in the rack.
- When mounting this unit in a partially filled rack, load the rack from the bottom to the top with the heaviest component at the bottom of the rack.
- If the rack is provided with stabilizing devices, install the stabilizers before mounting or servicing the unit in the rack.
- Slide rail mounted equipment is not to be used as a shelf or a work space.



## 5-4 Procedure for Rack Mounting

This section provides information on installing a 4U chassis into a rack unit with the rails provided. There are a variety of rack units on the market, so the assembly procedure may differ slightly. Also refer to the installation instructions for your rack unit.

**Note:** This rail will fit a rack between 26.5" and 36.4" deep.

### Identifying the Inner Rack Rails

The chassis package includes one pair of rack rail assemblies in the rack mounting kit. Each assembly consists of an inner rail that secures to the chassis and an outer rail that is attached directly to the rack. The inner rails are etched with "L" (Left side) and "R" (Right side).

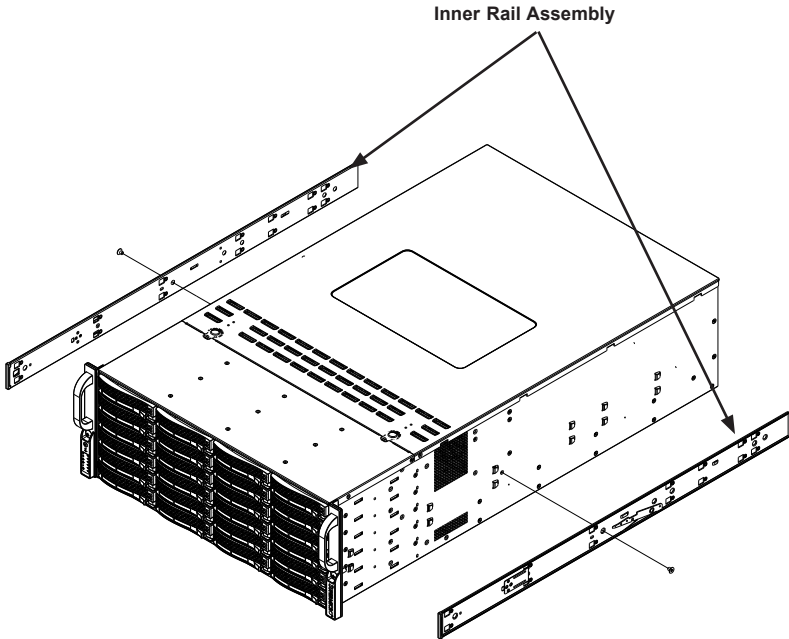


Figure 5-1. Identifying the Rack Rails

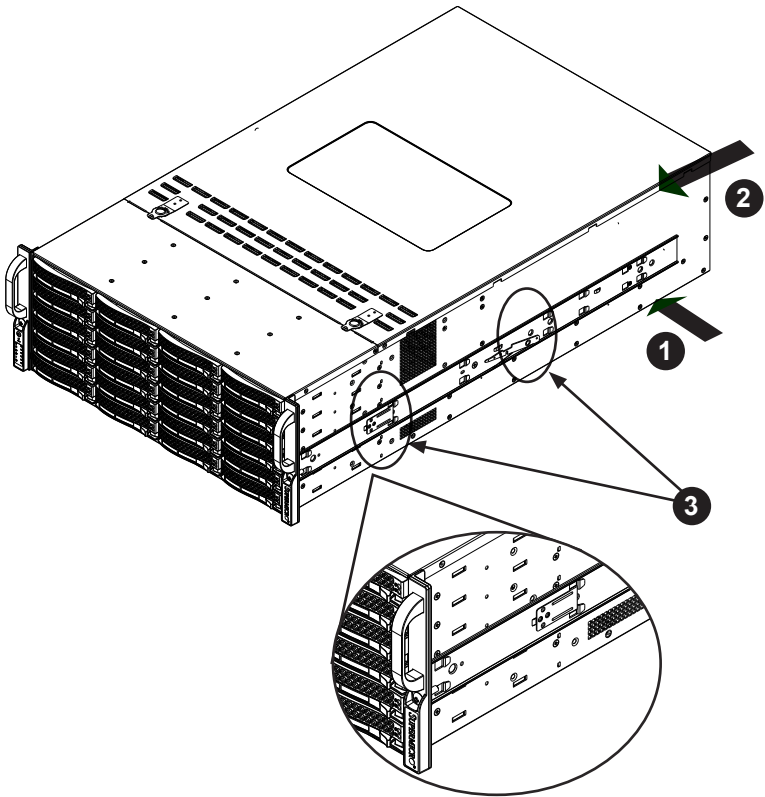


Figure 5-2. Installing the Rails

## Installing the Inner Rails on the Chassis

### *Installing the Inner Rails*

1. The inner rails are etched with "L" (Left side) and "R" (Right side). Place one inner rail on the side of the chassis, aligning the hooks of the chassis with the inner rail holes. Make sure the rail faces "outward" so that it will fit with the rack's mounting bracket.
2. Slide the rail toward the front of the chassis to hook the inner rail onto the side of the chassis.
3. If desired, secure the rail with two flat head M4 x 4mm screws as illustrated.
4. Repeat for the other inner rack rail.

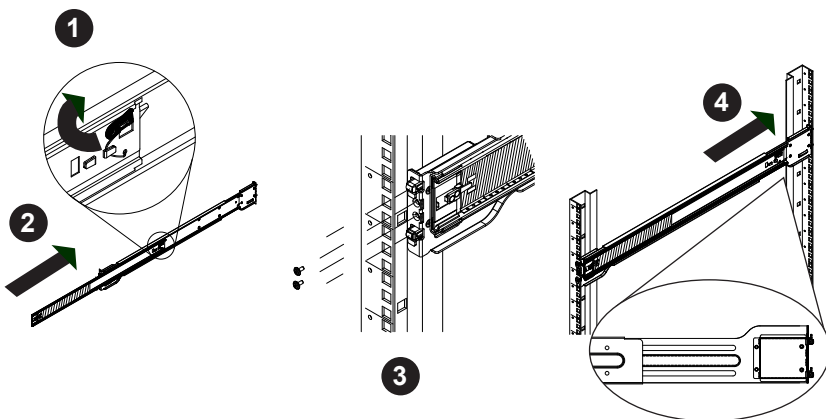


**Warning:** Do not pick up the server by the front handles. They are designed to pull the system from a rack only.

## Installing the Outer Rails onto the Rack

### *Installing the Outer Rails*

1. Press upward on the locking tab at the rear end of the middle rail.
2. Push the middle rail back into the outer rail.
3. Hang the hooks on the front of the outer rail onto the square holes on the front of the rack. If desired, use screws to secure the outer rails to the rack.
4. Pull out the rear of the outer rail, adjusting the length until it just fits within the posts of the rack.
5. Hang the hooks of the rear section of the outer rail onto the square holes on the rear of the rack. Take care that the proper holes are used so the rails are level. If desired, use screws to secure the rear of the outer rail to the rear of the rack.
6. Repeat for the other outer rail.

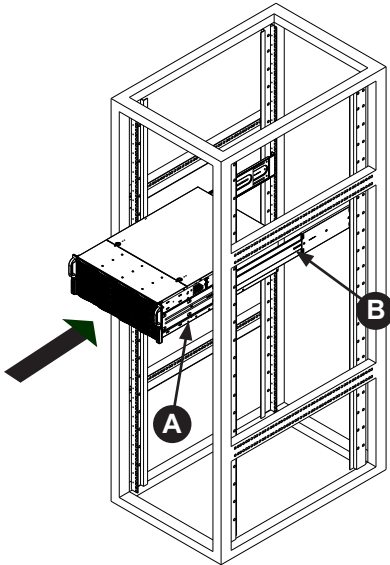


**Figure 5-3. Extending and Mounting the Outer Rails**



**Stability hazard.** The rack stabilizing mechanism must be in place, or the rack must be bolted to the floor before you slide the unit out for servicing. Failure to stabilize the rack can cause the rack to tip over.

Do not use a two post "telco" type rack.



**Figure 5-4. Installing the Chassis into a Rack**

**Note:** Figures are for illustrative purposes only. Always install servers into racks from the bottom up.

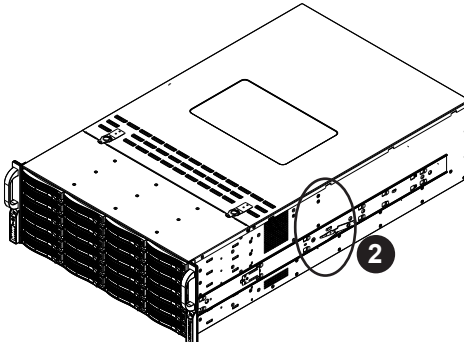
## Installing the Chassis into a Rack

### *Installing the Chassis into a Rack:*

1. Align the chassis rails (A) with the front of the rack rails (B).
2. Slide the chassis rails into the rack rails, keeping the pressure even on both both sides. You may have to depress the locking tabs while inserting. When the server has been pushed completely into the rack, the locking tabs should "click" into the locked position.
3. If screws are used, tighten the screws on the front and rear of the outer rails.
4. (Optional) Insert and tightening the thumbscrews that hold the front of the server to the rack.

## Removing the Chassis from the Rack

**Caution!** It is dangerous for a single person to off-load the heavy chassis from the rack without assistance. Be sure to have sufficient assistance supporting the chassis when removing it from the rack. Use a lift.



**Figure 5-5. Removing the Chassis From the Rack**

### *Removing the Chassis from the Rack*

1. Pull the chassis forward out the front of the rack until it stops.
2. Press the release latches on each of the inner rails downward simultaneously and move the chassis forward in the rack.

## Appendix A

### Cables and Hardware

#### A-1 Overview

This appendix lists supported cables for your chassis system. It only includes the most commonly used components and configurations. For more compatible cables, refer to the manufacturer of the motherboard you are using and our Web site at: [www.supermicro.com](http://www.supermicro.com).

#### A-2 Cables Included (SAS/SATA)

Part #	Type	Length	Description
CBL-0174L	Cable	6'	US power cord, 14 AWG
CBL-0071L	Ribbon, Round	30"	Round 16-pin to 16-pin ribbon FP cable 28AWG
CBL-0088L	Cable	10.5"	4-pin middle fan power extension (PWM)
CBL-0216L	Cable	7.9"	4 to 4-pin middle fan power extension (PWM)
CBL-0217L	Cable	8.7"	16-pin control panel converter cable

## Extending Power Cables

Although Supermicro chassis are designed with to be efficient and cost-effective, some compatible motherboards have power connectors located in different areas.

To use these motherboards you may have to extend the power cables to the motherboards. To do this, use the following chart as a guide.

<b>Power Cable Extenders</b>		
<b>Number of Pins</b>	<b>Cable Part #</b>	<b>Length</b>
24-pin	CBL-0042	7.9" (20 cm)
20-pin	CBL-0059	7.9" (20 cm)
8-pin	CBL-0062	7.9" (20 cm)
4-pin	CBL-0060	7.9" (20 cm)

## Front Panel to the Motherboard

The chassis includes a cable to connect the chassis front panel to the motherboard. If your motherboard uses a different connector, use the following list to find a compatible cable.

<b>Front Panel to Motherboard Cable (Ribbon Cable)</b>		
<b>Number of Pins (Front Panel)</b>	<b>Number of Pins (Motherboard)</b>	<b>Cable Part #</b>
16-pin	16-pin	CBL- 049
16-pin	20-pin	CBL-0048
20-pin	20-pin	CBL-0047
16-pin	varies	CBL-0068

## A-3 Chassis Screws

The accessory box includes all the screws needed to setup your chassis. This section lists and describes the most common screws used. Your chassis may not require all the parts listed.

### M/B



Pan head  
6-32 x 5 mm  
[0.197]

### HARD DRIVE



Flat head  
6-32 x 5 mm  
[0.197]

### DVD-ROM, CD-ROM, and FLOPPY DRIVE



Pan head  
6-32 x 5 mm  
[0.197]



Flat head  
6-32 x 5 mm  
[0.197]



Round head  
M3 x 5 mm  
[0.197]



Round head  
M2.6 x 5 mm  
[0.197]

### RAIL



Flat head  
M4 x 4 mm  
[0.157]



Round head  
M4 x 4 mm  
[0.157]



Flat head  
M5 x 12 mm [0.472]  
Washer for M5



### M/B STANDOFFS



M/B standoff  
6-32 to 6-32



M/B (CPU)  
standoff  
M5 to 6-32



M/B standoff  
M5 to 6-32



Thumb screw  
6-32 x 5 mm  
[0.197]



1U M/B standoff  
6-32 x 5 mm  
[0.197]





## Notes

## Appendix B

### Power Supply Specifications

This appendix lists power supply specifications for your chassis system.

<b>-R1K28</b>	
	<b>1280W (up to 2+1)</b>
<b>MFR Part #</b>	PWS-1K28P-SQ
<b>AC Input</b>	1000W Output @ 100-140V, 8-12A, 50-60Hz 1280W Output @ 180-240V, 6-8A, 50-60Hz
<b>DC Output</b>	1000W: +12V/83A; +5Vsb/4A 1280W: +12V/106.7A, +5Vsb/4A



# Notes

## Appendix C

### BPN-SAS3-846EL Backplane Specifications

To avoid personal injury and property damage, carefully follow all the safety steps listed below when accessing your system or handling the components.

#### C-1 Safety Guidelines

##### ESD Safety

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

- Use a grounded wrist strap designed to prevent static discharge.
- Touch a grounded metal object before removing a component from the antistatic bag.
- Handle the backplane 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 card and peripherals back into their antistatic bags when not in use.

##### General Safety

- Always disconnect power cables before installing or removing any components from the computer, including the backplane.
- Disconnect the power cable before installing or removing any cables from the backplane.
- Make sure that the backplane is securely and properly installed on the motherboard to prevent damage to the system due to power shortage.

## **C-2 Version Information**

The BPN-SAS3-846EL backplane has been designed to utilize the most up-to-date technology available, providing your system with reliable, high-quality performance.

This manual reflects BPN-SAS3-846EL Revision 1.01, the most current release available at the time of publication. Always refer to the Supermicro Web site at [www.supermicro.com](http://www.supermicro.com) for the latest updates, compatible parts and supported configurations.

## C-3 Rear Connectors and Jumpers

The following connectors are on the side of the backplane that faces the rear of the chassis. They are marked by silkscreen labels.

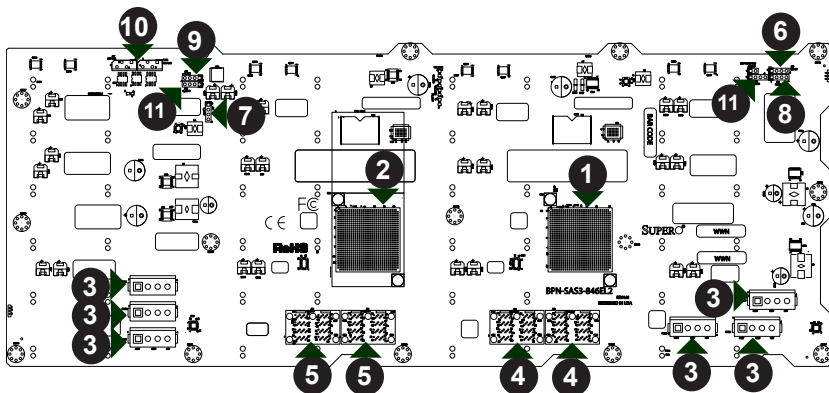


Figure C-1. Rear Connectors and Jumpers

### Rear Connectors

1. Primary Expander Chip.
2. Secondary Expander Chip (not present on EL1 single port backplanes).
3. Backplane Power Connectors: PWR1 through PWR6.
4. Primary SAS Ports: J49, J50.
5. Secondary SAS Ports: J51, J52. (not present on EL1 single port backplanes).
6. Primary UART Connector: PRI-UART (J30) for manufacturer's use only.
7. Secondary UART Connector: SEC-UART(J24) for manufacturer's use only, not present on EL1 backplanes.
8. Primary SDB Connector: PRI-SDB (J31), for manufacturer's use only.
9. Secondary SDB Connector: SEC-SDB (J29), for manufacturer's use only, not present on EL1 backplanes.
10. I<sup>2</sup>C Connector, EXP I2C0 (J48).
11. JP3 P\_MDIO and JP4 P\_MDIO: Primary and secondary management data in/out. For manufacturer's use only.

## C-4 Rear Connector and Pin Definitions

### 1-2. Primary and Secondary Expander Chips

The primary and secondary expander chips allow the backplane to support dual port, cascading, and failover configurations.

### 3. Backplane Power Connectors

The 4-pin connectors, designated PWR1 to PWR6 provide power to the backplane. See the table on the right for pin definitions.

Backplane Main Power 4-Pin Connector	
Pin#	Definition
1	+12V
2 and 3	Ground
4	+5V

### 4-5. Primary and Secondary SAS Ports

The primary SAS connectors are designated J49 and J50. The secondary SAS Ports are designated J51 through J52 and are not present on EL1 single port backplanes.

### 6-7. Primary and Secondary UART Connectors

For manufacturer's diagnostic purposes only. The primary UART connector is designated PRI-UART and J30. The secondary UART connector is designated SEC-UART and J24 and is not present on BPN-SAS3-846EL1.

### 8-9. SDB Connectors

These are debug connectors used for the manufacturer's diagnostic purposes only. The Primary SDB connector is designated PRI-SDB and J31. The secondary SDB connector is designated SEC-SDB and J29. (Not present on BPN-SAS3-846EL1 backplanes)

### 10. I<sup>2</sup>C Connectors

The I<sup>2</sup>C connector. is designated EXP I2C0 and J48.

### 11. Management Data Port

For manufacturer's use only. JP3 P\_MDIO and JP4 P\_MDIO are primary and secondary management data in and out.

## C-5 Rear Jumper Locations and Pin Definitions

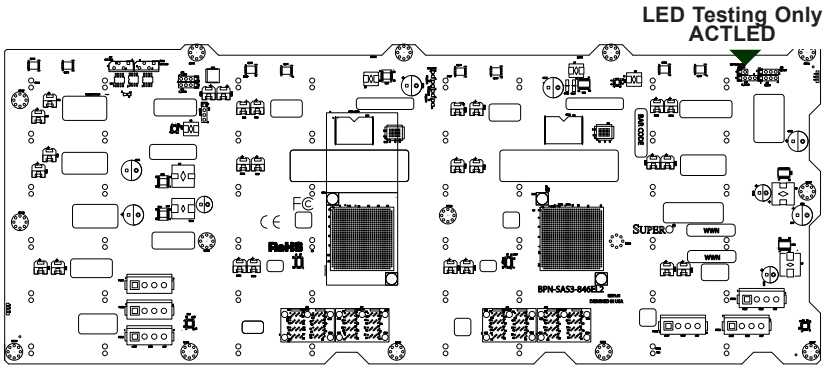
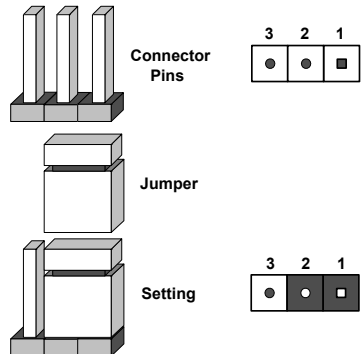


Figure C-2. Rear Jumpers

Jumper	Jumper Settings	Note
LED Testing Only ACTLED	Open: Disabled (Default) Closed: Enabled	Activity LED test.

### Explanation of Jumpers

To modify the operation of the backplane, jumpers can be used to choose between optional settings. Jumpers create shorts between two pins to change the function of the connector. Pin 1 is identified with a square solder pad on the printed circuit board. Note: On two pin jumpers, "Closed" means the jumper is on and "Open" means the jumper is off the pins.





## C-6 Rear LED Indicators

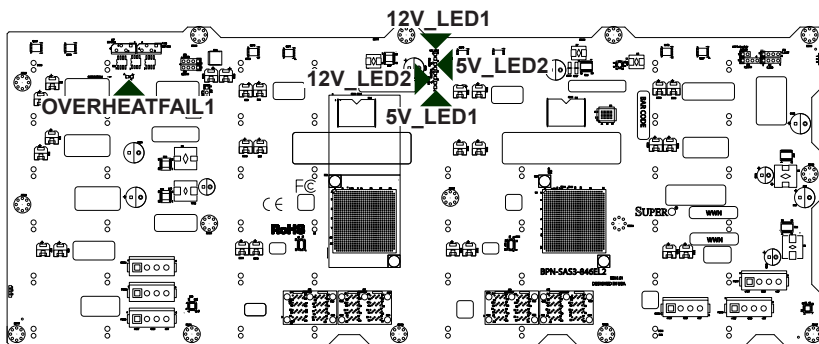


Figure C-3. Rear LEDs

Rear LEDs			
LED	Normal State	Abnormal State	Specification
12V_LED1	On	Off	12V power status.
12V_LED2	Blinking	Steady on, or off	Primary expander heartbeat indicator.
5V_LED1	On	Off	5V power status.
5V_LED2	Blinking	Steady on, or off	Secondary expander heartbeat indicator (not present on BPN-SAS3-846EL1 backplanes).
OVERHEATFAIL1	Off	On	System overheat/failure LED.

## C-7 Front Components, Connectors and LED Indicators

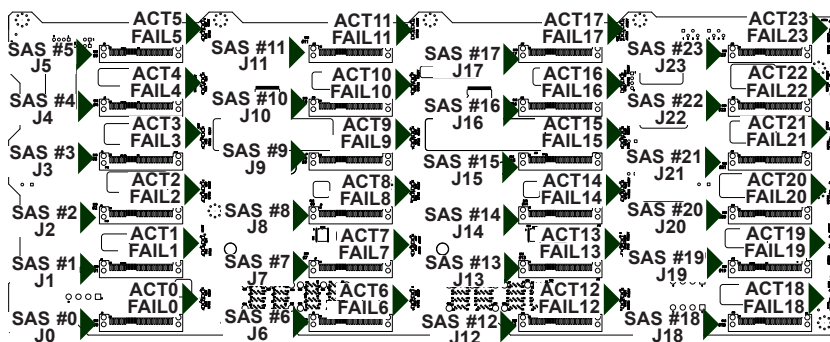


Figure C-4. Front Connectors

Front SAS/SATA Connectors and LED Indicators			
Drive Number	Label	HDD Activity LED (blue)	Failure LED (red)
SAS #0	J0	ACT0	FAIL0
SAS #1	J1	ACT1	FAIL1
SAS #2	J2	ACT 2	FAIL2
SAS #3	J3	ACT3	FAIL3
SAS #4	J4	ACT4	FAIL4
SAS #5	J5	ACT5	FAIL5
SAS #6	J6	ACT6	FAIL6
SAS #7	J7	ACT7	FAIL7
SAS #8	J8	ACT8	FAIL8
SAS #9	J9	ACT 9	FAIL9
SAS #10	J10	ACT10	FAIL10
SAS #11	J11	ACT11	FAIL11
SAS #12	J12	ACT12	FAIL12
SAS #13	J13	ACT13	FAIL13
SAS #14	J14	ACT14	FAIL14
SAS #15	J15	ACT15	FAIL15
SAS #16	J16	ACT16	FAIL16
SAS #17	J17	ACT17	FAIL17
SAS #18	J18	ACT18	FAIL18
SAS #19	J19	ACT19	FAIL19

**Front SAS/SATA Connectors and LED Indicators**

<b>Drive Number</b>	<b>Label</b>	<b>HDD Activity LED (blue)</b>	<b>Failure LED (red)</b>
SAS #20	J20	ACT20	FAIL20
SAS #21	J21	ACT21	FAIL21
SAS #22	J22	ACT22	FAIL22
SAS #23	J23	ACT23	FAIL23

## Dual Port and Cascading Configurations

### C-8 Single and Dual Port Expanders

SAS primary connectors J49 to J50 and secondary connectors J51 to J52 are bidirectional and can be treated as input or output.

#### Single Ports

BPN-SAS3-846EL1 backplanes have a single port expander that accesses all of the drives and supports cascading.

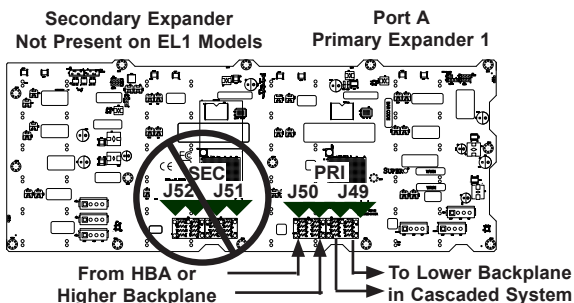


Figure C-5 BPN-SAS3-846EL1 Single Port Configuration

#### Dual Ports

BPN-SAS3-846EL2 model backplanes have dual-port expanders that access all of the hard drives. These dual-port expanders support cascading, failover, and recovery.

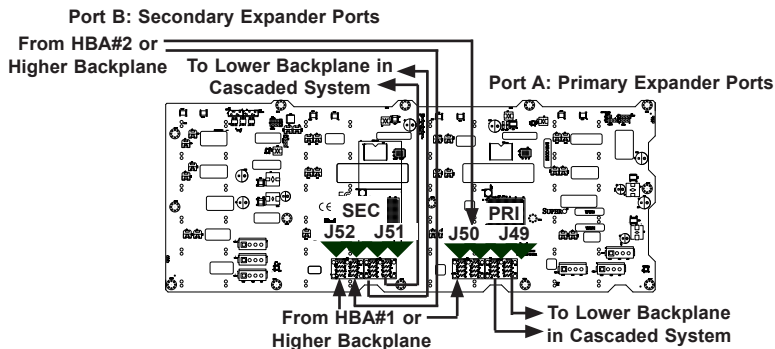


Figure C-6. BPN-SAS3-846EL2 Dual Port Configuration

## C-9 Failover

The BPN-SAS3-846EL2 model backplane has two expanders which enable effective failover and recovery.

### Single Host Bus Adapter

In a single host bus configuration, the backplane connects to one host bus adapter.

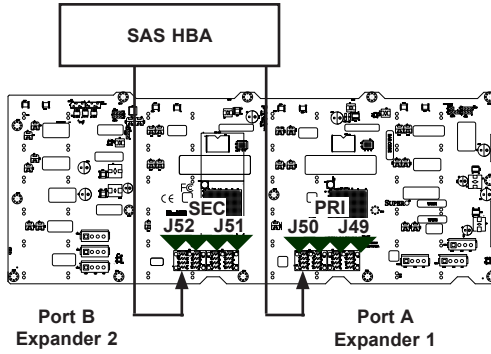


Figure C-7. Single HBA

### Single Host Bus Adapter Failover

If the expander or data path in Port A fails, the system automatically switches to Port B with application software or failover support.

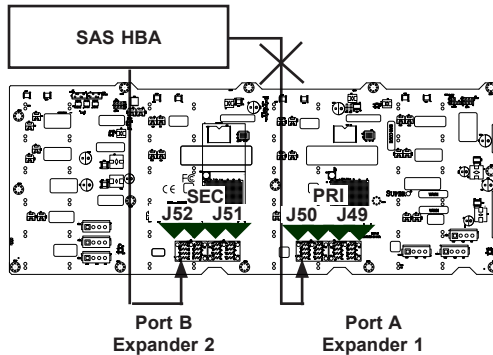


Figure C-8. Single HBA Failover

## C-10 Failover with RAID Cards and Multiple HBAs

The BPN-SAS3-846EL backplane may be configured for failover with multiple HBAs using either RAID controllers or HBAs to achieve failover protection.

**RAID Controllers:** If RAID controllers are used, then the failover is accomplished through port failover on the same RAID card.

**HBAs:** If multiple HBAs are used to achieve failover protection and load balancing, Linux MPIO software must be installed and correctly configured to perform the load balancing and failover tasks.

### Dual Host Bus Adapter

In a dual host bus configuration, the backplane connects to two HBA's.

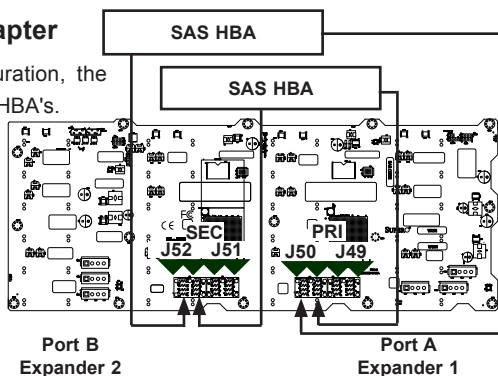


Figure C-9. Dual HBA

### Dual Host Bus Adapter Failover

If the expander or data path in Port A fails, the system automatically switches to Port B. This maintains a full connection to all drives.

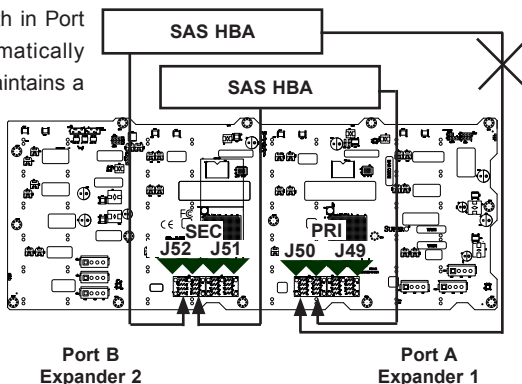


Figure C-10 Dual HBA Failover

**IMPORTANT:** For RAID controllers, redundancy is achieved through port failover. For multiple HBAs MPIO software is required to achieve failover protection.

## C-11 Connecting HBAs to the Backplane

### Connecting an Internal HBA to the Backplane

The following section lists the most common cables used to connect the HBA to the backplane.

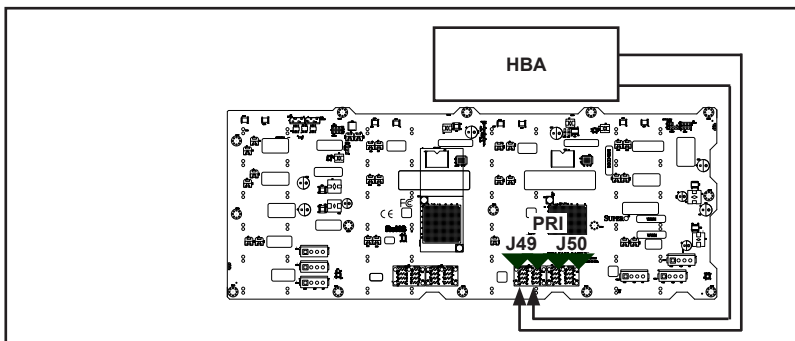


Figure C-11. Single Internal Host Bus Adapter

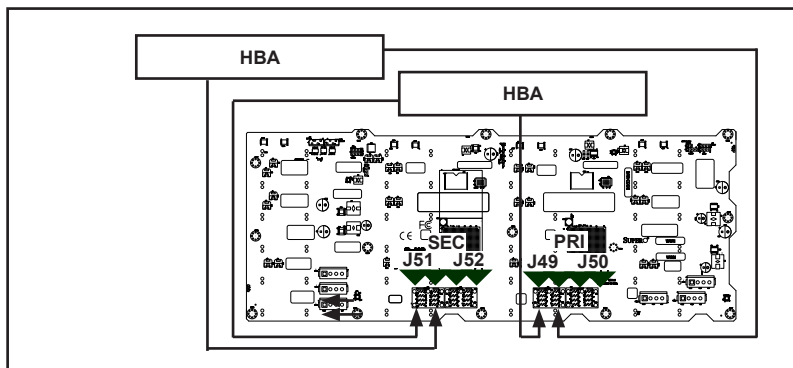


Figure C-12. Dual Internal Host Bus Adapter

## Supported Internal HBA Cables

Use the following cables to create connections between the internal HBA and BPN-SAS3-846EL model backplane. The cables required depend upon the HBA connector.

**IMPORTANT:** See Section 3-3 of this manual, *Failover with RAID Cards and Multiple HBAs* for important information on supported configurations.

**Cable Name:** Internal iPass (Mini-SAS) to HD (Mini-SAS)

**Part #:** CBL-SAST-0508-01                      **Length:** 50 cm (19 inches)

**Part #:** CBL-SAST-0507-01                      **Length:** 80 cm (31 inches)

**Description:** This cable has an iPass (SFF-8087/Mini-SAS) connector (36-pin) at one end and a Mini-SAS HD (SFF-8643) connector at the other end. It connects from the SAS2 HBA to the BPN-SAS3-846EL model backplane.

Cable name: Internal HD (Mini-SAS) to HD (Mini-SAS)

**Part #:** CBL-SAST-0568                      **Length:** 35 cm (13 inches)

**Part #:** CBL-SAST-0593                      **Length:** 60 cm (23 inches)

**Part #:** CBL-SAST-0531                      **Length:** 80 cm (31 inches)

**Description:** This cable has a Mini-SAS HD (SFF-8643) connector at both ends. It connects from the SAS3 HBA to the BPN-SAS3-846EL model backplane.



## Connecting an External HBA to the Backplane

This backplane supports external host bus adapters. In this configuration, the HBA and the backplane are in different physical chassis. This allows a JBOD (Just a Bunch Of Drives) configuration from an existing system.

### Single External Host Bus Adapter

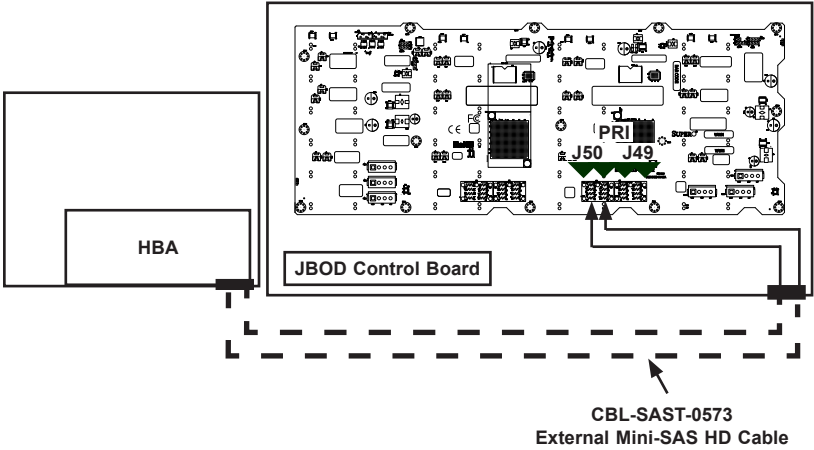


Figure C-13. Single External Host Bus Adapter

### Dual External Host Bus Adapter

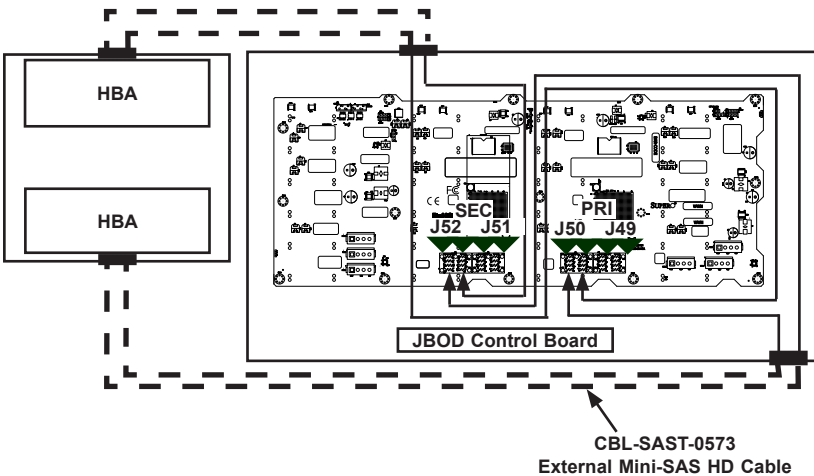


Figure C-14. Dual External Host Bus Adapter

**IMPORTANT:** See Section 3-3 of this manual, *Failover with RAID Cards and Multiple HBAs* for important information on supported configurations.

## Connecting Multiple Backplanes in a Single Channel Environment

This section describes the cables used when cascading from a single HBA. These connections use CBL-SAST-0531 internal cables and CBL-SAST-0573 external cables.

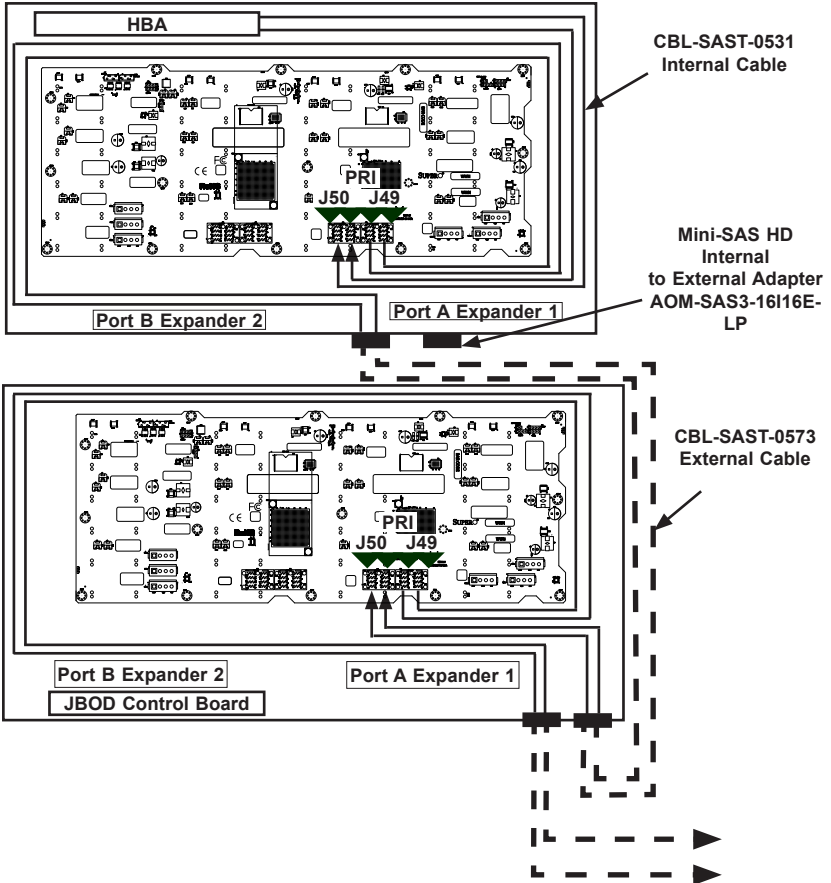


Figure C-15. Single HBA Configuration

## Single HBA Configuration Cables



**Figure C-16.** External Mini-SAS HD to External Mini-SAS HD Cable

**Cable Name:** 1 Meter External Mini-SAS HD to External Mini-SAS HD Cable

**Part #:** CBL-SAST-0573

**Ports:** Single

**Placement:** External Cable

**Description:** External cascading cable, connects ports between servers and JBODs.



**Figure C-17.** Mini-SAS HD Internal to External Adapter

**Cable Name:** 16-port Mini-SAS HD Internal to External Cable Adapter with full height bracket

**Part #:** AOM-SAS3-16I16E

**Ports:** Four wide ports (sixteen ports total)

**Placement:** Internal cable with adapter

**Description:** Internal cable, connects the SAS3 backplane to external ports.

## Connecting Multiple Backplanes in a Dual Channel Environment

This section describes the cables used when cascading from dual HBAs. These connections use CBL-SAST-0531 internal cables and CBL-SAST-0573 external cables.

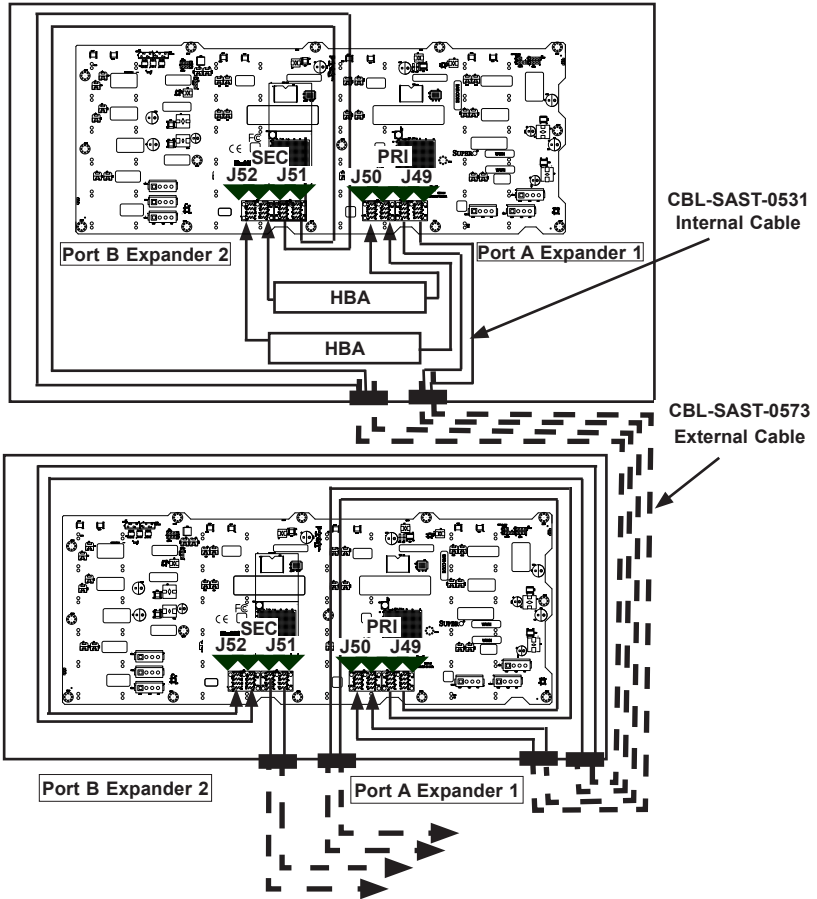


Figure C-18. Dual HBA Configuration

**IMPORTANT:** See Section 3-3 of this manual, *Failover with RAID Cards and Multiple HBAs* for important information on supported configurations.

Disclaimer (cont.)

The products sold by Supermicro are not intended for and will not be used in life support systems, medical equipment, nuclear facilities or systems, aircraft, aircraft devices, aircraft/emergency communication devices or other critical systems whose failure to perform be reasonably expected to result in significant injury or loss of life or catastrophic property damage. Accordingly, Supermicro disclaims any and all liability, and should buyer use or sell such products for use in such ultra-hazardous applications, it does so entirely at its own risk. Furthermore, buyer agrees to fully indemnify, defend and hold Supermicro harmless for and against any and all claims, demands, actions, litigation, and proceedings of any kind arising out of or related to such ultra-hazardous use or sale.