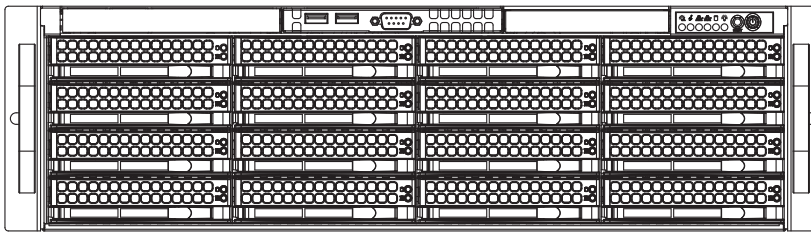
SC836 Chassis Series



SC836BE1C-R1K03B
SC836BHA-R1K28B
SC836BHE26-R1K28B
SC836BE26-R1K28B
SC836BE16-R920B
SC836BA-R920B
SC836E16-R500B
SC836E26-R1200B
SC836TQ-R800V /
SC836TQ-R800B

SC836BE2C-R1K03B
SC836BHE16-R1K28B
SC836BE16-R1K28B
SC836BA-R1K28B
SC836BE26-R920B
SC836TQ-R500B
SC836E16-R1200B
SC836A-R1200B
SC836TQ-R710B

USER'S MANUAL

2.1b

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.**

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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"

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 2.1b
Release Date: April 08, 2015

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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 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.

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Notes

Chapter 1

Introduction

1-1 Overview

Supermicro's SC836 storage chassis supports up to sixteen hot-swappable 3.5" SAS/SATA hard drives, the industry's highest storage density for a 3U system. The SC836 includes 100% cooling redundancy and high efficiency (1+1) redundant power supplies with PM BUS functionality for enhanced power management. The chassis is optimized for the next-generation dual-processor Intel Xeon (5500 series) and AMD Opteron platforms. Direct attached HDD backplane (TQ version), multilane backplane (A version) and expander backplane (E1, E2 versions) are available for application-specific solution optimization. Heavy duty palletized packaging is available to ensure secure system reliability during shipping. Tool-less, roller rail designs for easy installation and maintenance are standard with each system.

SC836 Chassis Series			
Model	**HDD**	**PCI Slots**	**Power Supply**
SC836BE1C-R1K03B **SC836BE2C-R1K03B**	16x 3.5" SAS 2x 2.5" SAS	7x FF	1000W (Redundant, Titanium)
SC836BHA-R1K28B **SC836BHE16-R1K28B** **SC836BHE26-R1K28B** **SC836BE16-R1K28B** **SC836BE26-R1K28B** **SC836BA-R1K28B**	16x 3.5" SAS 2x 2.5" SAS	7x FF	1280W (Redundant, Platinum)
SC836BE16-R920B **SC836BE26-R920B** **SC836BA-R920B**	16x 3.5" SAS 2x 2.5" SAS	7x FF	920W (Redundant, Platinum)
SC836TQ-R500B **SC836E16-R500B**	16x 3.5" SAS 2x 2.5" fixed	7x FF	500W (Redundant, Platinum)
SC836E16-R1200B **SC836E26-R1200B** **SC836A-R1200B**	16x 3.5" SAS 3x 2.5" fixed	7x FF	1200W (Redundant, Gold)
SC836TQ-R800V / **SC836TQ-R800B**	16x 3.5" SAS	7x FF	800W (Redundant)
SC836TQ-R710B	16x 3.5" SAS	7x FF	710W DC (Redundant)

1-2 Shipping List

Visit the Supermicro web site for the latest shipping lists and part numbers for your particular chassis model at www.supermicro.com.

1-3 Chassis Features

The SC836 3U high-performance chassis includes the following features:

Processor Support

The chassis supports dual Dual-core Xeon processors and serverboards up to 13.7" x 13", E-ATX and ATX. Refer to the motherboard specifications pages on our web site for updates on supported processors for this chassis.

Drives

The chassis supports up to sixteen 3.5" hot-swap SAS or SATA drives with SES2. With RAID, these drives may be replaced without powering down the server. Some models also support two hot-swap 2.5" drives in the rear, or two or three internal fixed 2.5" drives. Supporting backplanes are described in the the appendices.

The chassis supports one slim DVD drive (optional).

PCI Expansion Slots

Each version of the chassis includes seven full height, full width expansion slots.

Cooling

Three hot-plug 80mm fans plus two 80mm exhaust fans provide 100% cooling redundancy, aided by an adjustable air shroud. The 4-pin fans are controlled though IPMI.

Control Panel

The front control panel includes system status LED indicators and power switches.

1-4 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.

1-5 Where to get Replacement Components

Although 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: www.supermicro.com. Click the Where to Buy link

Notes

Chapter 2

Standardized Warning Statements for AC Systems

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.

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。

此警告符号代表危险。

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.

תקנון 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 במארזי 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

此產品的短路(過載電流)保護由建築物的供電系統提供,確保短路保護設備的額定電流不大於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 الدوائرالقصيرة 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 electrische installatie. Controleer of het beveiligde aparaat 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.

電源切断の警告

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、シャーシー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断され、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 chassis pour installer ou enlever des composants de systéme.

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 للهيكل لتثبيت أو إزالة مكونات الجهاز

경고!

시스템에 부품들을 장착하거나 제거하기 위해서는 섀시 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 لتركيب 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 لتركيبها 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
电池更换不当会有爆炸危险。请只使用同类电池或制造商推荐的功能相当的电池更换原有电池。请按制造商的说明处理废旧电池。

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
此裝置連接的電源可能不只一個，必須切斷所有電源才能停止對該裝置的供電。

Warnung

Dieses Gerät kann mehr als eine Stromzufuhr haben. Um sicherzustellen, dass der Einheit kein trom 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 !
ליחדה 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。

修理する際には注意ください。

警告

当系统正在进行时，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 أوالطاقة الموجودة على اللوحة
عندما يكون النظام يعمل كن حذرا عند خدمة هذا الجهاز

경고!

시스템이 동작 중일 때 후면판 (Backplane)에는 위험한 전압이나 에너지가 발생합니다. 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 instalacion 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
本产品的废弃处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 ell montaje del ventilador del chasis. Mandtenga 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 retirerez 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 והמאוררים 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!

섀시로부터 팬 조립품을 제거할 때 팬은 여전히 회전하고 있을 수 있습니다. 팬 조림품 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

安装此产品时,请使用本身提供的或指定的连接线,电源线和电源适配器.使用其它线材或适配器可能会引起故障或火灾。除了Supermicro所指定的产品,电气用品和材料安全法律规定禁止使用未经UL或CSA认证的线材。(线材上会显示UL/CSA符号)。

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 câbles 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 צוין 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, AC어댑터를 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 UL또는 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. The externally accessible hard drives display status lights. The power supply displays status lights visible from the back of the chassis.

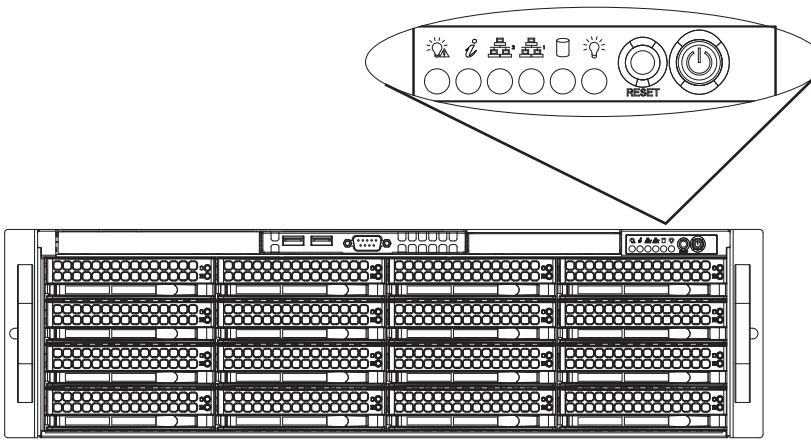


Figure 3-1. Front Control Panel

3-2 Control Panel Buttons

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



Power

The main power switch is used to apply or remove power from the power supply to the server system. Turning off system power with this button removes the main power but keeps standby power supplied to the system. Therefore, you must unplug system before servicing.



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 should normally be illuminated when the system is operating.



HDD

Indicates activity on the hard drive when flashing.



NIC2

Indicates network activity on GLAN2 when flashing.



NIC1

Indicates network activity on GLAN1 when flashing.



Information LED

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

Information LED	
Status	**Description**
Continuously on and red	An overheat condition has occured. (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 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. (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
Activity LED	Blue	Solid On	SAS drive installed
	Blue	Blinking	I/O activity
Status LED	Red	Solid On	Failed drive for SAS/SATA/NVMe with RSTe support
	Red	Blinking at 1 Hz	Rebuild drive for SAS/SATA with RSTe support
	Red	Blinking with two blinks and one stop at 1 Hz	Hot spare for SAS/SATA with RSTe support
	Red	On for five seconds, then off	Power on for SAS/SATA with RSTe support
	Red	Blinking at 4 Hz	Identify drive for SAS/SATA 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.

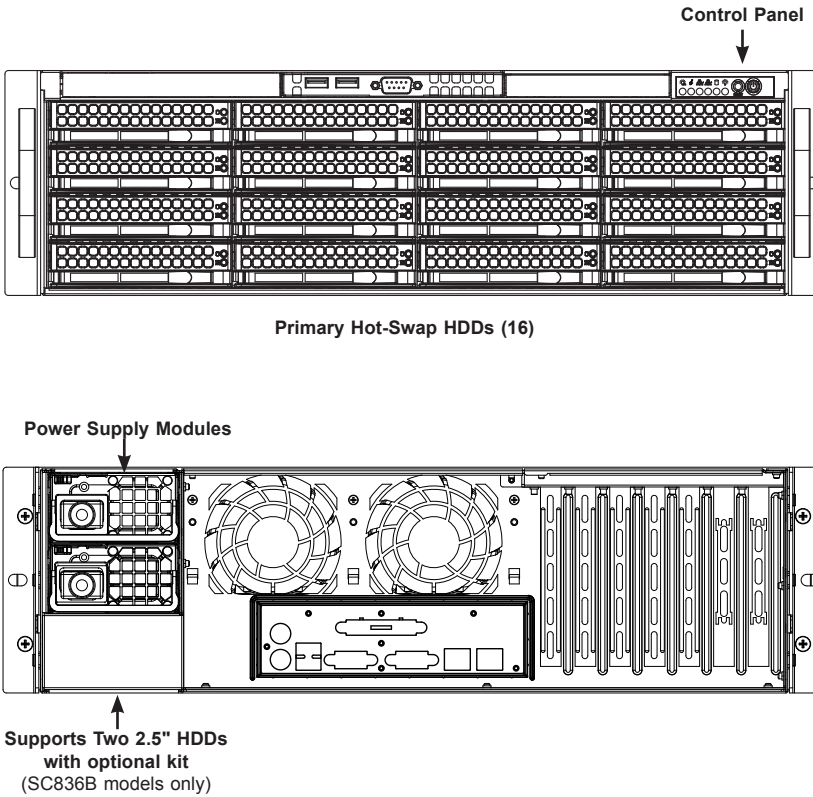


Figure 4-1. Front and Rear View

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

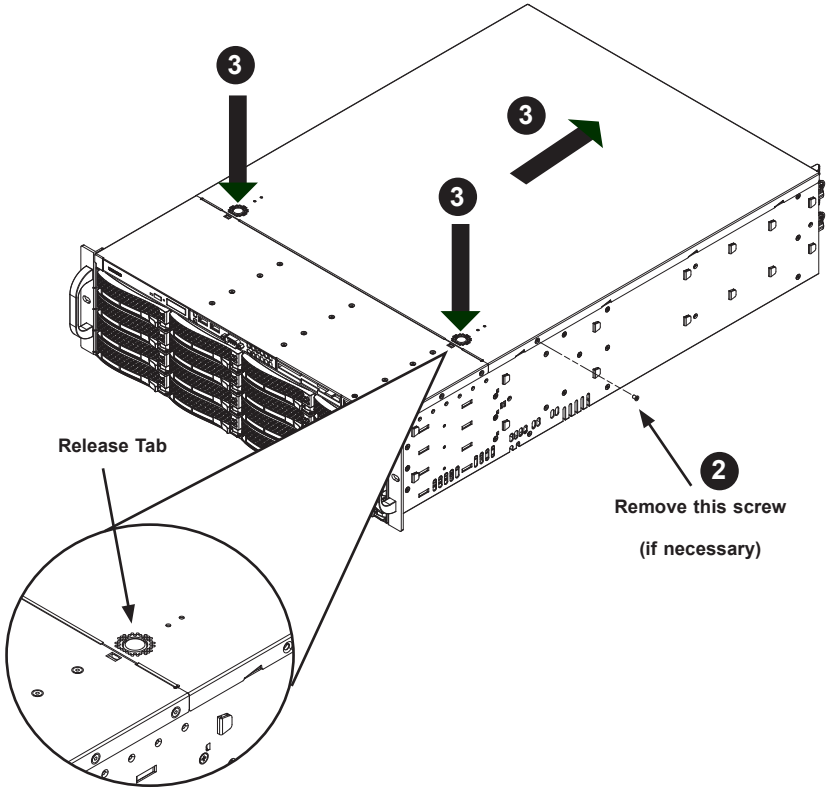


Figure 4-2. Removing the Chassis Cover

Removing the Chassis Cover

1. If necessary, unplug the chassis from any power source
2. If necessary, 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.

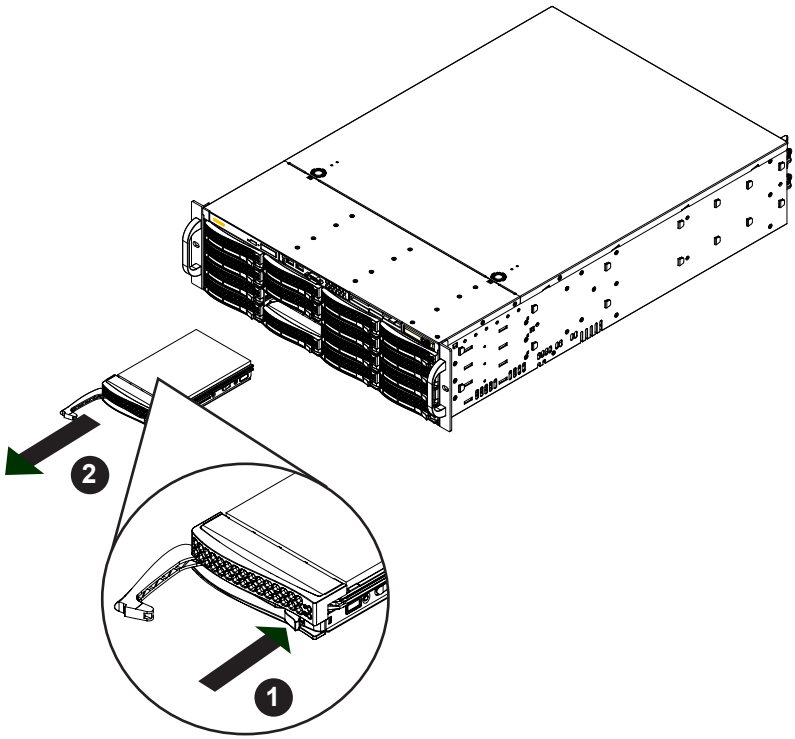


Figure 4-3. Removing Hard Drive

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.

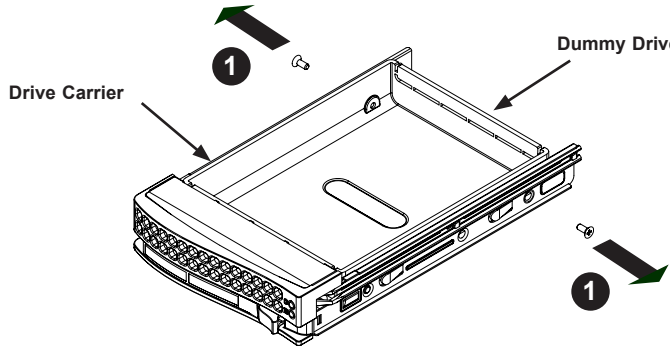


Figure 4-4. Removing the Dummy Drive from the Carrier

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.

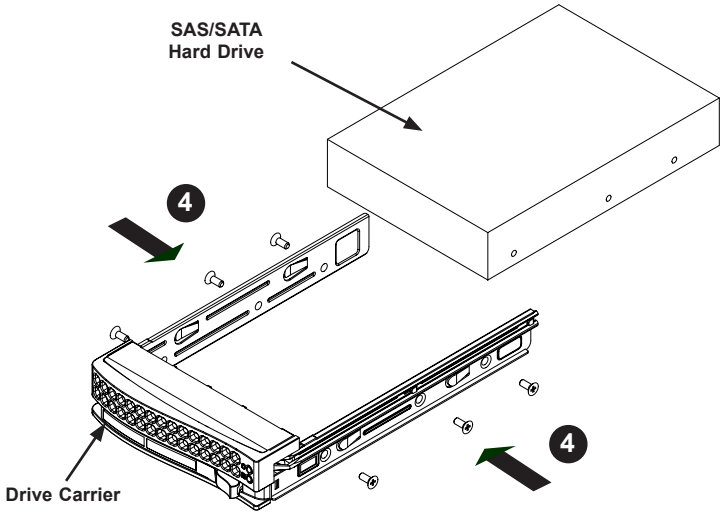


Figure 4-5. Installing the Hard Drive into the Carrier

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.

Optional HDDs in the Rear of the Chassis

Chassis models SC836Bxx... offer the option of adding two hot-swap 2.5" hard disk drives accessable from the rear of the chassis. It requires the kit, MCP-220-83605-0N.

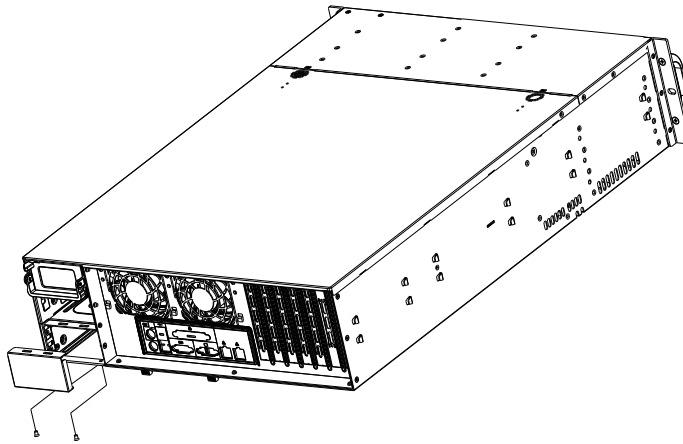


Figure 4-6. Removing the Cover Plate

Installing the Hot-Swap Drive Kit

(A more detailed procedure can be found in Appendix D.)

1. Remove the small external cover plate from the rear of the chassis by removing the screws under the chassis.

2. From the kit, on the mounting cage at the end opposite where the drives will be inserted, mount the small PCB backplane using three screws.

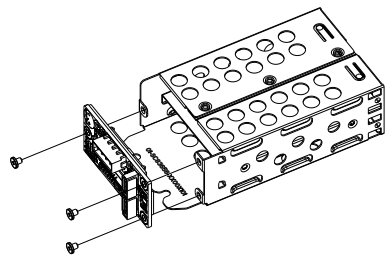


Figure 4-7. Attaching the PCB Backplane to the Hot-Swap HDD Cage

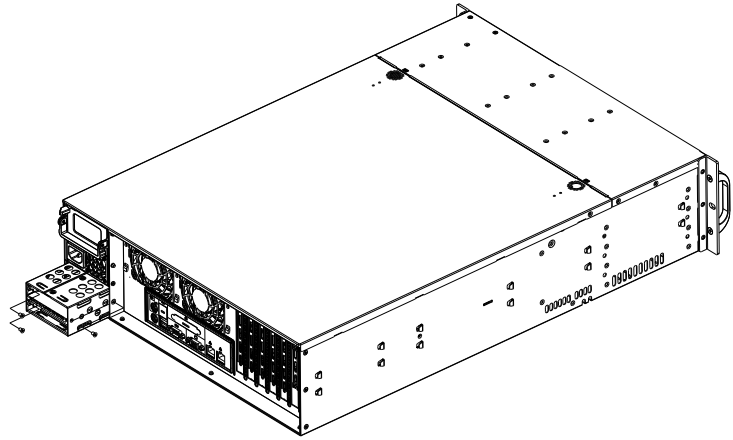


Figure 4-8. Installing Rear Hot-Swap Drives

3. Attach cables to the small PCB backplane. Route the cables into the chassis and through the chassis opening under the power supplies.

4. Insert the drive cage assembly into the chassis carefully following the cables. Secure the cage with screws through the bottom of the chassis.

5. Attach power and data cables to the power distributor and the serverboard.

6. Slide two 2.5" hard drives mounted in hard drive carriers into the tray.

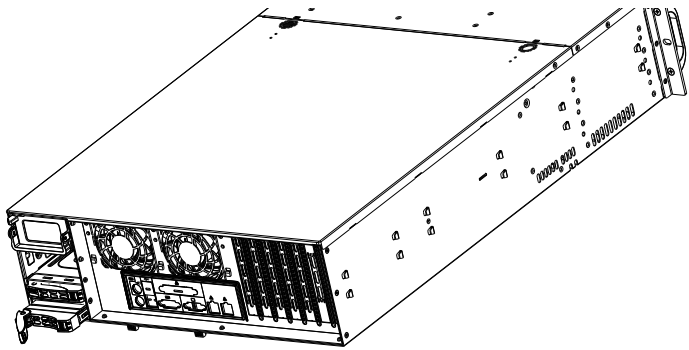


Figure 4-9. Inserting the Rear Drives

4-5 Expansion Cards

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

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.

4-6 Installing the Air Shroud

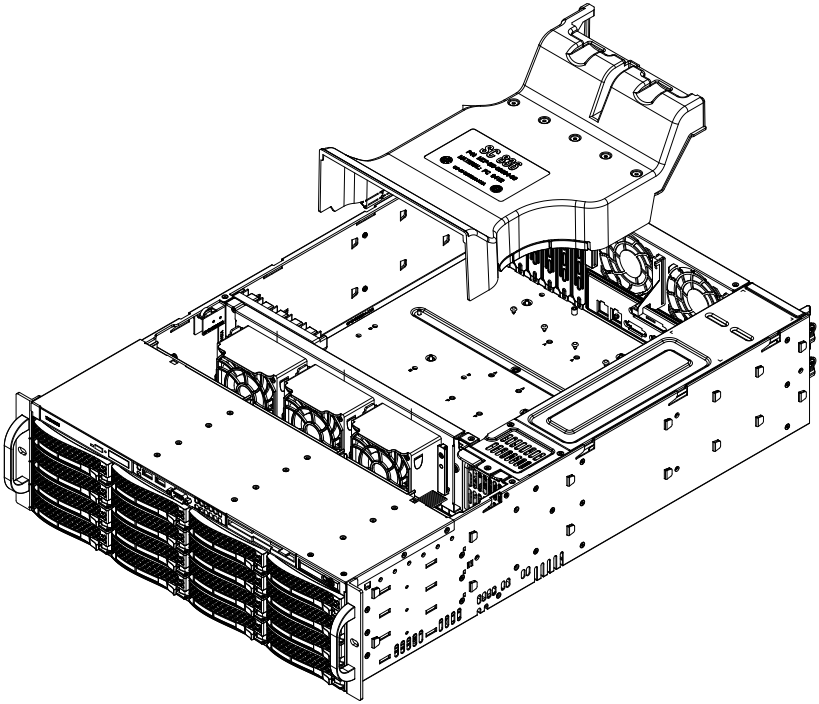


Figure 4-10. Air Shroud Installation

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.

4-7 System Fans

Three hot-swappable, heavy-duty fans provide cooling from the middle of the chassis, augmented by two rear exhaust fans.

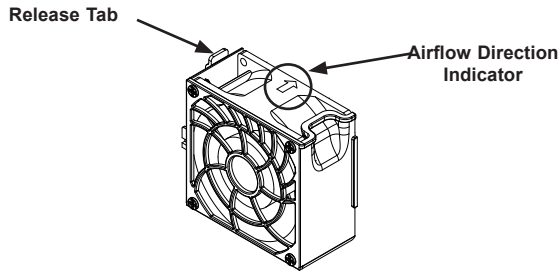


Figure 4-11. System Fan

Replacing a System Fan

1. Open the chassis while the power is running to determine which fan has failed. (Never run the server for an extended period of time with the chassis cover open.)

2. Remove the failed fan's power cord from the serverboard.

3. Press the fan release tab to lift the failed fan from the chassis and pull it completely out of the chassis.

4. 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.

5. Check that the fan is working properly before replacing the chassis cover.

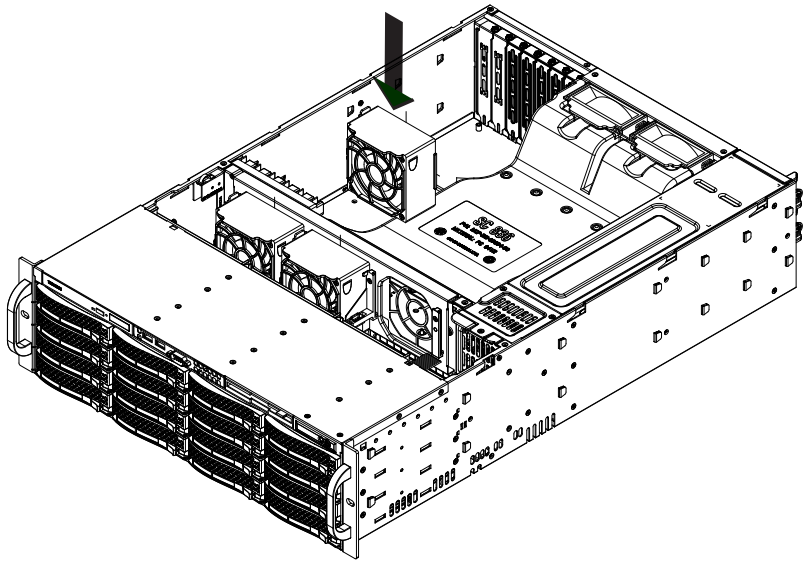


Figure 4-12. Placing the System Fan

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.

4-8 Power Supply

The chassis has a redundant power supply. Redundant power supplies are hot-swappable, and can be changed without powering down the system. New units can be ordered directly from Supermicro.

This power supply is auto-switching capable. This enables it to automatically sense and operate at a 100v to 240v input voltage. 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.

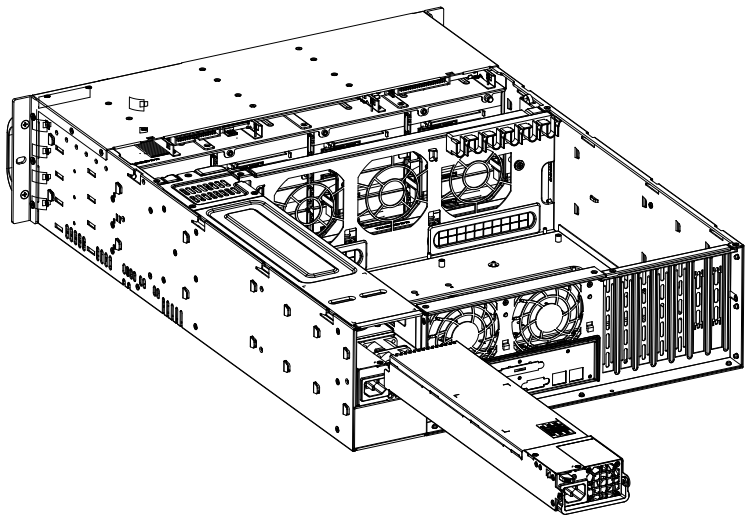


Figure 4-13. Power Supply Module

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.

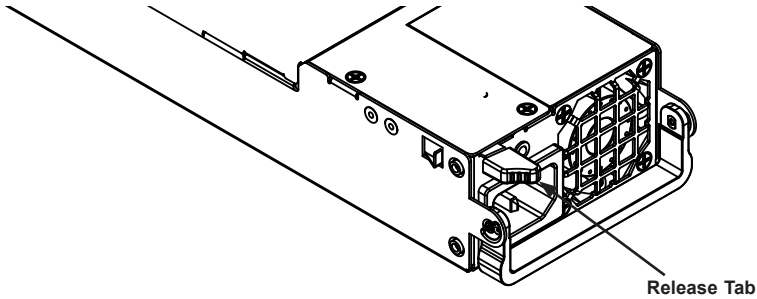


Figure 4-14. Power Supply Release Tab

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.

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.

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 Installing the System into a Rack

This section provides information on installing the server into a rack with the rails provided. There are a variety of racks on the market, so the assembly procedure may differ slightly. Refer to the installation instructions that came with your rack. **Note:** These rails fit a rack between 26.5" and 36.4" deep.

Identifying the Sections of the Rack Rails

The chassis package includes two rail assemblies, one designed and labeled for each side of the chassis. Each assembly consists of an inner rail that secures directly to the chassis, and an outer rail that secures to the rack. The outer rail has two sections that can slide and adjust to fit your rack depth.

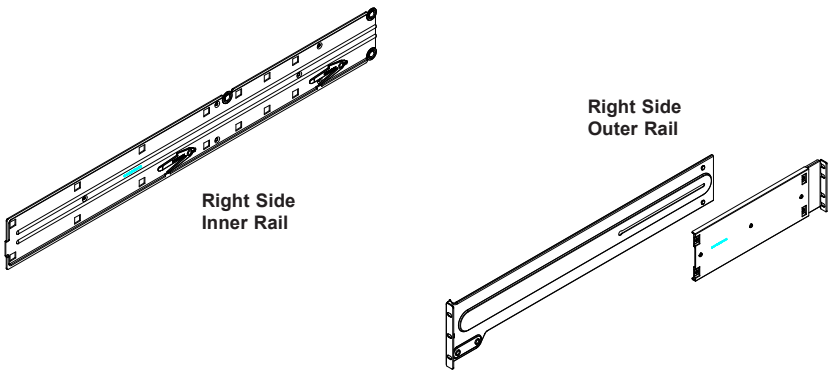


Figure 5-1. Identifying the Rails

Releasing the Inner Rail

Each inner rail has a locking latch. This latch prevents the server from coming completely out of the rack when when the chassis is pulled out for servicing.

To mount the rail onto the chassis, first release the inner rail from the outer rails.

Releasing Inner Rail from the Outer Rails

1. Pull the inner rail out of the outer rail until it is fully extended as illustrated below.
2. Press the locking tab down to release the inner rail.
3. Pull the inner rail all the way out..

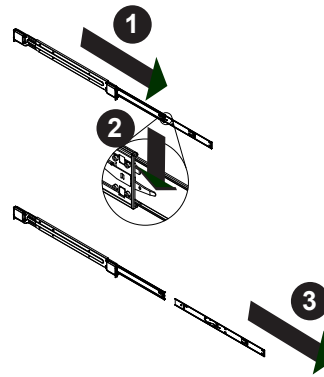


Figure 5-2. Extending and Releasing the Inner Rail

Installing the Inner Rails on the Chassis

Installing the Inner Rails

1. Identify the left and right inner rails. They are labeled.
2. Place the inner rail firmly against the side of the chassis, aligning the hooks on the side of the chassis with the holes in the inner rail.
3. Slide the inner rail forward toward the front of the chassis until the quick release bracket snaps into place, securing the rail to the chassis.
4. Optionally, you can further secure the inner rail to the chassis with screws. .

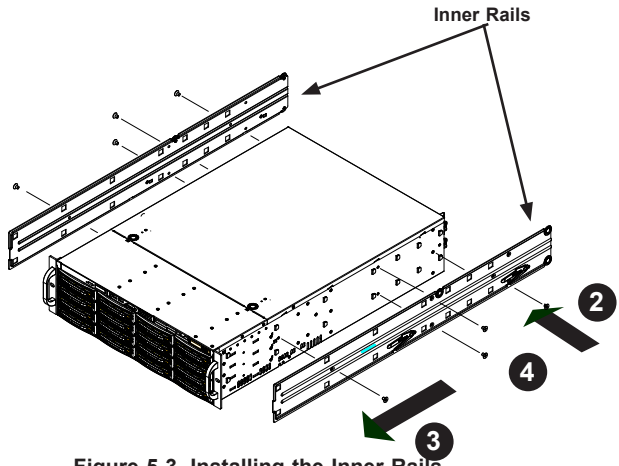


Figure 5-3. Installing the Inner Rails

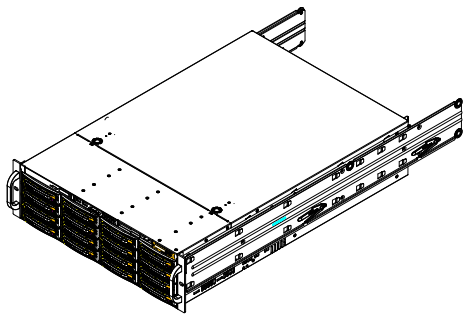


Figure 5-4. Inner Rails Installed on the Chassis

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.

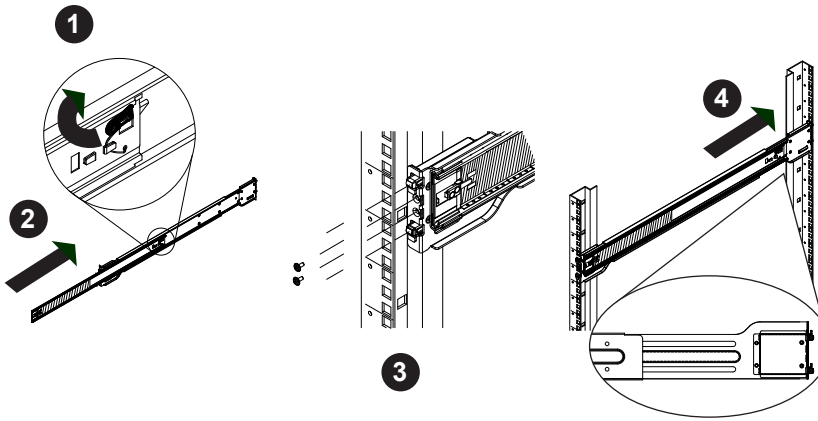


Figure 5-5. Extending and Mounting the Outer Rails

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.

Sliding the Chassis onto the Rack Rails

Warning: Mounting the system into the rack requires at least two people to support the chassis during installation. Please follow safety recommendations printed on the rails.

Installing the Chassis into a Rack

1. Align the inner rails of the chassis with the outer rails on the rack.
2. Slide the inner rails into the outer rails, keeping the pressure even on both sides. When the chassis has been pushed completely into the rack, it should click into the locked position.
3. Optionally, screws may be used to hold the front of the chassis to the rack.

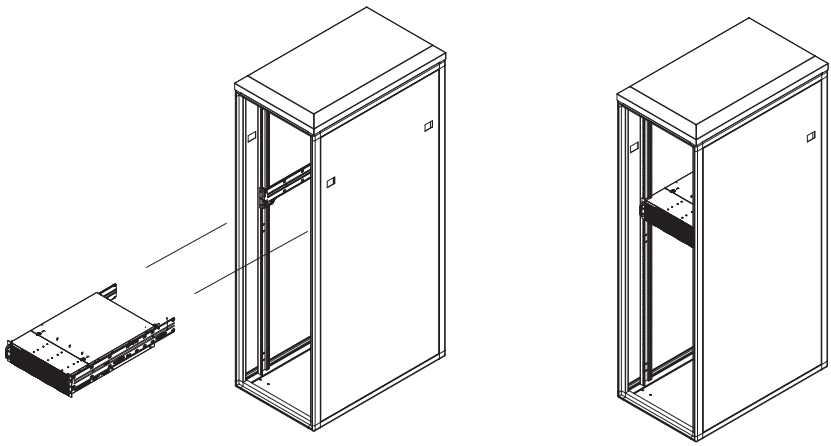


Figure 5-6. Installing into a Rack

Note: The figure above is for illustrative purposes only. Always install servers to the bottom of the rack first.

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

Appendix A

Cables

This appendix describes cables compatible with your chassis system. Some motherboards require non-standard cables. More information may be obtained from the manufacturer of the motherboard or our web site at: www.supermicro.com.

A-1 Standard and Optional Cables for SC836 Models

The tables below list included and optional cables available by model and by the Supermicro cable part number. A brief description of each cable by part number follows.

	836BE1C	836BE2C	836BHA	836BHE16	836BHE26	836BE16	836BE26	836BA
CBL #						**2 models**	**2 models**	**2 models**
0071L	•	•	•	•	•	•	•	•
0088L	•	•						
Cables listed below are optional								
0084			•	•	•	•	•	•
0157L			•	•	•	•	•	•
0044L			•	•	•	•	•	•
0082L			•	•	•	•	•	•
0296L			•	•	•	•	•	•
0108L-02			•	•	•	•	•	•
0281L			•	•	•	•	•	•

	836E16		836E26	836A	836TQ		
CBL #	**-R500B**	**-R1200B**	**-R1200B**		**-R800B/V**	**-R710B**	**-R500B**
0071L	•	•	•	•	•	•	•
0088L							
0180L-01					•	•	•
0087		•		•	•	•	
0078					•		
0139L					•		

	836E16		836E26	836A	836TQ		
CBL #	**-R500B**	**-R1200B**	**-R1200B**		**-R800B/V**	**-R710B**	**-R500B**
Cables listed below are optional							
0084	•	•	•	•	•		
0157L	•	•	•	•	•		
0044L	•	•	•	•	•	•	•
0082L	•	•	•	•	•	•	•
0296L	•	•	•	•	•	•	•
0108L-02	•	•	•	•			
0281L	•	•	•	•			

Cable Description by Part Number	
CBL #	**Description**
0071L	Front panel, Round 16-pin to 16 Pin Ribbon FP cable 75cm. 28AWG
0088L	Fan, 10.5" 4-pin Middle fan power extension (PWM). 24AWG
0180L-01	SATA Cable Set
0087	20" 16-pin to 16-pin Round Ribbon Cable
0078	floppy, 45cm Round Floppy Cable
0139L	DVD drive 50cm Cable
0084	Split Front Panel Cable
0157L	SGPIO, 8-pin to 8-pin Ribbon Cable for SGPIO (For Additonal Drives)
0044L	SATA S-S, 61cm
0082L	SATA Power Y Split Adapter
0296L	Fan, 4-pin fan extension cord, 9" length
0108L-02	SFF 8087 to SFF 8087 Internal Backplane Cable, 39cm
0281L	SFF 8087 to SFF 8087 Internal Backplane Cable, 75cm

A-2 SAS Cables

Some compatible motherboards have varying types of SAS connectors. This section lists optional compatible cables. **Note**: For SAS2 or SAS3, see Appendix C.

Alternate SAS Cables

If your motherboard has only one SAS connector that the SAS cables must share, use one of the following cables. These cables must be purchased separately.

Cable Name: SAS Cable
Quantity: 1
Part #: CBL-0175L
Placement: Internal cable
Alt. Name: "Big Four"

Description: This cable has one SFF-8484 (32-pin) connector on one end and four SAS connectors (7 pins each) at the other. This cable connects from the host (motherboard or other controller) to the backplane SAS hard drive port.

Cable Name: SAS Cable
Quantity: 1
Part #: CBL-0116
Placement: Internal cable
Alt. Name: iPass or "Small Four"

Description: This cable has one iPass (SFF-8087/Mini-SAS) connector (36-pin) at one end and four SAS connectors on the opposite end. This cable connects from the host (motherboard or other controller) to the backplane SAS hard drive port.

Cascading/JBOD SAS Cables

Use the following cables when setting up a cascading or JBOD system.



Cable Name: SAS Cable
Quantity: varies by setup
Part #: CBL-0167L
Placement: Internal cable
Ports: Single

Description: Internal cable. Connects the backplane to the host bus adapter or external port. Used in single port environments.



Cable Name: SAS Cable
Part #: CBL-0168L
Ports: Dual
Quantity: varies by setup
Placement: Internal cable

Description: Internal cascading cable. Connects the backplane to the host bus adapter or external port. Used in dual port environments.



Cable Name: SAS Cable
Part #: CBL-0166L
Ports: Single or Dual
Quantity: varies by setup
Placement: External cable

Description: External cascading cable. Connects ports between servers. With most connectors, use one cable for single port connections and two cables for dual port connections.

A-3 Extending Power Cables

Some compatible motherboards have power connectors in locations that require extended power cables. Use the following chart as a guide.

Power Cable Extenders		
Number of Pins	**Cable Part #**	**Length**
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)

A-4 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.

Front Panel to Motherboard Cable (Ribbon Cable)		
Number of Pins (Front Panel)	**Number of Pins (Motherboard)**	**Cable Part #**
16-pin	16-pin	CBL- 049
16-pin	20-pin	CBL-0048
20-pin	20-pin	CBL-0047
16-pin	varies	CBL-0068
20-pin	various*	CBL-0067

* Split cables: Use these cable if your motherboard requires several different connections from the front panel.

Notes

Appendix B

SC836 Power Supply Specifications

This appendix lists power supply specifications for your chassis system.

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

1200W (Redundant)	
MFR Part #	PWS-1K21P-1R
AC Input	100 - 140V, 50 - 60Hz, 8 - 11.5 Amp 180 - 240V, 50 - 60Hz, 5.5 - 8 Amp
DC Output +12V	1000W, 83 Amp @ 100-140V 1200W, 100 Amp @ 180-240V 5Vsb: 4A
DC Output with PDB	+5V: 50 Amp +3.3V: 30 Amp -12V: 0.6 Amp

1000W (Redundant)	
MFR Part #	PWS-1K03A-1R
AC Input	100-240V, 11-4.5A, 50-60Hz
DC Output	+12V/75A; +5Vsb/4A

920W (Redundant)	
MFR Part #	PWS-920P-SQ
AC Input	100-240V, 11-4.5A, 50-60Hz
DC Output	+12V/75A; +5Vsb/4A

800W (Redundant)	
MFR Part #	PWS-801-1R
Rated AC Voltage	100 - 240V 50 - 60Hz 10A - 4 Amp
+5V standby	4 Amp
+12V	66 Amp
+5V	25 Amp
+3.3V	12 Amp

710W (Redundant)	
MFR Part #	PWS-711-1R
Rated DC Input Voltage	Voltage Range: -36 to -75V (24A-11A) Nominal Voltage: -48V
+5V standby	4 Amp
+12V	58 Amp
+5V	24 Amp
+3.3V	21 Amp
-12V	0.6 Amp

500W (Redundant)	
MFR Part #	PWS-501P-1R
AC Input	100-240 V, 50-60 Hz, 6.1-2.6 Amp
DC Output	4 Amp @ +5V standby 41.7 Amp @ +12V
+5V	30 Amp
+3.3V	24 Amp
-12V	0.6 Amp

Appendix C

Backplane Specifications

C-1 Overview

This appendix provides details about the backplanes used in the various models of the SC836 chassis.

Model	Backplane	Section
SC836BE1C-R1K03B	BPN-SAS3-836EL1	C-6
SC836BE2C-R1K03B	BPN-SAS3-836EL2	C-6
SC836BHA-R1K28B	BPN-SAS-836A	C-3
SC836BHE16-R1K28B	BPN-SAS2-836EL1	C-5
SC836BHE26-R1K28B	BPN-SAS2-836EL2	C-5
SC836BE16-R1K28B	BPN-SAS2-836EL1	C-5
SC836BE26-R1K28B	BPN-SAS2-836EL2	C-5
SC836BA-R1K28B	BPN-SAS-836A	C-3
SC836BE16-R920B	BPN-SAS2-836EL1	C-5
SC836BE26-R920B	BPN-SAS2-836EL2	C-5
SC836BA-R920B	BPN-SAS-836A	C-3
SC836TQ-R500B	BPN-SAS-836TQ	C-4
SC836E16-R500B	BPN-SAS2-836EL1	C-5
SC836E16-R1200B	BPN-SAS2-836EL1	C-5
SC836E26-R1200B	BPN-SAS2-836EL2	C-5
SC836A-R1200B	BPN-SAS-836A	C-3
SC836TQ-R800V/B	BPN-SAS-836TQ	C-4
SC836TQ-R710B	BPN-SAS-836TQ	C-4

All images and layouts shown in this guide are based upon the latest PCB revision available at the time of publishing. Your backplane may or may not look exactly the same. Refer to the Supermicro web site at www.supermicro.com for the latest updates, compatible parts and supported configurations.

C-2 Safety Guidelines

ESD Safety Guidelines

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 backplane and peripherals back into their antistatic bags when not in use.

General Safety Guidelines

- 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-3 BPN-SAS-836A Backplane

Front Connectors

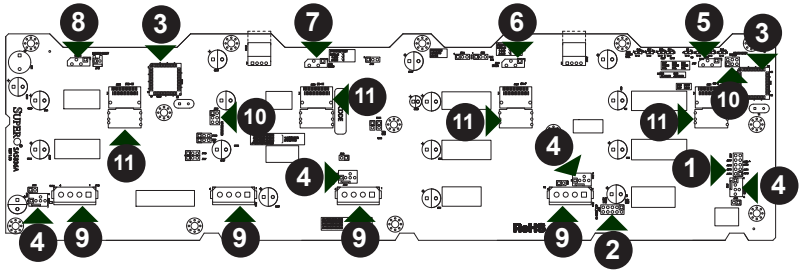


Figure A-1. Front Connectors

#1. Activity LED Header ACT_IN#0-7: JP26
#2. Activity LED Header ACT_IN#8-15: JP47
#3. Chip: MG9072
#4. Fan Connectors: JP54, JP56, JP58 and JP60
#5. I²C Connector#1 JP37
#6. I²C Connector#2 JP95
#7. I²C Connector#3 JP52
#8. I²C Connector#4 JP96
#9. Power Connectors (4-pin): JP10, JP13, JP46, and JP48
#10. Upgrade Connectors: JP69 and JP78
#11. IPASS Connectors JSM1, JSM2, JSM3 and JSM4

Front Connector and Pin Definitions

#1 - #2. Activity LED Header

The activity LED headers, designated JP26 and JP47, are used to indicate the activity status of each SAS drive. These activity LED headers are used by the host controller for the SATA drives that previously had no activity status output. If using a SAS drive, and for most SATA drives, these activity headers are not required.The Activity LED Header is located on the front panel. For the Activity LED Header to work properly, connect using a 10-pin LED cable.

SAS Activity LED Header Pin Definitions

Pin #	Definition	Pin #	Definition
1	ACT IN#0	6	ACT IN#4
2	ACT IN#1	7	ACT IN#5
3	ACT IN#2	8	ACT IN#6
4	ACT IN#3	9	ACT IN#7
5	Ground	10	Empty

SAS Activity LED Header Pin Definitions

Pin #	Definition	Pin #	Definition
1	ACT IN#8	6	ACT IN#12
2	ACT IN#9	7	ACT IN#13
3	ACT IN#10	8	ACT IN#14
4	ACT IN#11	9	ACT IN#15
5	Ground	10	Empty

#3. MG9072 Chips

The MG9072 chips are enclosure management chips that support the SES-2 controller and SES-2 protocols.

#4. Fan Connectors

The 4-pin connectors, designated JP54, JP56, JP58 and JP60, provide power to the fans. See the table on the right for pin definitions. These 4-pin connectors are compatible with 3-pin and 4-pin fans.

Fan Connectors

Pin#	Definition
1	Ground
2	+12V
3	Tachometer
4	No connection

#5., #6., #7., #8. I²C Connectors

The I²C connectors, designated JP37, JP52, JP95, and JP96, are for enclosure management of the I²C mode connection. See the table on the right for pin definitions.

I²C Y-Cable Connector Pin Definitions

Pin#	Definition
1	Data
2	Ground
3	Clock
4	No Connection

#9. Backplane Main Power Connectors

The 4-pin connectors, designated JP10, JP13, JP46, and JP48, provide power to the backplane. See the table on the right for pin definitions. All four of these connectors must be used at the same time.

Backplane Main Power 4-Pin Connector

Pin#	Definition
1	+12V
2 and 3	Ground
4	+5V

#10. Upgrade Connectors

The upgrade connectors are designated JP69 (for U19) and JP78 (for U40). Upgrade connectors are for manufacturing use only.

Front Jumper Locations and Pin Definitions

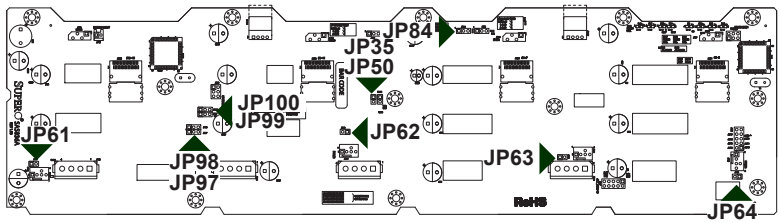
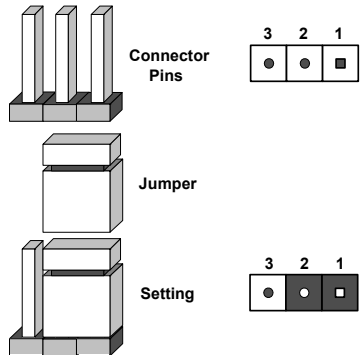


Figure A-2. Front Jumpers

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.



General Jumper Settings		
Jumper	**Jumper Settings**	**Note**
JP35	Open: Default Closed: Reset	MG9072 chip reset #1
JP50	Open: Default Closed: Reset	MG9072 chip reset #2

Fan Jumper Settings

The BPN-SAS-836A backplane can use up to four fans. To utilize each fan, both jumpers must be configured as instructed below.

Fan Jumper Settings		
Jumper	**Jumper Settings**	**Note**
JP61	Closed: With fan (default) Open: No fan	Fan#1 enable/disable
JP54		Fan#1 connector
JP62	Closed: With fan (default) Open: No fan	Fan#2 enable/disable
JP56		Fan#2 connector
JP63	Closed: With fan (default) Open: No fan	Fan#3 enable/disable
JP58		Fan#3 connector
JP64	Closed: With fan (default) Open: No fan	Fan#4 enable/disable
JP60		Fan#4 connector
JP97	1-2 With fan (default) 2-3 No fan	Fan #1 selection for MG907X Monitor
JP99	1-2 With fan (default) 2-3 No fan	Fan #2 selection for MG907X Monitor
JP100	1-2 With fan (default) 2-3 No fan	Fan #3 selection for MG907X Monitor
JP100	1-2 With fan (default) 2-3 No fan	Fan #4 selection for MG907X Monitor

I²C and SGPIO Modes and Jumper Settings

This backplane can utilize I²C or SGPIO. SGPIO is the default mode and can be used without making changes to your jumpers. The following information details which jumpers must be configured to use SGPIO mode or restore your backplane to I²C mode.

SGPIO/I²C Setting		
Jumper	**SGPIO Jumper Setting**	**I²C Jumper Setting**
JP84	1-2 (default)	2-3

Front LED Indicators

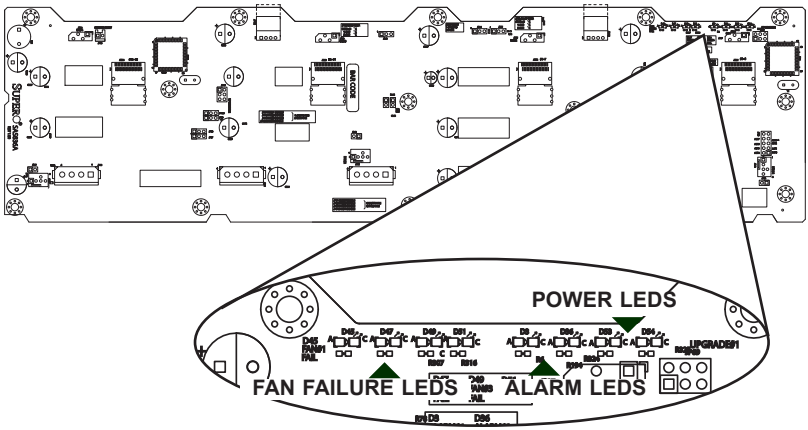


Figure A-3. Front LEDs

Front LEDs		
LED	**State**	**Specification**
Fan #1 Fail	On	Fan #1 failure
Fan #2 Fail	On	Fan #2 failure
Fan #3 Fail	On	Fan #3 failure
Fan #4 Fail	On	Fan #4 failure
Alarm #1	On	Overheat/fan failure/drive failure in Channel 1
Alarm #2	On	Overheat/fan failure/drive failure in Channel 2
+5V	Off	Backplane power failure. Light is on during normal operation.
+12V	Off	Backplane power failure. Light is on during normal operation.

Rear Connectors and LED Indicators

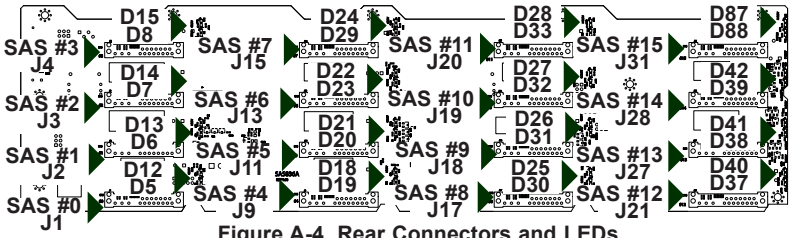


Figure A-4. Rear Connectors and LEDs

Rear SAS/SATA Connectors			
Rear Connector	**SAS Drive Number**	**Rear Connector**	**SAS Drive Number**
SAS #0	SAS/SATA HDD #0	SAS #8	SAS/SATA HDD #8
SAS #1	SAS/SATA HDD #1	SAS #9	SAS/SATA HDD #9
SAS #2	SAS/SATA HDD #2	SAS #10	SAS/SATA HDD #10
SAS #3	SAS/SATA HDD #3	SAS #11	SAS/SATA HDD #11
SAS #4	SAS/SATA HDD #4	SAS #12	SAS/SATA HDD #12
SAS #5	SAS/SATA HDD #5	SAS #13	SAS/SATA HDD #13
SAS #6	SAS/SATA HDD #6	SAS #14	SAS/SATA HDD #14
SAS #7	SAS/SATA HDD #7	SAS #15	SAS/SATA HDD #15

Rear LED Indicators		
Rear LED	**Hard Drive Activity**	**Failure LED**
SAS #0	D12	D5
SAS #1	D13	D6
SAS #2	D14	D7
SAS #3	D15	D8
SAS #4	D18	D19
SAS #5	D21	D20
SAS #6	D22	D23
SAS #7	D24	D29
SAS #8	D25	D30
SAS #9	D26	D31
SAS #10	D27	D32
SAS #11	D28	D33
SAS #12	D40	D37
SAS #13	D41	D38
SAS #14	D42	D39
SAS #15	D87	D88

C-4 BPN-SAS-836TQ Backplane

Front Connectors

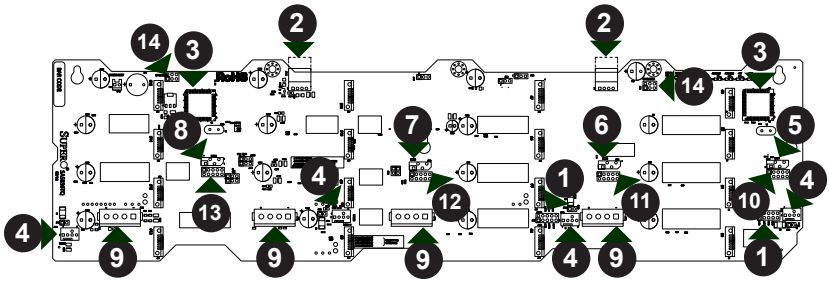


Figure TQ-1. Front Components

#1. ACT_IN#0-15: JP26 and JP47
#2. DVD-ROM Drive Power: JP105 and JP106
#3. Chip: MG9072
#4. Fan Connectors: JP54, JP56, JP58 and JP60
#5. I²C Connector#1 JP37
#6. I²C Connector#2 JP95
#7. I²C Connector#3 JP52
#8. I²C Connector#4 JP96
#9. Power Connectors (4-pin): JP10, JP13, JP46, and JP48
#10. SideBand Connector#1 JP66
#11. SideBand Connector#2 JP68
#12. SideBand Connector#3 JP75
#13. SideBand Connector#4 JP77
#14. Upgrade Connector: JP69, JP78
#15. SAS Port #0 J5
#16. SAS Port #1 J6
#17. SAS Port #2 J7
#18. SAS Port #3 J8
#19. SAS Port #4 J10
#20. SAS Port #5 J12
#21. SAS Port #6 J14
#22. SAS Port #7 J16
#23. SAS Port #8 J22
#24. SAS Port #9 J23
#25. SAS Port #10 J24
#26. SAS Port #11 J25
#27. SAS Port #12 J26
#28. SAS Port #13 J29
#29. SAS Port #14 J30
#30. SAS Port #15 J32

SAS Ports

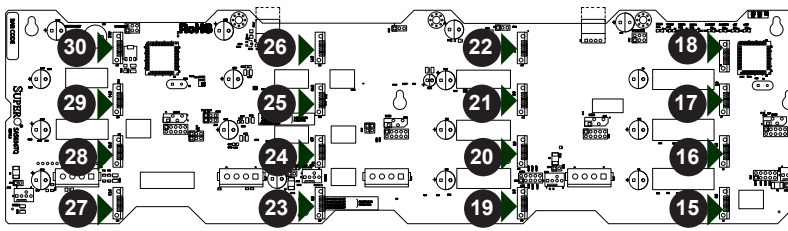


Figure TQ-2. SAS Ports

Front Connector and Pin Definitions

#1. Activity LED Header

The activity LED headers, designated JP26 and JP47, are used to indicate the activity status of each SAS drive. These activity LED headers are used by the host controller for the SATA drives that previously had no activity status output. If using a SAS drive, and for most SATA drives, these activity headers are not required.The Activity LED Header is located on the front panel. For the Activity LED Header to work properly, connect using a 10-pin LED cable.

SAS Activity LED Header Pin Definitions

Pin #	Definition	Pin #	Definition
1	ACT IN#0	6	ACT IN#4
2	ACT IN#1	7	ACT IN#5
3	ACT IN#2	8	ACT IN#6
4	ACT IN#3	9	ACT IN#7
5	Ground	10	Empty

SAS Activity LED Header Pin Definitions

Pin #	Definition	Pin #	Definition
1	ACT IN#8	6	ACT IN#12
2	ACT IN#9	7	ACT IN#13
3	ACT IN#10	8	ACT IN#14
4	ACT IN#11	9	ACT IN#15
5	Ground	10	Empty

#2. CD-ROM 4-Pin Connectors

The 4-pin connectors, designated JP105 and JP106, provide power to the CD-ROM drives. See the table on the right for pin definitions.

CD-ROM/ FDD Power 4-Pin Connector

Pin#	Definition
1	+5V
2 and 3	Ground
4	+12V

#3. MG9072 Chip

The MG9072 is an enclosure management chip that supports the SES-2 controller and SES-2 protocols.

#4. Fan Connectors

The 4-pin connectors, designated JP54, JP56, JP58 and JP60, provide power to the fans. See the table on the right for pin definitions. These 4-pin connectors are compatible with 3-pin and 4-pin fans.

Fan Connectors

Pin#	Definition
1	Ground
2	+12V
3	Tachometer
4	No connection

#5., #6., #7., #8. I²C Y-Cable Connectors

The I²C Y-cable connectors, designated JP37, JP52, JP95, and JP96, are for enclosure management of the I²C mode connection. These connectors are used only if the I²C is not embedded into the sideband connectors. See the table on the right for pin definitions.

I²C Y-Cable Connector Pin Definitions

Pin#	Definition
1	Data
2	Ground
3	Clock
4	No Connection

#9. Backplane Main Power Connectors

The 4-pin connectors, designated JP10, JP13, JP46, and JP48, provide power to the backplane. See the table on the right for pin definitions. All four of these connectors must be used at the same time.

Backplane Main Power 4-Pin Connector

Pin#	Definition
1	+12V
2 and 3	Ground
4	+5V

#10., #11., #12., #13. Sideband Headers

The sideband headers are designated JP66, JP68, JP75 and JP77. are for enclosure management of the SGPIO mode connection. See the table to the right for pin definitions.

Sideband Headers

Pin #	Definition	Pin #	Definition
2	**SGPIO:** SDIN **I²C:** Backplane Addressing (SB5)	1	Controller ID (SB6)
4	**SGPIO:** SDOUT **I²C:** Reset (SB4)	3	GND (SB2)
6	GND (SB3)	5	**SGPIO:** SLOAD **I²C:**SDA (SB1)
8	Backplane ID (SB7)	7	**SGPIO:** SCLOCK **I²C:**SCL (SB0)
10	No Connection	9	No Connection

#14. Upgrade Connectors

The upgrade connectors are designated JP69 (for U19) and JP78 (for U40). Upgrade connectors are for manufacturing use only.

#15-#30. SAS Ports

The SAS ports are used to connect the SAS drive cables. The 16 ports are designated #0 - #15. Each port is also compatible with SATA drives.

Front Jumper Locations and Pin Definitions

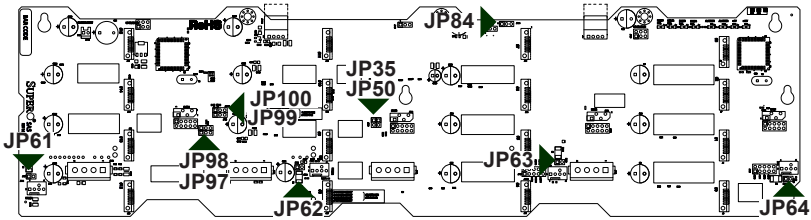
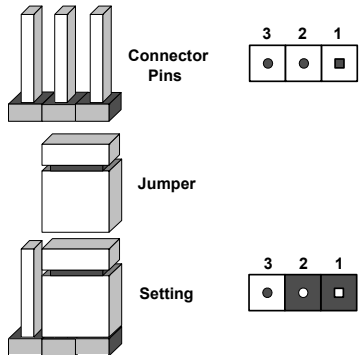


Figure TQ-3. Jumpers

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.

General Jumper Settings		
Jumper	**Jumper Settings**	**Note**
JP35	Open: Default Closed: Reset	9072 Chip Reset #1
JP50	Open: Default Closed: Reset	9072 Chip Reset #2

Fan Jumper Settings

The BPN-SAS-836TQ backplane can use up to four fans. To utilize each fan, you must configure both jumpers as instructed below.

Fan Jumper Settings		
Jumper	**Jumper Settings**	**Note**
JP61	Closed: With fan (default) Open: No fan	Fan#1 enable/disable
JP54		Fan#1 connector
JP62	Closed: With fan (default) Open: No fan	Fan#2 enable/disable
JP56		Fan#2 connector
JP63	Closed: With fan (default) Open: No fan	Fan#3 enable/disable
JP58		Fan#3 connector
JP64	Closed: With fan (default) Open: No fan	Fan#4 enable/disable
JP60		Fan#4 onnector
JP97	1-2 With fan (default) 2-3 No fan	Fan #1 selection for MG907X Monitor
JP98	1-2 With fan (default) 2-3 No fan	Fan #2 selection for MG907X Monitor
JP99	1-2 With fan (default) 2-3 No fan	Fan #3 selection for MG907X Monitor
JP100	1-2 With fan (default) 2-3 No fan	Fan #4 Sselection for MG907X Monitor

I²C and SGPIO Modes and Jumper Settings

This backplane can utilize I²C or SGPIO. SGPIO is the default mode and can be used without making changes to your jumpers. The following information details which jumpers must be configured to use SGPIO mode or restore your backplane to I²C mode.

SGPIO/I2C Settings		
Jumper	**SGPIO Setting**	**I²C Setting**
JP84	1-2 (default)	2-3

SAS Port Connections in I²C and SGPIO Settings

Use the following chart when connecting this backplane. If you connect the SAS ports out of order, you will not able to easily identify drives using the LED function.

SAS Port Connections in I²C and SGPIO Settings		
Port #	**I²C**	**SGPIO**
# 0 - 3	I²C #1	Sideband #1
# 4 - 7	I²C #2	Sideband #2
# 8 - 11	I²C #3	Sideband #3
# 12 - 15	I²C #4	Sideband #4

Front LED Indicators

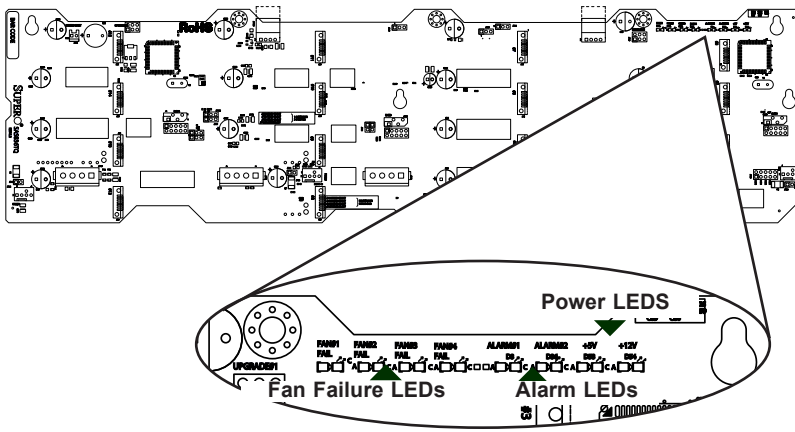
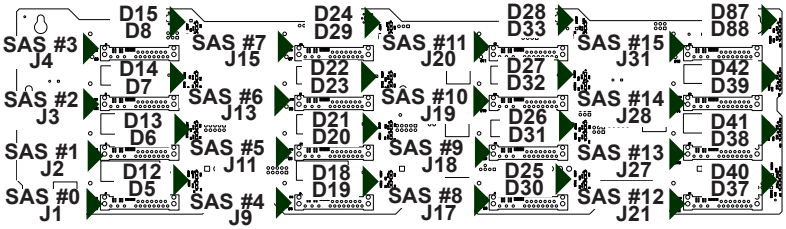


Figure TQ-4. Front LEDs

Front Pane LEDs		
LED	**State**	**Specification**
Fan #1 Fail	On	Failure in Fan #1
Fan #2 Fail	On	Failure in Fan #2
Fan #3 Fail	On	Failure in Fan #3
Fan #4 Fail	On	Failure in Fan #4
Alarm #1	On	Overheat/fan failure/drive failure in Channel 1
Alarm #2	On	Overheat/fan failure/drive failure in Channel 2
+5V	Off	Backplane power failure. Light is on during normal operation.
+12V	Off	Backplane power failure. Light is on during normal operation.

Rear Connectors and LED Indicators



Rear SAS/SATA Connectors			
Rear Connector	**SAS Drive Number**	**Rear Connector**	**SAS Drive Number**
SAS #0	SAS/SATA HHD #0	SAS #8	SAS/SATA HHD #8
SAS #1	SAS/SATA HHD #1	SAS #9	SAS/SATA HHD #9
SAS #2	SAS/SATA HHD #2	SAS #10	SAS/SATA HHD #10
SAS #3	SAS/SATA HHD #3	SAS #11	SAS/SATA HHD #11
SAS #4	SAS/SATA HHD #4	SAS #12	SAS/SATA HHD #12
SAS #5	SAS/SATA HHD #5	SAS #13	SAS/SATA HHD #13
SAS #6	SAS/SATA HHD #6	SAS #14	SAS/SATA HHD #14
SAS #7	SAS/SATA HHD #7	SAS #15	SAS/SATA HHD #15

Rear LED Indicators		
Rear LED	**Hard Drive Activity**	**Failure LED**
SAS #0	D12	D5
SAS #1	D13	D6
SAS #2	D14	D7
SAS #3	D15	D8
SAS #4	D18	D19
SAS #5	D21	D20
SAS #6	D22	D23
SAS #7	D24	D29
SAS #8	D25	D30
SAS #9	D26	D31
SAS #10	D27	D32
SAS #11	D28	D33
SAS #12	D40	D37
SAS #13	D41	D38
SAS #14	D42	D39
SAS #15	D87	D88

C-5 BPN-SAS2-836EL Backplane and SAS2 JBOD Configuration

This manual reflects BPN-SAS2-836EL1 and BPN-SAS2-836EL2 Revision 1.03.

Front Connectors

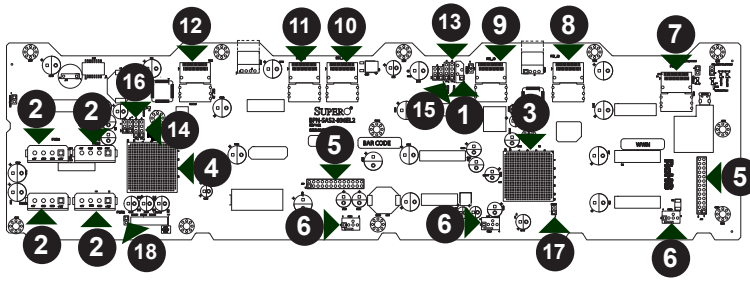


Figure 2EL-1. Front Connectors

1. Primary I²C connector: PRI_I2C1
2. Power connectors: PWR1, PWR2, PWR3 and PWR4
3. Primary expander chip
4. Secondary expander chip (Not available on BPN-SAS2-836EL1 backplane)
5. EPP connectors: J16 and J19
6. Fan connectors: FAN1, FAN2 and FAN3
7. Primary SAS connector: PRI_J1
8. Primary SAS connector: PRI_J2
9. Primary SAS connector: PRI_J3
10. Secondary SAS connector: SEC_J1 (Not available on BPN-SAS2-836EL1 backplane)
11. Secondary SAS connector SEC_J2 (Not available on BPN-SAS2-836EL1 backplane)
12. Secondary SAS connector SEC_J3 (Not available on BPN-SAS2-836EL1 backplane)
13. Primary UART connector: UART_P1 (Manufacturer's use only)
14. Secondary UART connector: UART_S1 (Manufacturer's use only, not present on BPN-SAS2-836EL1 backplane)
15. Primary debug connector: EXPDBG1 (Manufacturer's use only)
16. Secondary debug connector: EXPDBG2 (Manufacturer's use only, not present on BPN-SAS2-836EL1 backplane)
17. Primary MDIO connector: MDIO1 (Manufacturer's use only)
18. Secondary MDIO connector: MDIO2 (Manufacturer's use only, not present on BPN-SAS2-836EL1 backplane)

Front Connector and Pin Definitions

1. Primary I²C Connector

The I²C connector is used to monitor the power supply status and to control the fans. See the table on the right for pin definitions.

I²C Connector Pin Definitions

Pin#	Definition
1	Data
2	Ground
3	Clock
4	No Connection

2. Backplane Main Power Connectors

The 4-pin connectors, designated PWR1, PWR2, PWR3 and PWR4, 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

3. and 4. Primary and Secondary Expander Chips

These primary and secondary expander chips allow the backplane to support dual ports, cascading, and failover.

5. EPP Ports

The EPP ports are used for manufacturer diagnostic purposes only.

6. Fan Connectors

The 4-pin connectors, designated FAN1 through FAN3, provide power to the fans. See the table on the right for pin definitions.

Fan Connectors	
Pin#	Definition
1	Ground
2	+12V
3	Tachometer
4	NC

7. - 12. SAS Connectors

The primary and secondary sets of SAS connectors provide expander features including cascading and failover. From right to left the ports are Primary 1, Primary 2, Primary 3 and Secondary 1, Secondary 2 and Secondary 3. Note that secondary SAS ports are not present on the BPN-SAS2-836EL1 backplane.

13. - 14. UART Connectors

The primary and secondary UART connectors are for manufacturer's diagnostic purposes only. (The secondary UART connector is not present on the SAS2-836EL1 model backplane)

15. - 16. Debug Connectors

The primary and secondary EXPDBG1 and EXPDBG2 connectors are for manufacturer's diagnostic purposes only. (The secondary EXPDBG2 connector is not present on the BPN-SAS2-836EL1 model backplane)

17. - 18. MDIO Connectors

The primary and secondary MDIO1 and MDIO2 connectors are for Supermicro's internal use only. (The secondary MDIO2 connector is not present on the BPN-SAS2-836EL1 model backplane)

Front Jumper Locations and Settings

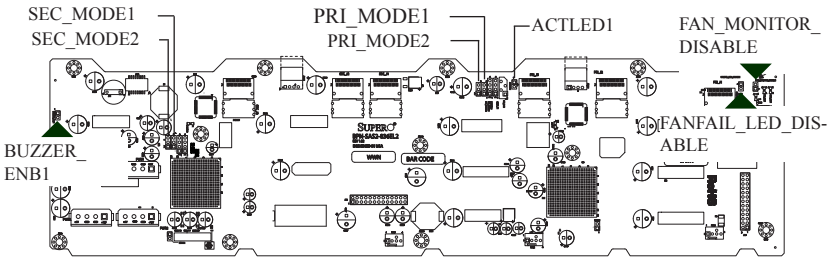


Figure 2EL-2. Front Jumper Locations and Settings

General Jumper Settings		
Jumper	**Jumper Settings**	**Note**
PRI_MODE1 and 2	Pin 2-3	Factory setting Do not change
SEC_MODE1 and 2	Pin 2-3	Factory setting Do not change
BUZZER_ENB1	Open: Disabled (Default) Closed: Enabled	Buzzer settings*
ACTLED1	Open: Disabled (Default) Closed: Enabled	Activity LED testing (Supermicro internal use only)
FAN_LED_DISABLE	Open: Enabled Closed: Disabled (Default)	Turns off the FANFAIL1 LED
FAN_MONITOR_ DISABLE	Open: Enabled (Default) Closed: Disabled	Turns off fan speed reporting

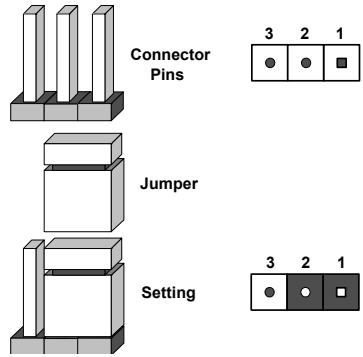
*The buzzer sound indicates that a condition requiring immediate attention has occurred.

The buzzer alarm is triggered by one of the following conditions:

1. Hard drive failure.
2. Fan failure.
3. System temperature over 45º Celsius.

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.



Front LEDs

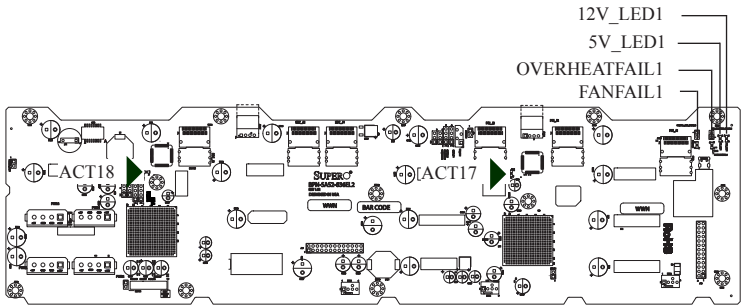


Figure 2EL-3. Front LEDs

Front LEDs		
LED	**Active State**	**Specification**
FANFAIL1	On	Fan failure
5V_LED1	On	5V power on LED
12v_LED1	On	12V power on LED
ACT17	On	Primary Ethernet Tx activity LED
ACT18	On	Secondary Ethernet Tx activity LED
OVERHEATFAIL1	On	Overheat/Drive Failure LED Indicator (Red light: flashing, buzzer: on)

Rear Connectors and LED Indicators

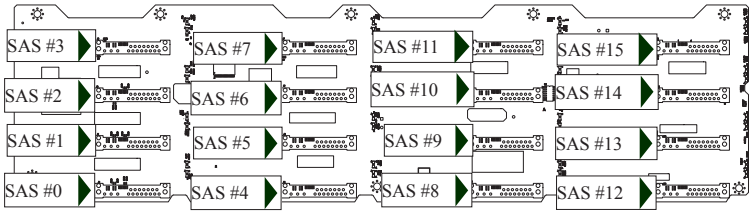


Figure 2EL-4. Rear Connectors

Rear SAS/SATA Connectors	
Rear Connector	**SAS/SATA Drive Number**
SAS #0	SAS/SATA HDD #0
SAS #1	SAS/SATA HDD #1
SAS #2	SAS/SATA HDD #2
SAS #3	SAS/SATA HDD #3
SAS #4	SAS/SATA HDD #4
SAS #5	SAS/SATA HDD #5
SAS #6	SAS/SATA HDD #6
SAS #7	SAS/SATA HDD #7
SAS #8	SAS/SATA HDD #8
SAS #9	SAS/SATA HDD #9
SAS #10	SAS/SATA HDD #10
SAS #11	SAS/SATA HDD #11
SAS #12	SAS/SATA HDD #12
SAS #13	SAS/SATA HDD #13
SAS #14	SAS/SATA HDD #14
SAS #15	SAS/SATA HDD #15

Rear LED Indicators		
Rear Connector	**Hard Drive Activity LED**	**Failure LED**
SAS #0	ACT #0	FAIL #0
SAS #1	ACT #1	FAIL #1
SAS #2	ACT #2	FAIL #2
SAS #3	ACT #3	FAIL #3
SAS #4	ACT #4	FAIL #4
SAS #5	ACT #5	FAIL #5
SAS #6	ACT #6	FAIL #6
SAS #7	ACT #7	FAIL #7
SAS #8	ACT #8	FAIL #8
SAS #9	ACT #9	FAIL #9
SAS #10	ACT #10	FAIL #10
SAS #11	ACT #11	FAIL #11
SAS #12	ACT #12	FAIL #12
SAS #13	ACT #13	FAIL #13
SAS #14	ACT #14	FAIL #14
SAS #15	ACT #15	FAIL #15

Single and Dual Port Expanders

Single Ports

BPN-SAS2-836EL1 backplanes have a single-port expander that accesses all hard drives and supports cascading.

Dual Ports

BPN-SAS2-836EL2 backplanes have dual-port expanders that access all the hard drives. These dual-port expanders support cascading, failover, and multipath functionality.

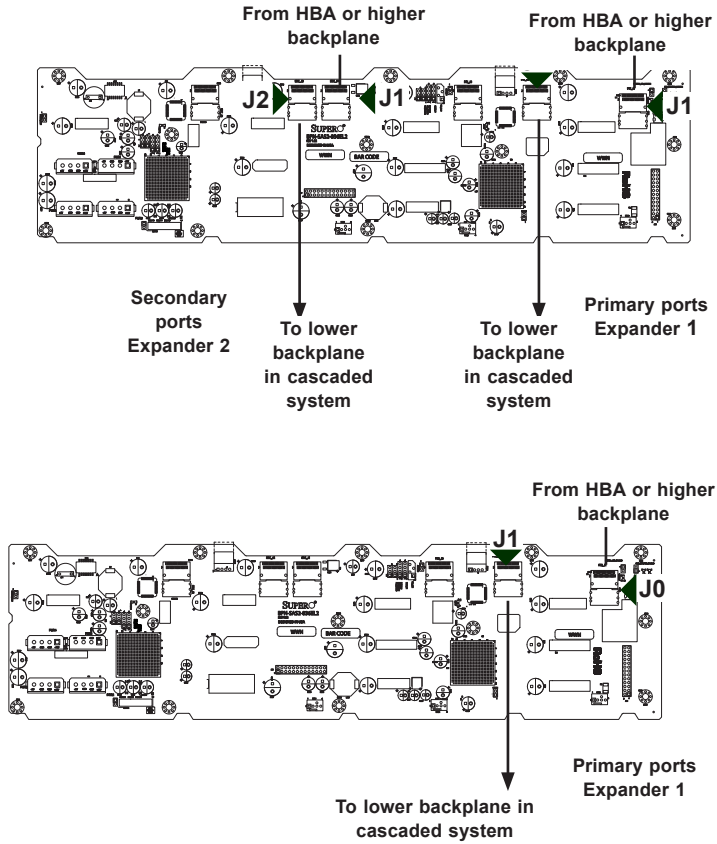


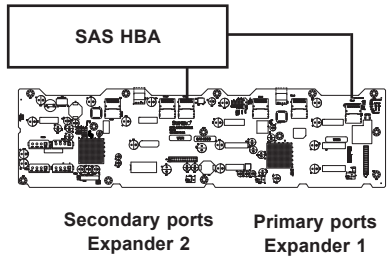
Figure 2EL-5. Dual Port Cascading Configurations

Failover

The BPN-SAS2-836EL2 backplane has two expanders which allow effective failover.

Single Host Bus Adapter

In a single host bus configuration, the backplane connects to one Host Bus Adapter (HBA).



Single Host Bus Adapter Failover

If the expander or data path in Port A fails, the system automatically switches to Port B.

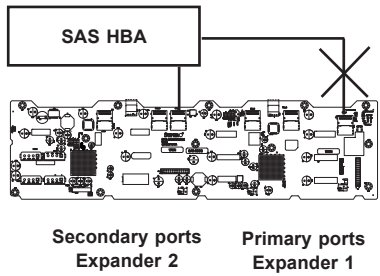


Figure 2EL-6. Single and Dual HBAs

Failover with RAID Cards and Multiple HBAs

The BPN-SAS2-836EL 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, 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 HBAs.

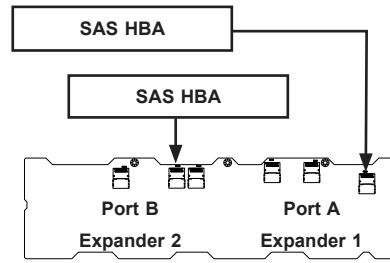


Figure 2EL-7. Dual HBA

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.

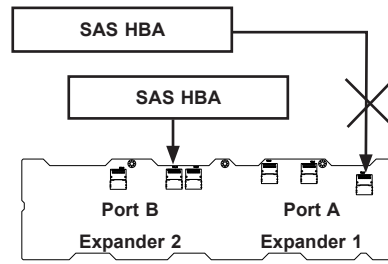


Figure 2EL-7. Dual HBA Failover

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

SAS2 JBOD Configuration with BPN-SAS2-836EL

In a cascaded configuration, the first chassis (head node) includes a motherboard and at least one host bus adapter (HBA). The SC836 chassis with 836EL backplane can be configured as JBOD with a JBOD control board. This section describes the supported JBOD control board for the BPN-SAS2-836EL series backplanes.

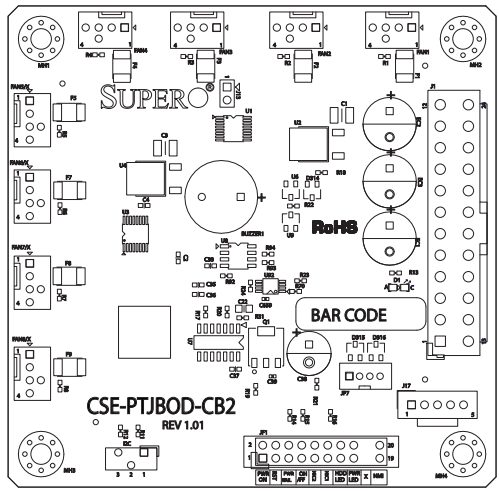


Figure 2EL-8. CB2 JBOD Control Board (Sold Separately)

Power Card		
Part Number	**Part Type**	**Where Used**
CSE-PTJBOD-CB2	JBOD Control Board	Allows the chassis to be used as a JBOD (Just a Bunch of Drives) system.

Connecting an Internal Host Bus Adapter to the Backplane

The following section lists the most common cables used to connect the host bus adapter to the backplane.

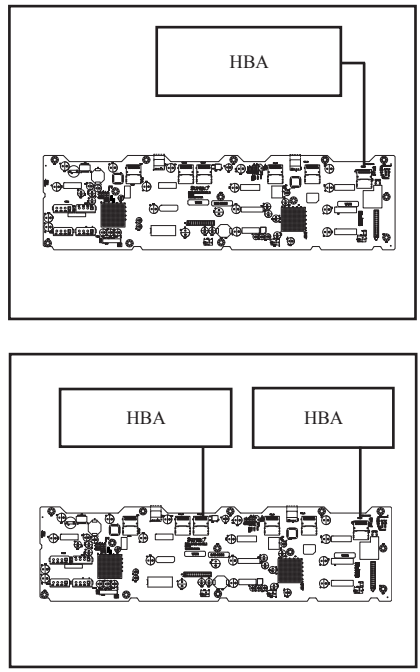


Figure 2EL-9. Connecting an Internal HBA to the Backplane

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

Supported Internal HBA Cables

Use the following cables to create connections between the internal HBA and SAS2-836EL backplane. The cables required depend upon the HBA connector.

Cable Name: iPass to 4-lane

Part #: CBL-0117L **Length:** 46 cm (18 inches)

Description: This cable has one SFF-8484 (32-pin) connector on one end and one iPass (SFF-8087/Mini-SAS) connector (36-pin) at the other. This cable connects from the HBA to the BPN-SAS2-836EL backplane.

Cable Name: iPass (Mini-SAS) to iPass (Mini-SAS)

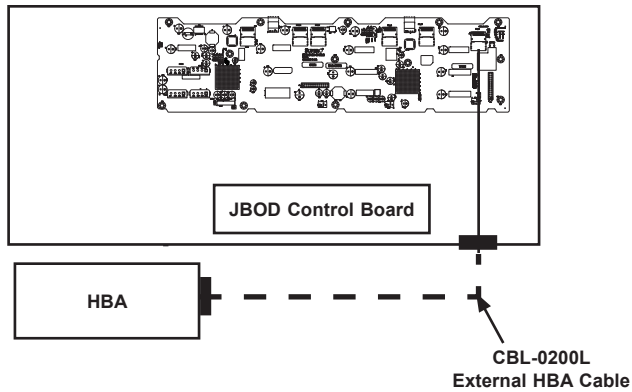
Part #: CBL-0108L-02	**Length:** 39 cm (15 inches)
Part #: CBL-0109L-02	**Length:** 22 cm (9 inches)
Part #: CBL-0110L-02	**Length:** 18 cm (7 inches)

Description: This cable has an iPass (SFF-8087/Mini-SAS) connector (36-pin) at each end. It connects from the HBA to the SAS2-836EL backplane.

Connecting an External Host Bus Adapter 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 configuration system to connect to another system that has an HBA.

Single External Host Bus Adapter



Dual External Host Bus Adapter

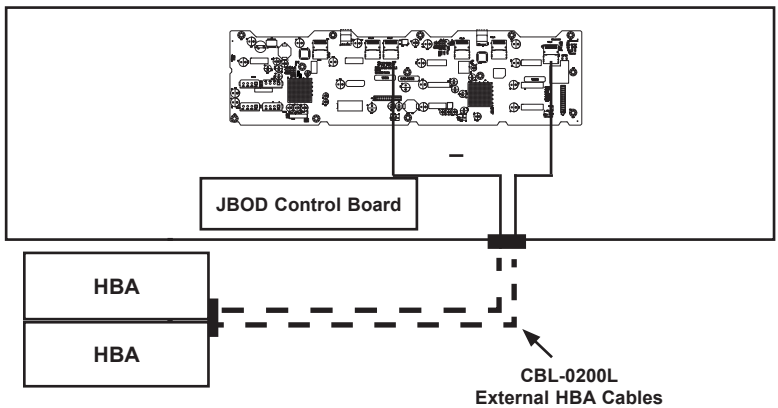


Figure 2EL-10. Connecting Single and Dual HBAs to the Backplane

IMPORTANT: See Section C-12 of this manual, *Failover with RAID Cards and Multiple HBAs* for important information on supported configurations.

Supported External HBA to Backplane Cable

Use the following cable if your external HBA has an InfiniBand connector.



Figure 2EL-11. External Cable (CBL-0166L)

Cable Name: SAS EL2/EL1 Cascading Cable (External), 68 cm

Part #: CBL-0166L (SFF-8088 1x to SFF-8088 x1)
Ports: Single or Dual
Placement: External cable

Description: External cascading cable. Connects ports between servers. With most connectors, use one cable for single port connections and two cables for dual port connections.

Connecting Multiple Backplanes in a Single Channel Environment

This section describes the cables used when cascading from a single HBA. These connections use CBL-0167L internal cables and CBL-0166L external cables.

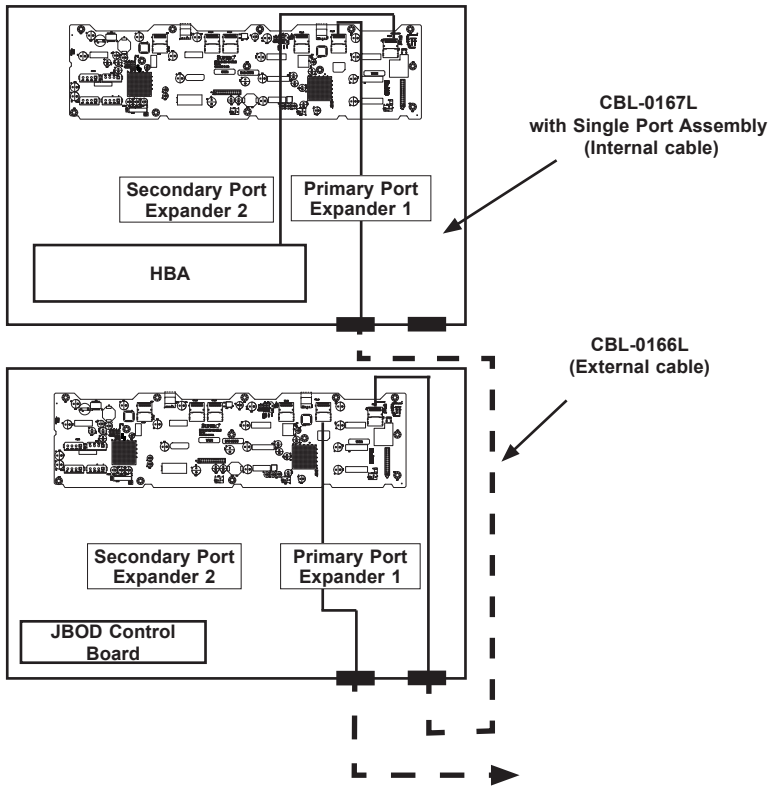


Figure 2EL-12. Single HBA Configuration

Single HBA Configuration Cables

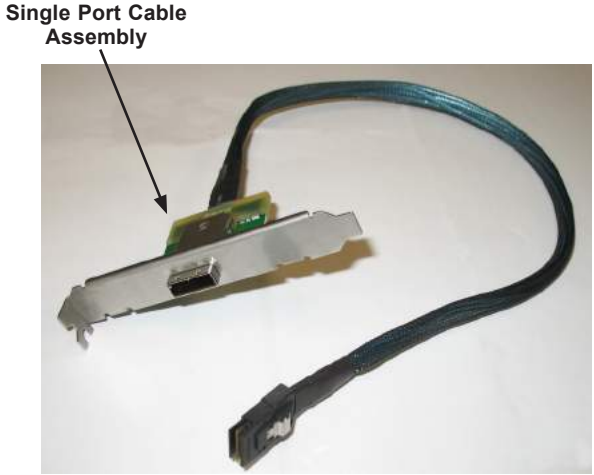


Figure 2EL-13. Single Port Internal Cable (CBL-0167L)

Cable Name: SAS EL2/EL1 Backplane Cable (Internal) with 2-port Cascading Cable, 68 cm

Part #: CBL-0167L (SFF-8087 to SFF-8088 x1)
Ports: Single
Placement: Internal cable

Description: Internal cable. Connects the backplane to the HBA or external port. Used in single port environments.



Figure 2EL-14. External Cable (CBL-0166L)

Cable Name: SAS EL2/EL1 Cascading Cable (External), 68 cm

Part #: CBL-0166L (SFF-8088 1x to SFF-8088 x1)
Ports: Single or Dual
Placement: External cable

Description: External cascading cable. Connects ports between servers. With most connectors, use one cable for single port connections and two cables for dual port connections.

Connecting Multiple Backplanes in a Dual Channel Environment

This section describes the cables used when cascading from dual HBAs. These connections use CBL-0168L internal cables and CBL-0166L external cables.

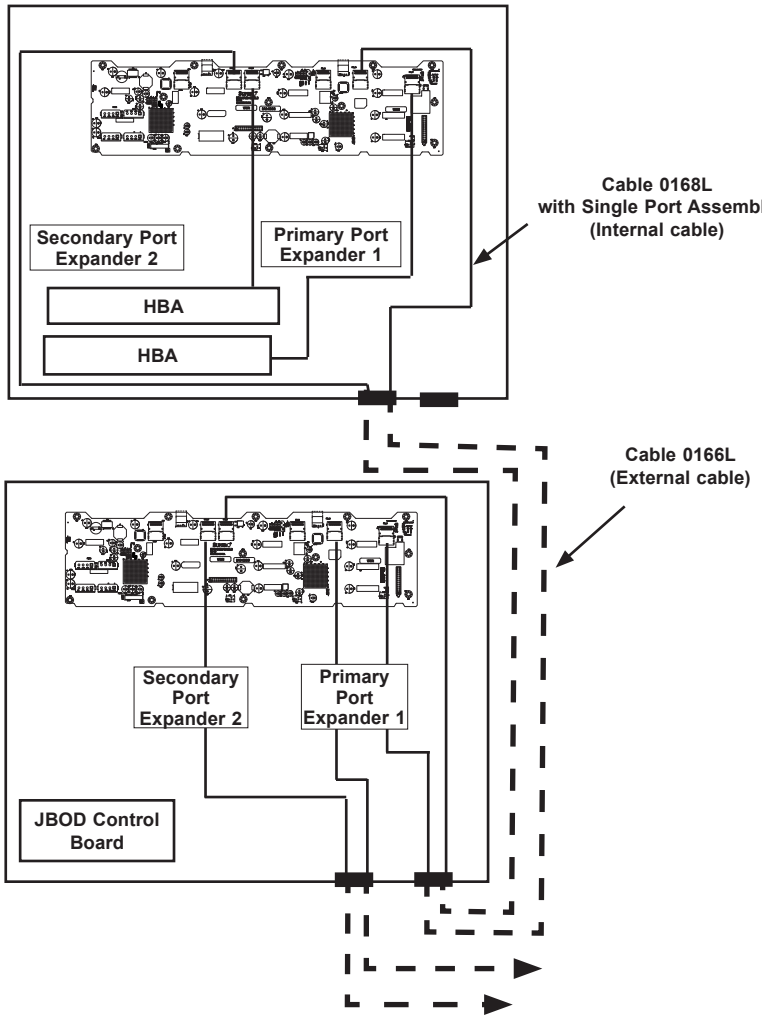


Figure 2EL-15. Multiple Backplanes in a Dual Channel Environment

IMPORTANT: See Section C-12 of this manual, *Failover with RAID Cards and Multiple HBAs* for important information on supported configurations.

Dual HBA Configuration Cables



Figure 2EL-16. Dual Port Internal Cable (CBL-0168L)

Cable Name: SAS Dual-port Cable Assembly, 68/76 cm

Part #: CBL-0168L **Placement:** Internal cable
Ports: Dual

Description: Internal cascading cable. Connects the backplane to the HBA or external port. Used in dual port environments.



Figure 2EL-17. External Cable (CBL-0166L)

Cable Name: SAS EL2/EL1 Cascading Cable (External), 68 cm

Part #: CBL-0166L **Placement:** External cable
Ports: Single or Dual

Description: External cascading cable. Connects ports between servers. Use one cable for single port connections and two cables for dual port connections.

Supported Cascading Configurations

Cascading allows the system to access data at a faster rate by allowing several backplanes to share resources to reduce latency time.

The first backplane in a cascaded system requires a motherboard and an HBA. Other servers require a JBOD Control Board but with no motherboard and no HBA.

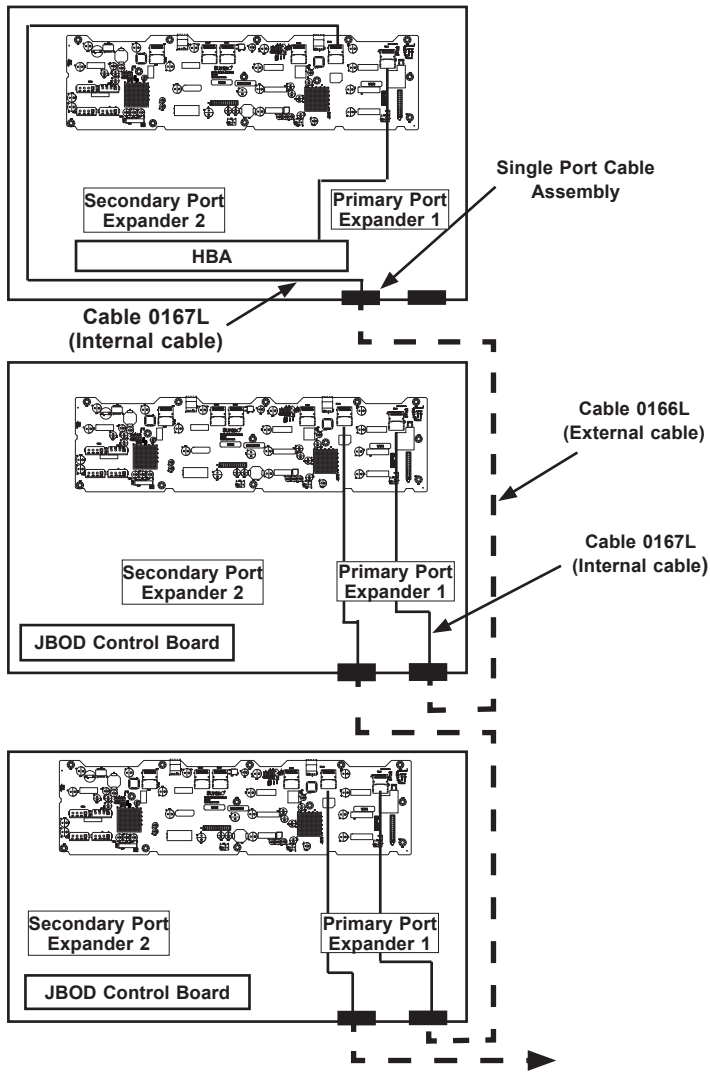


Figure 2EL-18. Simple Cascaded Configurations

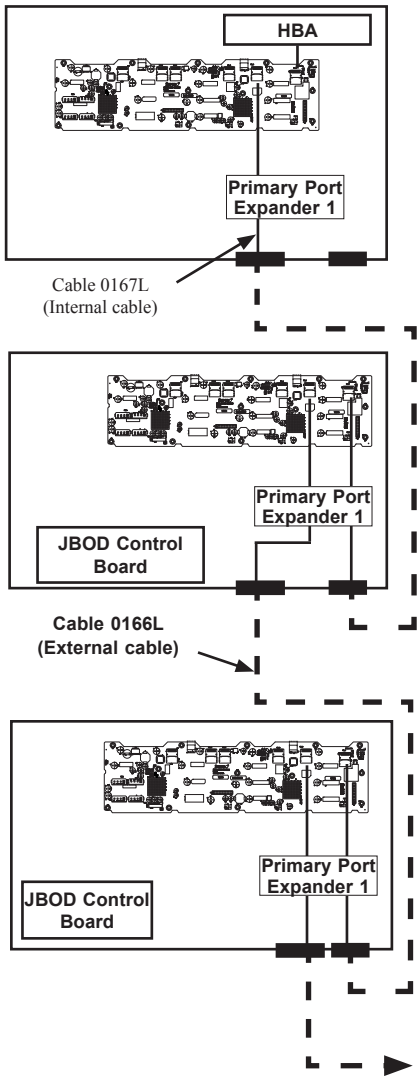


Figure 2EL-19. Cascaded Configuration with Horizontal Branching

Dual SAS HBA and Cascaded Configuration

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

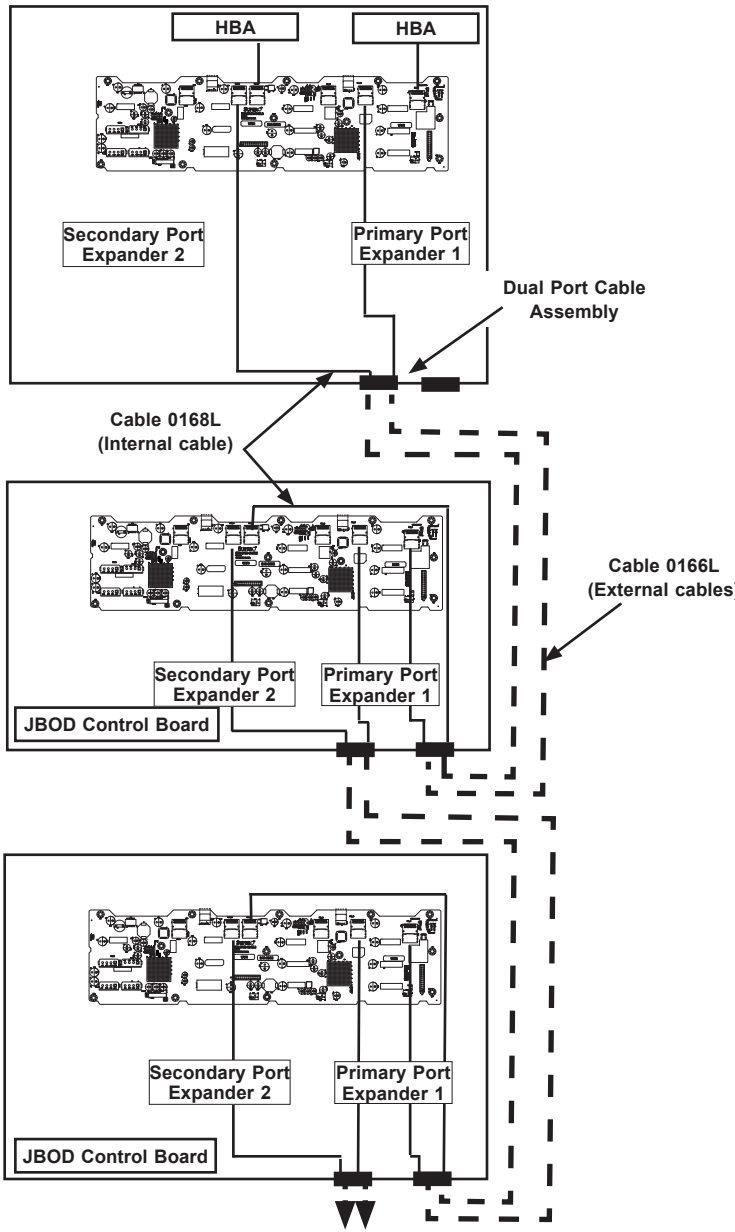


Figure 2EL-20. Dual SAS HBA with Cascaded Configuration

Dual SAS HBA Cascaded Configuration with Branching

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

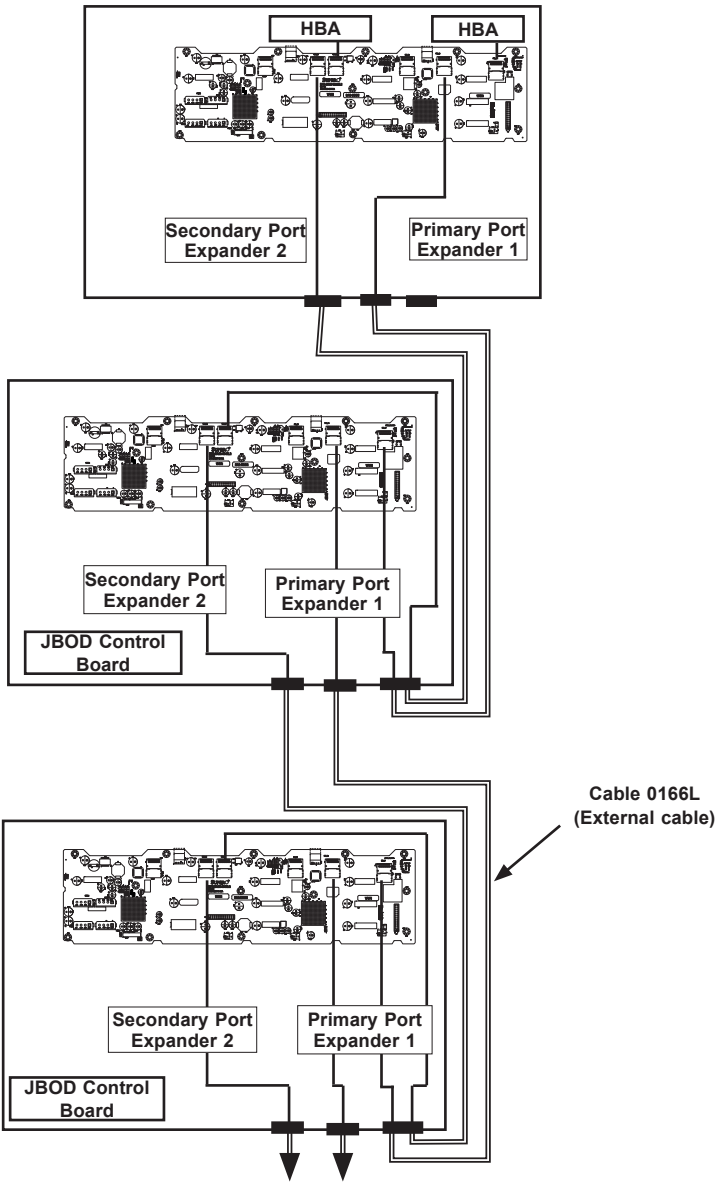


Figure 2EL-21. Dual SAS HBA with Cascaded Configuration and Branching

C-6 BPN-SAS3-836EL Backplane and SAS3 JBOD Configuration

This manual reflects BPN-SAS3-836EL1 and BPN-SAS3-836EL2 Revision 1.01.

Front Connectors

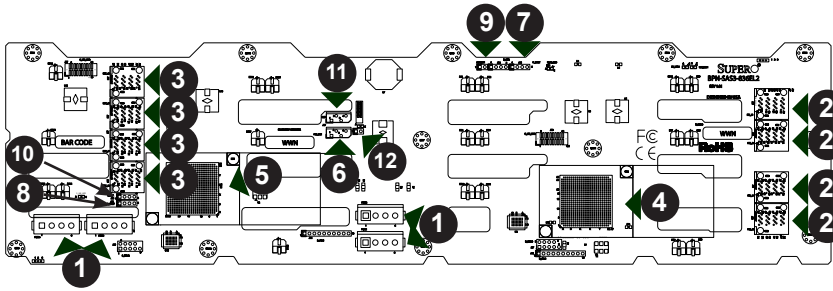


Figure 3EL-1. Front Connectors

1. Power connectors: PWR1, PWR2, PWR3 and PWR4 (4-pin)
2. Primary SAS connectors: PRI_J0 (J20), PRI_J1 (J21), PRI_J2 (J22), and PRI_J3 (J23)
3. Secondary SAS connectors: SEC_J0 (J30), SEC_J1 (J31), SEC_J2 (J32), and SEC_J3 (J33)
4. Primary expander chip
5. Secondary expander chip
6. I^2C connector: PRI_I2C1 (4-pin)
7. Primary UART connector: UART_P1 (J19; 4-pin)
8. Secondary UART connector: UART_S1 (J35; 4-pin)
9. Primary SDB (J24, 4-pin)
10. Secondary SDB (J36, 4-pin)
11. SMB connector: JBOD controller (J17, 4-pin)
12. Overheat_Fail2 (2-pin)

Front Connector and Pin Definitions

1. Backplane Main Power Connectors

The 4-pin connectors, designated PWR1, PWR2, PWR3 and PWR4, 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

2-3. SAS Connectors

The primary and secondary sets of SAS connectors provide expander features including cascading and failover.

4-5. Expander Chips

These primary and secondary expander chips allow the backplane to support dual ports, cascading, and failover.

6-10. I^2C Connector, UART Connectors, SDB Connectors

The I^2C connector, the UART connectors, and the SDB connectors are for manufacturing diagnostic purposes only.

11. SMB Connector

This header provides for a connection with an optional JBOD controller board.

12. OVERHEAT_FAIL2 Connector

This header can be connected to an external overheat LED, if desired.

Front Jumper Locations and Settings

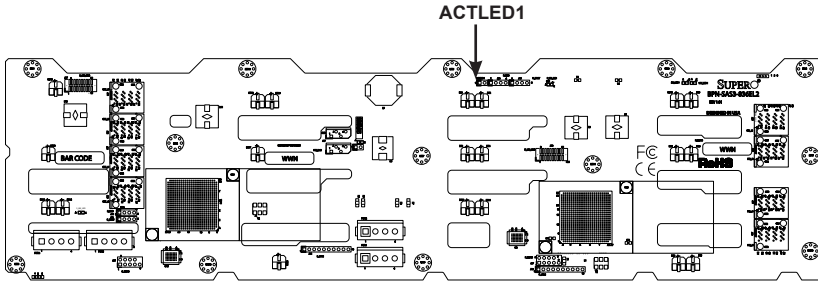
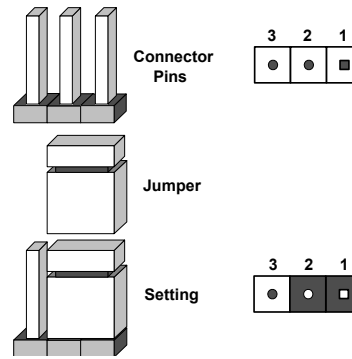


Figure 3EL-2. Front Jumper Locations and Settings

General Jumper Settings		
Jumper	**Jumper Settings**	**Note**
ACTLED1	Open: Disabled (Default) Closed: Enabled	Activity LED testing (Supermicro internal use only)

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.



Front LED Indicators

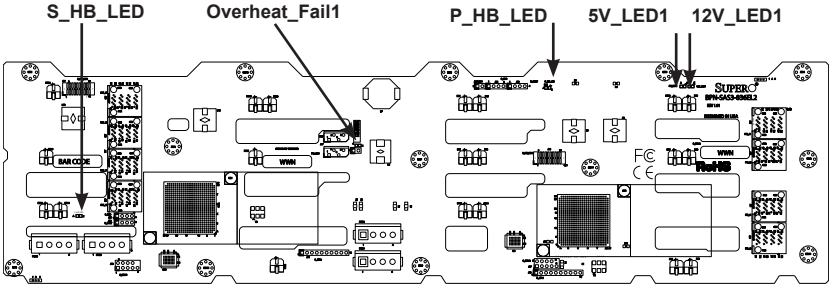


Figure 3EL-3. Front LEDs

Front LEDs		
LED	**Normal State**	**Specification**
S_HB_LED	Blinking	Secondary expander heartbeat indicator
OVERHEAT_FAIL1	Off	System overheat
P_HB_LED	Blinking	Primary expander heartbeat indicator
5V_LED1	On	5V power LED
12v_LED1	On	12V power LED

Rear Connectors and LED Indicators

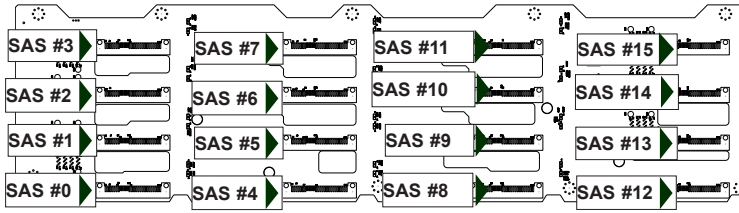


Figure 3EL-4. Rear Connectors

Rear SAS/SATA Connectors	
Rear Connector	**SAS/SATA Drive Number**
SAS #0	SAS/SATA HDD #0
SAS #1	SAS/SATA HDD #1
SAS #2	SAS/SATA HDD #2
SAS #3	SAS/SATA HDD #3
SAS #4	SAS/SATA HDD #4
SAS #5	SAS/SATA HDD #5
SAS #6	SAS/SATA HDD #6
SAS #7	SAS/SATA HDD #7
SAS #8	SAS/SATA HDD #8
SAS #9	SAS/SATA HDD #9
SAS #10	SAS/SATA HDD #10
SAS #11	SAS/SATA HDD #11
SAS #12	SAS/SATA HDD #12
SAS #13	SAS/SATA HDD #13
SAS #14	SAS/SATA HDD #14
SAS #15	SAS/SATA HDD #15

Rear LED Indicators		
Rear Connector	**Hard Drive Activity LED**	**Failure LED**
SAS #0	ACT #0	FAIL #0
SAS #1	ACT #1	FAIL #1
SAS #2	ACT #2	FAIL #2
SAS #3	ACT #3	FAIL #3
SAS #4	ACT #4	FAIL #4
SAS #5	ACT #5	FAIL #5
SAS #6	ACT #6	FAIL #6
SAS #7	ACT #7	FAIL #7
SAS #8	ACT #8	FAIL #8
SAS #9	ACT #9	FAIL #9
SAS #10	ACT #10	FAIL #10
SAS #11	ACT #11	FAIL #11
SAS #12	ACT #12	FAIL #12
SAS #13	ACT #13	FAIL #13
SAS #14	ACT #14	FAIL #14
SAS #15	ACT #15	FAIL #15

Dual Port and Cascading Configurations

Single and Dual Port Expanders

SAS connectors PRI-J1 to J4 and SEC-J1 to J4 are bidirectional and can be treated as input or output.

Single Ports

BPN-SAS3-836EL1 backplanes have a single port expander that accesses all of the drives and supports cascading.

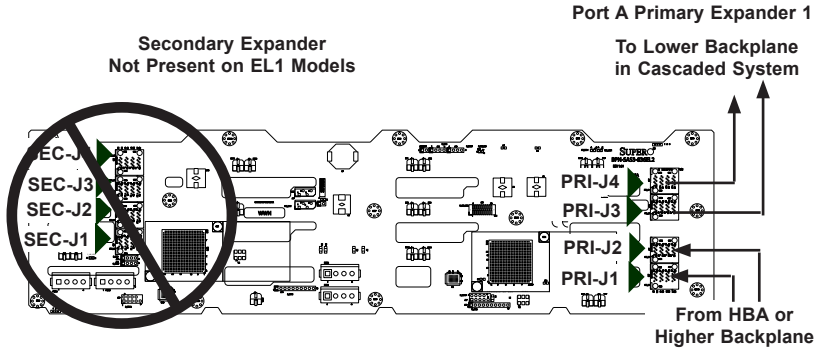


Figure 3EL-4. BPN-SAS3-836EL1 Single Port Configuration

Dual Ports

BPN-SAS3-836EL2 model backplanes have dual-port expanders that access all of the hard drives. These dual-port expanders support cascading, failover, and recovery.

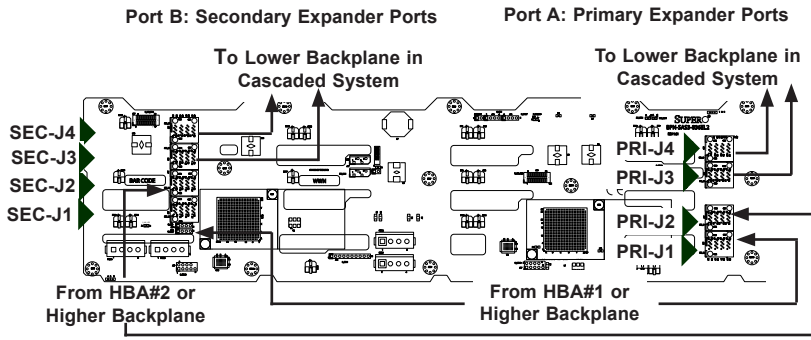


Figure 3EL-5. BPN-SAS3-836EL2 Dual Port Configuration

Failover

The BPN-SAS3-836EL2 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.

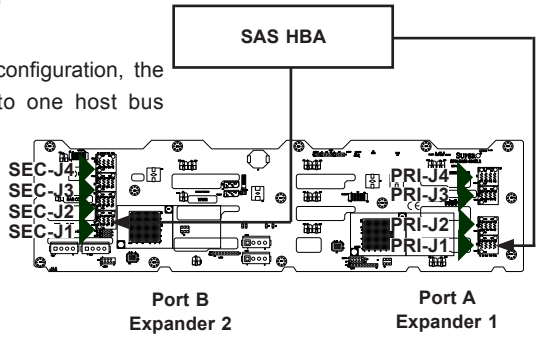


Figure 3EL-6. Single HBA

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.

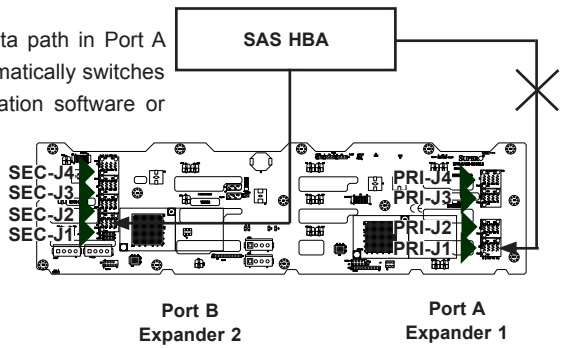


Figure 3EL-7. Single HBA Failover

Failover with RAID Cards and Multiple HBAs

The BPN-SAS3-836EL backplane may be configured for failover with multiple HBAs using either RAID controllers or HBAs to acheive 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 HBAs.

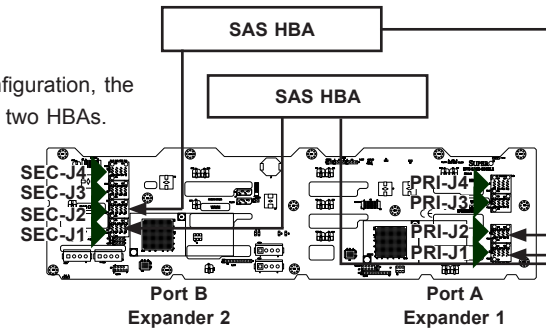


Figure 3EL-8. Dual HBA

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.

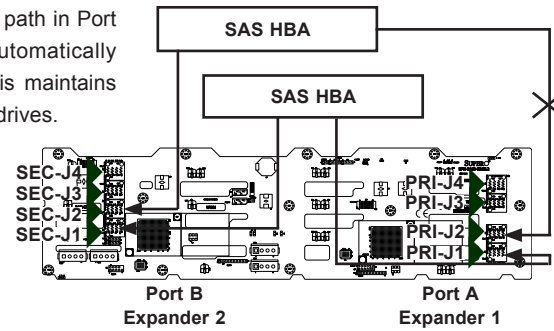


Figure 3EL-9. Dual HBA Failover

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

SAS3 JBOD Configuration with BPN-SAS3-836EL

In a cascaded configuration, the first chassis (head node) includes a motherboard and at least one host bus adapter (HBA). The SC836 chassis with 836EL backplane can be configured as JBOD with a JBOD Control Board. This section describes the supported JBOD Control Board for the BPN-SAS3-836EL series backplanes.

For more information, see the Supermicro web site at www.supermicro.com.

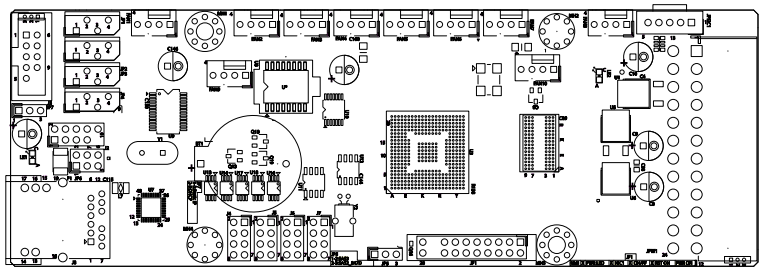


Figure 3EL-10. CB3 JBOD Control Board (Sold Separately)

Power Card		
Part Number	**Part Type**	**Where Used**
CSE-PTJBOD-CB3	JBOD Control Board	Allows the chassis to be used as a JBOD (Just a Bunch of Disks) system, which supports IPMI for remote on/off control.

For more information about CB3, refer to Appendix E: CSE-PTJBOD-CB3 Control Board.

Support Cables

Connecting an Internal HBA to the Backplane

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

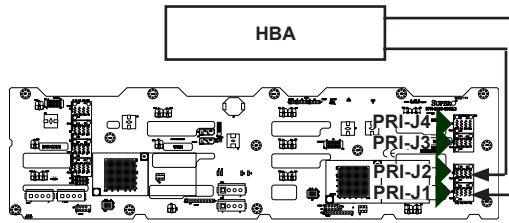


Figure 3EL-11. Single Internal Host Bus Adapter

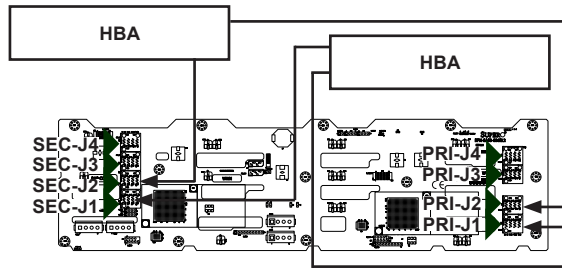


Figure 3EL-12. Dual Internal Host Bus Adapter

IMPORTANT: See page C-51 of this manual, *Failover with RAID Cards and Multiple HBAs* for important information on supported configurations.

Supported Internal HBA Cables

Use the following cables to create connections between the internal HBA and BPN-SAS3-826EL model backplane. The cables required depend upon the HBA connector.

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-SAS3-826EL 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)

Description: This cable has a Mini-SAS HD (SFF-8643) connector at both ends. It connects from the SAS3 HBA to the BPN-SAS2-826EL 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 Disks) configuration from an existing system.

Single External Host Bus Adapter

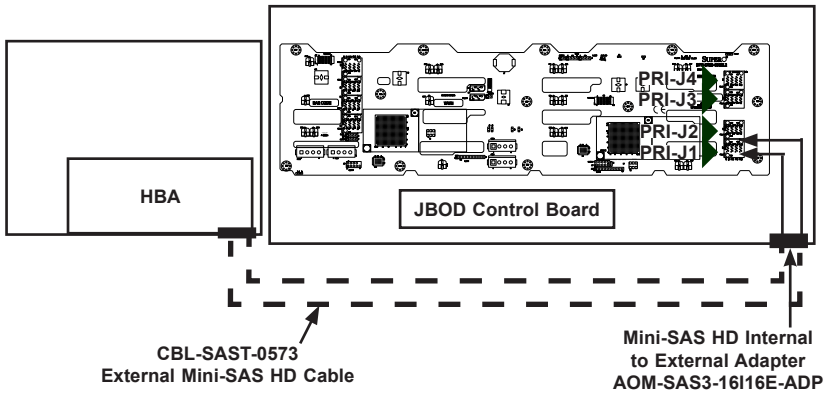


Figure 3EL-13. Single External Host Adapter

Dual External Host Bus Adapter

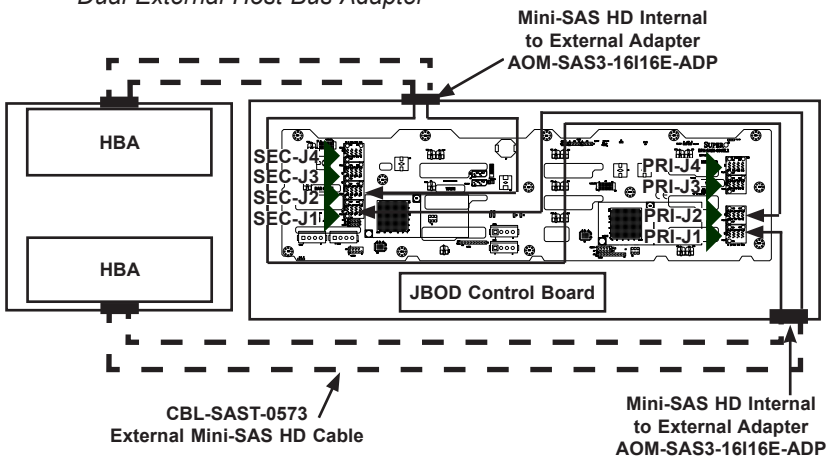


Figure 3EL-14. Dual External Host Bus Adapter

IMPORTANT: See page C-51 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.

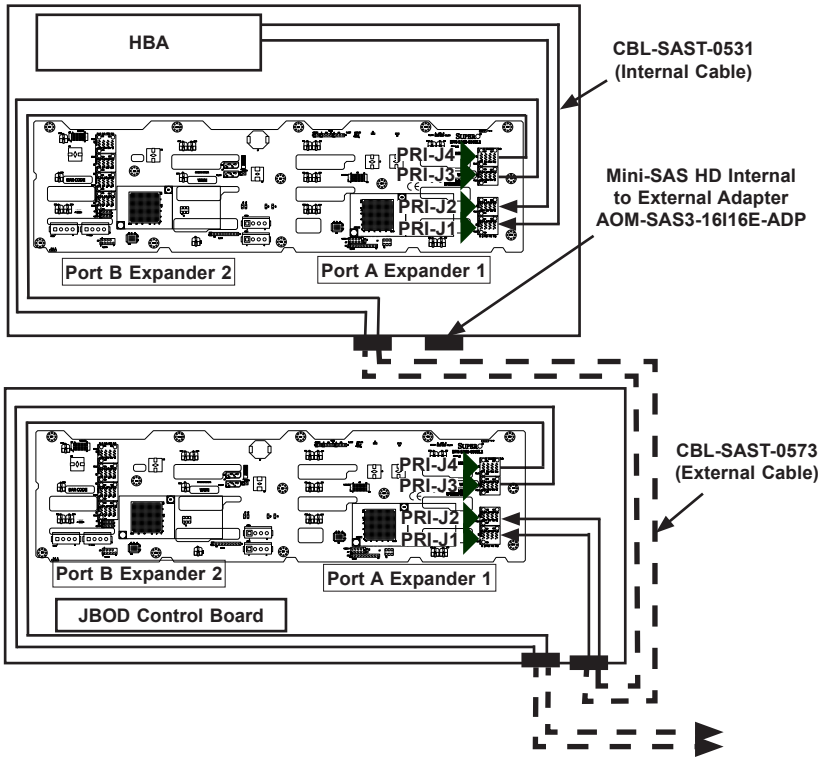


Figure 3EL-15. Single HBA Configuration

Single HBA Configuration Cables



Figure 3EL-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 3EL-17. Mini-SAS HD Internal to External Adapter

Cable Name: 16-port Mini-SAS HD Internal to External Cable Adapter with LP Bracket

Part #: AOM-SAS3-16I16E-ADP-LP
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.

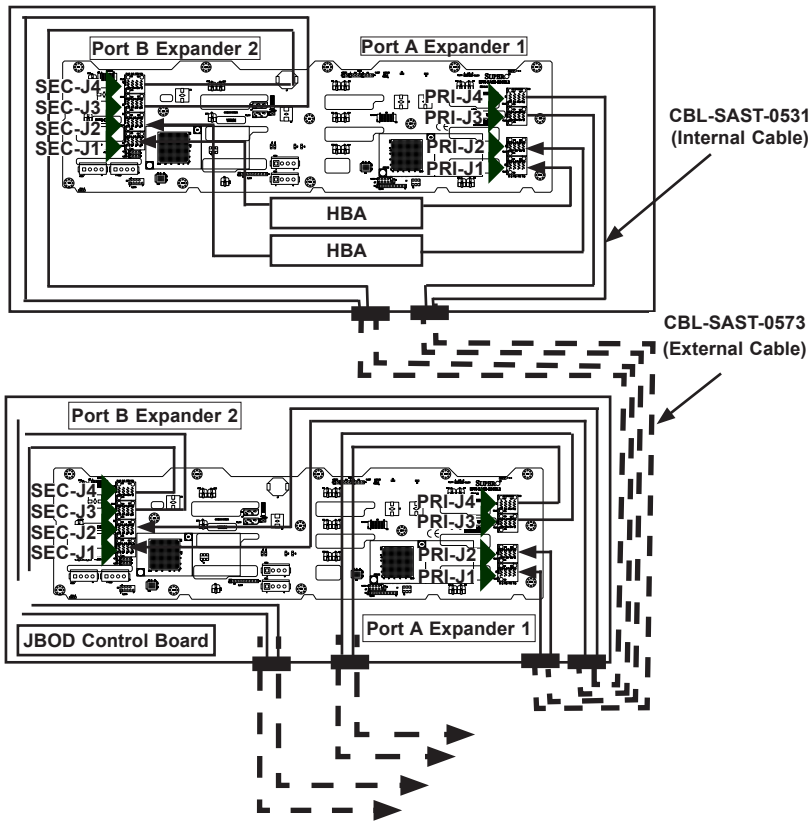


Figure 3EL-18. Dual HBA Configuration

IMPORTANT: See page C-51 of this manual, *Failover with RAID Cards and Multiple HBAs* for important information on supported configurations.

Appendix D

SC836B Added Features

With an optional drive kit (MCP-220-83605-0N), the SC836B chassis models can support two hot-swap drive bays located in the rear of the chassis. For information on which drives are compatible contact Supermicro's Technical Support department at www.supermicro.com.

D-1 Identifying the Drive Kit Components

The photograph below shows the components in the kit that are required to install hard drives into the rear of the chassis:

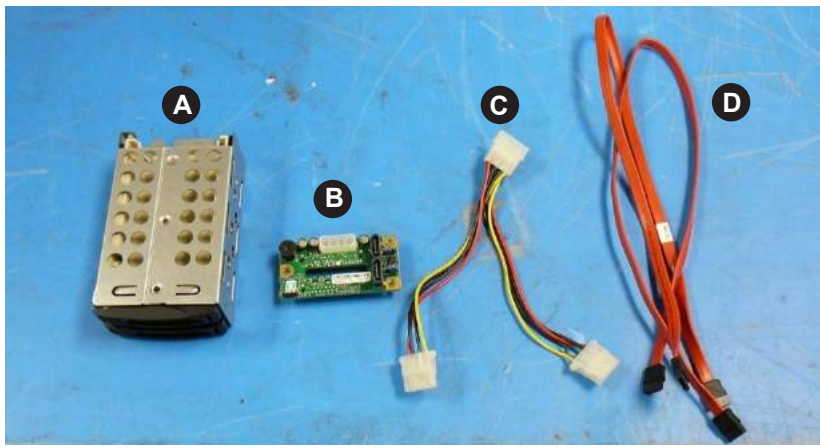


Figure D-1. SC836B Rear Drive Kit (MCP-220-83605-0N)

Rear Hard Drive KIt Components

A. Hard drive cage with two 2.5” drive trays (MCP-220-00047-0B x2)

B. Hard drive cage backplane (BPN-SAS-510T)

C. Four-pin power supply Y-cable (CBL-0234L) for hard drives

D. Two SATA cables (CBL-0179L or CBL-0481L x2; cable CBL-0179L is shown in picture above)

D-2 Installing the Drive Cage

Installing the Rear Hard Drive Cage

1. Disconnect the power from the chassis by unplugging the power cord.

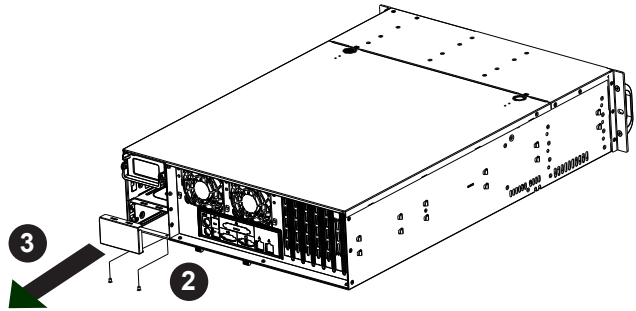


Figure D-2. Removing the Blank Cover from the Drive Bay

2. Remove the screws securing the dummy cover into the rear peripheral drive bay. These screws are located on the underside of the chassis on the left-hand side.

3. Remove the two empty drive trays from the hard drive cage.

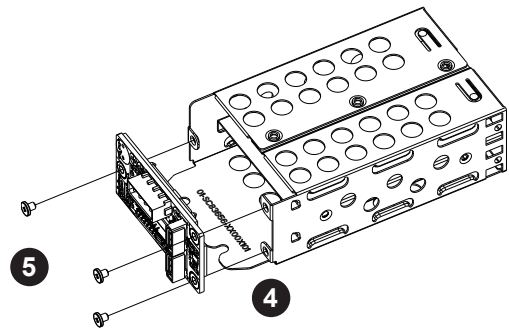


Figure D-3. Securing the Backplane to the Cage

4. Align the mounting holes in the hard drive cage backplane with those in the rear of the hard drive cage.

5. Secure the backplane to the rear of the cage using three screws.

6. Connect the 4-pin power supply Y-cable to the cage backplane.

7. Connect the two SATA cables to the SATA ports on the cage backplane.

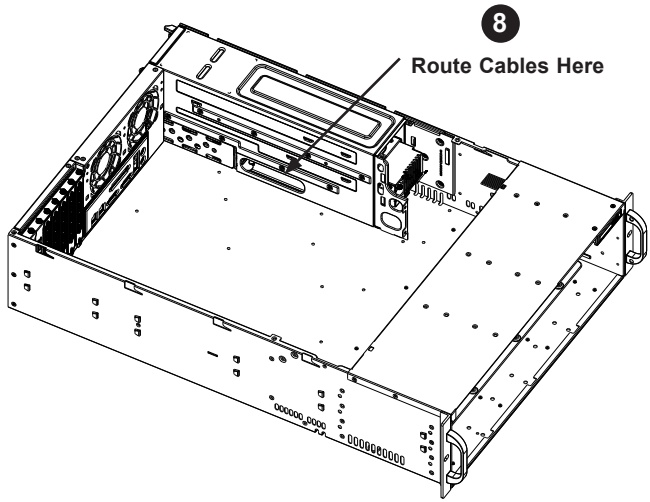


Figure D-4. Routing the Cables

8. Route the cables into the chassis bay and out through the rounded opening in the side of the hard drive bay on the inside of the chassis.

9. Insert the hard drive cage into the rear hard drive bay of the chassis and slide it all the way back, aligning the grooves in the bottom plate of the cage with the upright posts inside the bay.

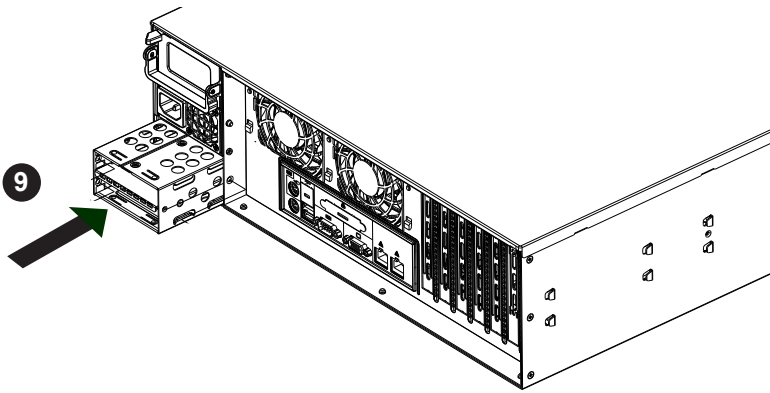


Figure D-5. Installing the Drive Cage into the Rear Bay

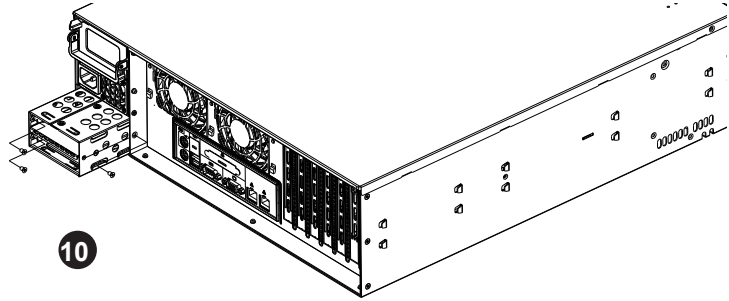


Figure D-6. Securing Drive Assembly to the Chassis

10. Secure the hard drive cage to the chassis with three screws as shown.

11. Secure the drive bay cables with the tie wrap.

12. Connect the 4-pin power supply Y-cable to the power distribution board (PDB) to supply power. Connect the two SATA cables to the motherboard SATA ports.

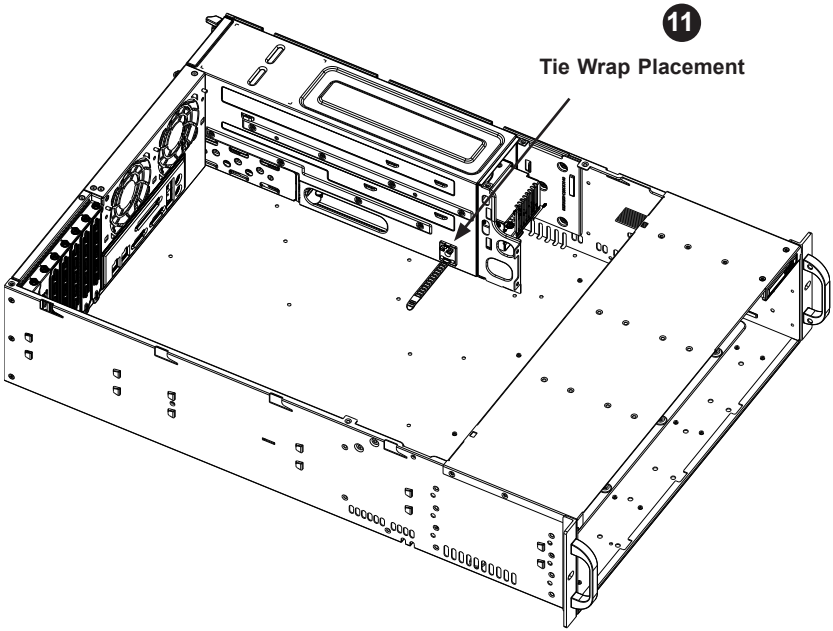


Figure D-7. Securing the Tie Wrap

D-3 Installing Hard Drives in the Rear Drive Carriers

The two 2.5" hard drives are hot-swappable and may be removed or replace without powering down the server. Note that only enterprise level hard drives are recommended for use in Supermicro chassis.

Installing the Hard Drives in the Carrier

1. Remove the screws securing the dummy drive to the hard drive carrier and remove the dummy drive from the carrier.

2. Insert a hard drive into the carrier with the PCB side facing down and the connector end toward the rear of the carrier.

3. Allign the mounting holes in the drive with those in the carrier. Note that there are holes in the carrier marked "SAS" or “SATA” to aid in correct installation.

4. Secure the drive to the carrier with four screws. Use the four M3 flat-head screws included in the HDD bag of your accessory box. Note that the screws used to secure the dummy drive to the tray cannot be reused to secure the hard drive.

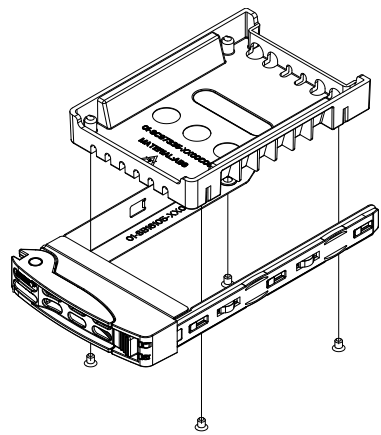


Figure D-8. Removing the Dummy Drive from the Hard Drive Carrier

D-4 Installing Hard Drives into the Rear Drive Bays

Installing Rear Hard Drives

1. Using the thumb, push against the upper part of the hard drive handle. Push the hard drive into the hard drive bay horizontally as illustrated below, orienting the drive so that the release button is on the right.

2. Push the carrier into the bay until the handle retracts and the hard drive clicks into the locked position.

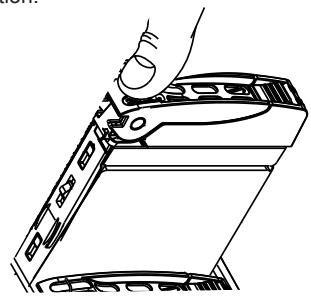


Figure D-9. Using the Thumb to Install the Hard Drive and Carrier

D-5 Removing Drives From the Rear Drive Bays

Installing Rear Hard Drives

1. Press the release button on the right-hand side of the hard drive. This will extend the hard drive carrier handle.

2. Use the hard drive carrier handle to pull the hard drive carrier out of the chassis.

Appendix E

CSE-PTJBOD-CB3 Control Board

E-1 Overview

The CSE-PTJBOD-CB3 model JBOD control board allows the user to remotely control and monitor the chassis resources using IPMI, such as powering on or off, controlling fan speeds and reading temperature data from the backplane. It has been designed to utilize the most up-to-date technology available, providing your system with reliable, high-quality performance.

This manual reflects the revision 1.02 JBOD control board, the most current release available at the time of publication. Refer to the Supermicro web site at www.supermicro.com for the latest updates, compatible parts and supported configurations.

E-2 Safety Guidelines

ESD Safety Guidelines

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 backplane and peripherals back into their antistatic bags when not in use.

General Safety Guidelines

- 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.

E-3 Components, Connectors, Jumpers and LEDs

Component and Connector Locations

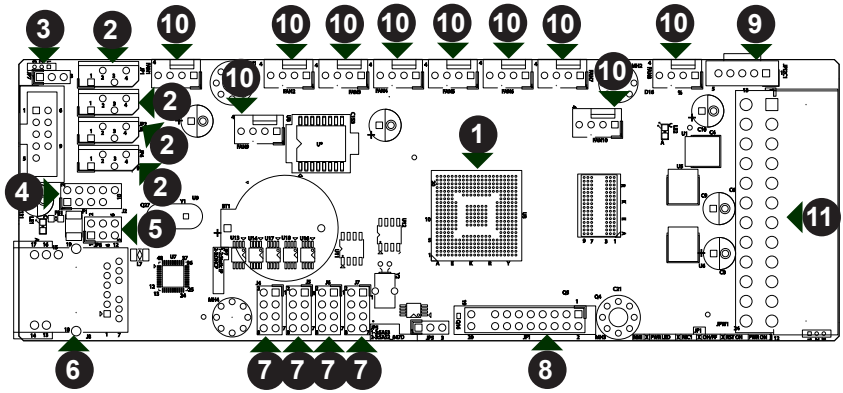


Figure CB3-1. Components and Connectors on the CSE-PTJBOD-CB3

Components and Connectors

1. BMC Chip
2. SAS2/SAS3 I²C Connectors JP1-JP4
3. Manufacturing Test Connector: J3
4. Manufacturer's USB Test Connector: FB1
5. IPMI LAN LED Header: JP6
6. IPMI LAN Connector: J8
7. SC847D SAS2 I²C Connectors: J4 - J7
8. Control Panel Connector: JF1
9. PMBus Connector: JPI²C1
10. Fan Connectors: FAN1 - FAN10
11. ATX Power Connector: JPW1

Component and Connector Definitions

1. BMC Chip

The Baseboard Management Controller (BMC) chip monitors the physical state of a system and provides communication with the system administrator through an independent connection.

2. SAS2/SAS3 I²C Connectors

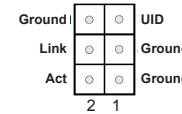
These connectors are designated JP1-JP4 and allow the power board to be connected to up to four SAS2/SAS3 backplanes.

3 and 4. Manufacturing Test Connectors

Connectors J3 and FB1 are for Supermicro manufacturing use only.

5. IPMI LAN LED Header

This connector is designated JP6 and is used to connect to the LED indicators on the chassis using cable CBL-NTWK-0584 or CBL-NTWK-0587.



6. IPMI LAN Connector

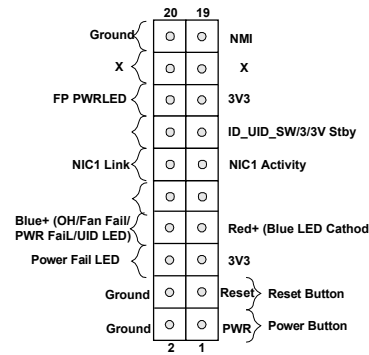
The Intelligent Platform Management Interface (IPMI) LAN connector is designated J8 and supports connectivity with a local network using cable CBL-NTWK-0584 or CBL-NTWK-0587.

7. SC847D SAS2 I2C Connectors

The backplane connectors are designated J4-J7 and allow the power board to be connected to up to four SC847D expanders.

8. Control Panel Connector

This connector is designated JF1 and connects to the control panel on the chassis. See Chapter 3 for additional control panel information.



9. PMBus Connector

This connector is designated JPI2C1 and connects the power distributor to the Power Management Bus (PMBus).

10. Fan Connectors

The fan connectors supply power to the fans and are designated FAN1-FAN10.

11. ATX Power Connector

The ATX power connector is designated JPW1.

Connectors Jumpers and LED Indicators

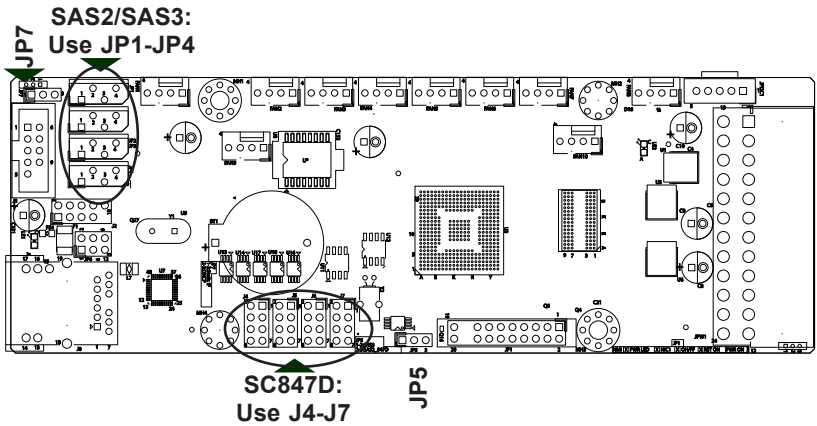


Figure CB3-2. Connectors and Jumpers

Front SAS2/SAS3 and SC847D Jumpers	
Jumper	**Description**
JP7	Pins 1-2: IPMI factory mode, IP 192.168.1.99 Pins 2-3: User mode (static/DHCP)
JP5	Pins 1-2: SAS3 enabled Pins 2-3: SAS2 enabled and SC847D

When enabling SAS2/SAS3 functionality, use connectors JP1-JP4, and set the JP5 jumper to pins 1-2 (SAS3) or pins 3-4 (SAS2).

When an SC847D chassis is being used, use connectors J4-J7 and set the JP5 jumper to pins 2-3.

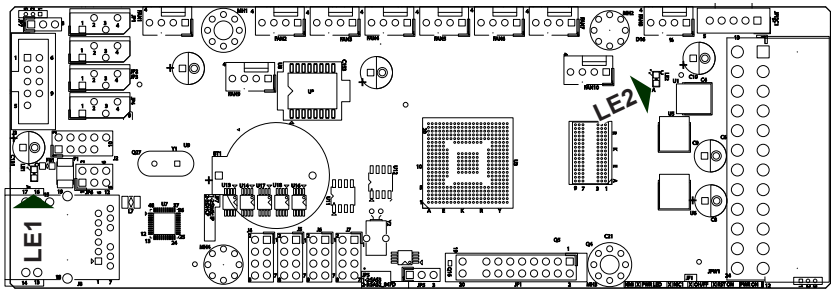


Figure CB3-3. LED Indicators

LED Indicators	
LED	**Description**
LE1	Heartbeat LED: A blinking LED indicates BMC activity
LE2	Power LED: DC power indicator

E-4 Connecting to the Front and Rear Backplanes

SC847D JBOD Chassis Cabling

E16 I²C Cabling

Use the following diagram to connect the CB3 power board to the front and rear backplanes in SC847D JBOD E16 model chassis.

Jumper Settings	
Jumper	**Setting**
JP5	Pins 1-2: SAS3 enabled Pins 2-3: SAS2 enabled and SC847

When enabling SAS2/SAS3 functionality, use connectors JP1-JP4, (see Page E-4) and set the JP5 jumper to pins 1-2 (SAS3) or pins 3-4 (SAS2).

When an SC847D chassis is being used, use connectors J4-J7 (see Page E-4) and set the JP5 jumper to pins 2-3.

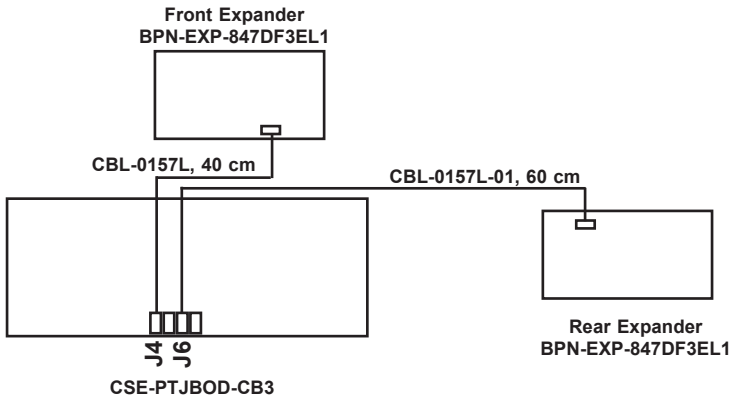


Figure CB3-4. E16 I²C Cabling

E26 I²C Cabling

Use the following diagram to connect the CB3 power board to the front and rear backplanes in SC847D-JBOD-E26 model chassis.

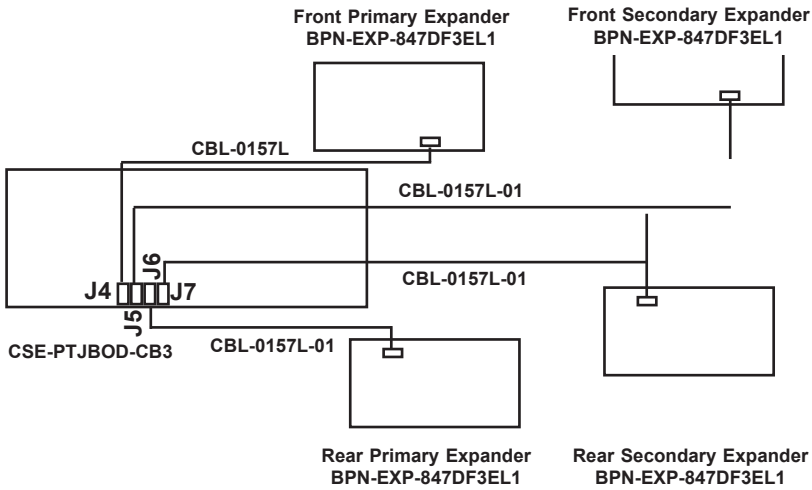


Figure CB3-5. E26 I²C Cabling

SC847 JBOD Chassis Cabling for SAS3 I²C

Use the diagram below to connect the CB3 JBOD control board to the front and rear backplanes in the SC847 JBOD chassis.

Jumper Settings	
Jumper	**Setting**
JP5	Pins 1-2: SAS3 enabled Pins 2-3: SAS2 enabled and SC847D

When enabling SAS2/SAS3 functionality, use connectors JP1-JP4, (see Page E-4) and set the JP5 jumper to pins 1-2 (SAS3) or pins 3-4 (SAS2).

When an SC847D chassis is being used, use connectors J4-J7 (see Page E-4) and set the JP5 jumper to pins 2-3.

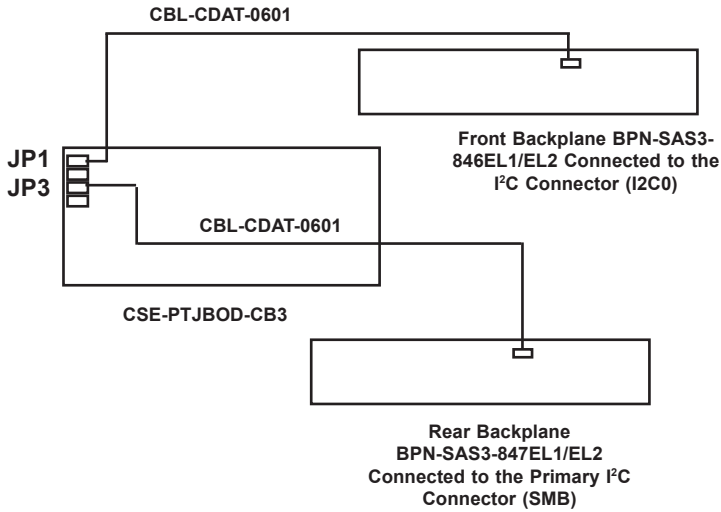


Figure CB3-6. SAS3 I²C Cabling in the SC847 JBOD Chassis

SC847B Chassis Cabling for SAS3 I²C

Use the diagram below to connect the I²C cabling. Ensure that the JP5 jumper on the CB3 power board is cabled correctly according to the figure below.

Jumper Settings	
Jumper	**Setting**
JP5	Pins 1-2: SAS3 setting (Default) Pins 2-3: SAS2 and SC847D setting

When enabling SAS2/SAS3 functionality, use the connectors on the upper left of the CB3 power board power board (See Page E-4) and set the JP5 jumper as shown in the chart above.

When an SC847D chassis is being used, use the connectors along the bottom edge fo the power board (See Page E-4) and set the JP5 jumper as shown in the chart above.

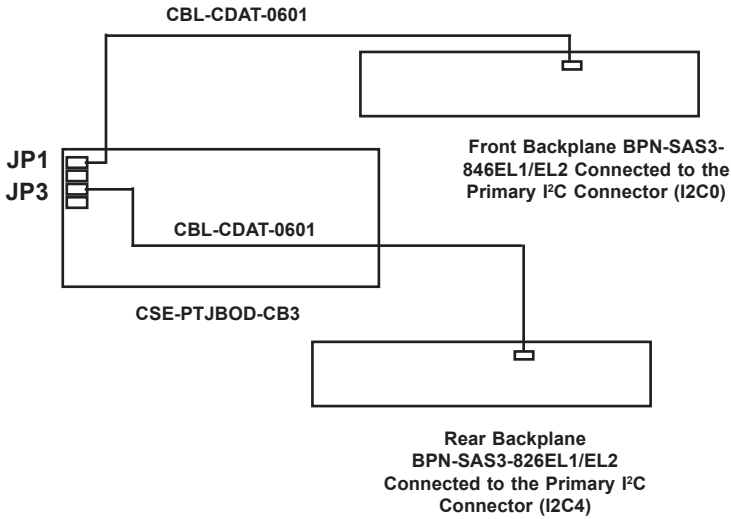


Figure CB3-7. SAS3 I²C Cabling in the SC847B Chassis

SC417B Chassis Cabling for SAS3 I²C

Use the diagram below to connect the I²C cabling. Ensure that the JP5 jumper on the CB3 JBOD control board is cabled correctly according to the figure below.

Jumper Settings	
Jumper	**Setting**
JP5	Pins 1-2: SAS3 setting (Default) Pins 2-3: SAS2 and SC847D setting

When enabling SAS2/SAS3 functionality, use the connectors on the upper left of the CB3 JBOD control board (See Page E-4) and set the JP5 jumper as shown in the chart above.

When an SC847D chassis is being used, use the connectors along the bottom edge of the JBOD control board (See Page E-4) and set the JP5 jumper as shown in the chart above.

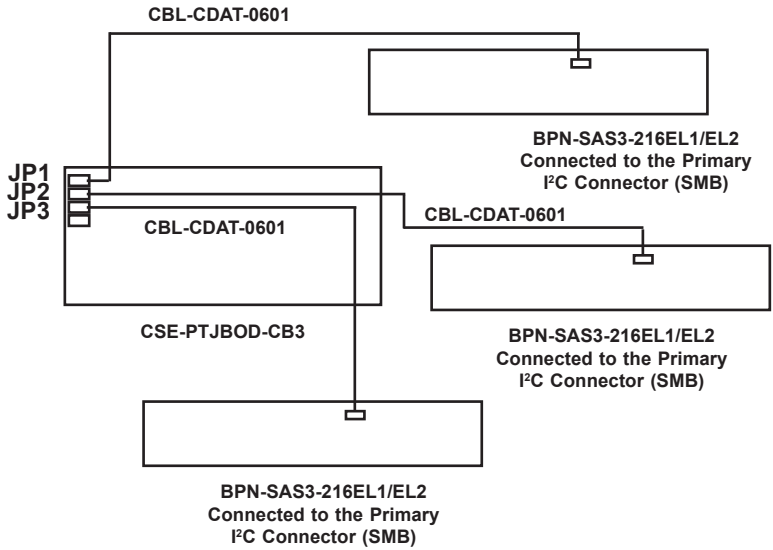


Figure CB3-8. SAS3 I²C Cabling in the SC417B Chassis

SC836B Chassis Cabling for SAS3 I²C

Use the diagram below to connect the I²C cabling. Ensure that the JP5 jumper on the CB3 JBOD control board is cabled correctly according to the figure below.

Jumper Settings	
Jumper	**Setting**
JP5	Pins 1-2: SAS3 setting (Default) Pins 2-3: SAS2 and SC836B setting

When enabling SAS2/SAS3 functionality, use the connectors on the upper left of the CB3 JBOD control board (See Page E-4) and set the JP5 jumper as shown in the chart above.

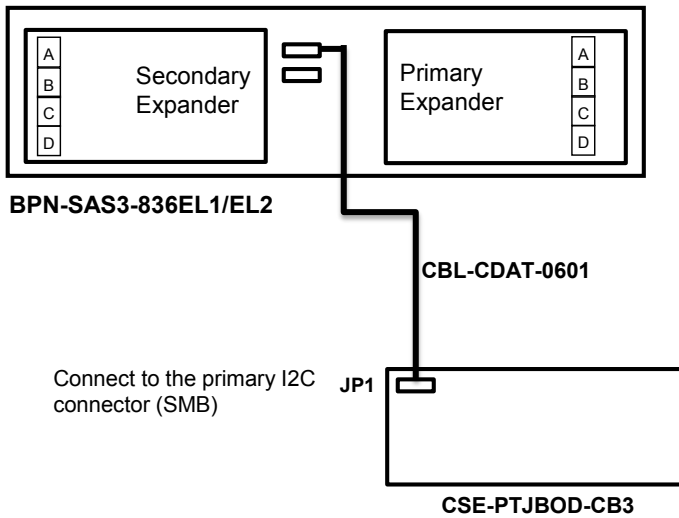


Figure CB3-9. SAS3 I²C Cabling in the SC836B Chassis

E-5 JBOD Power Up/Power Down Sequences

Power Up Sequences

First Use or Power Cord Plug-In

1. Plug the power cords into the rear of the power supplies.
2. Wait until blue Information LED starts to blink.
3. Press the power button once.* The CB3 power board will initiate the power up sequence in three seconds.

* If the CB3 JBOD control board already has power, the user may power up the chassis without waiting for the Blue UID LED.

After Normal Shutdown by IPMI or Power Button

Press the power button once. The CB3 JBOD control board will initiate the power up sequence in three seconds.

After a Power Loss

The system will power up automatically approximately fifteen seconds after the power returns.

Power Down Sequence

1. Hold down the power button. The blue UID LED will begin blinking. Continue to hold the power button.
2. Release power button after blue LED stops blinking and goes dark.
3. The shutdown sequence will begin and shut down the system within ten seconds.

E-6 IPMI Static IP to DHCP Setting

IP Address to DHCP Setting

1. Download the utility from the Supermicro website or technical support.
2. Extract the file to a known folder.
3. By default, the CB3 control board will be configured in static IP 192.168.1.99.
4. Change the host to static IP as 192.168.1.10.
5. Go to the IPMI website and select the *Configuration* tab and then select the *Network* page.
6. Change the setting from *Static* to *DHCP* mode

   If default website is not responding, press the reset button for more than ten seconds to reset to default. You will observe that the fan speed will slow and then return to normal. Continue to change to DHCP mode when the fan reaches normal speed.
7. Save the new setting.
8. Change the host IP back to DHCP mode.
9. Determine the DHCP IP address of the host, for example 10.1.1.50.
10. Run the command prompt with administrative privileges.
11. Go to the utility folder and type:

    findit 00-25-90-xx-xx-xx yy.zz.255.255

    Where: xx-xx-xx is, enter the CB3 power board MAC ID. yy.zz represents the first two octets of your host IP. Example: findit 00-25-90-xx-xx-xx 10.1.255.255
12. The utility will return the IP address of the CB3 power board. Enter the IP in browser and access the IPMI web GUI.



Notes

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.