SC846 JBOD STORAGE ENCLOSURE SERIES

SC846BE1C-R1K03JBOD  SC846BE2C-R1K03JBOD

USER’S MANUAL

Revision 1.0
The information in this User’s Manual has been carefully reviewed and is believed to be accurate. The vendor assumes no responsibility for any inaccuracies that may be contained in this document, makes no commitment to update or to keep current the information in this manual, or to notify any person or organization of the updates. Please Note: For the most up-to-date version of this manual, please see our web site at www.supermicro.com.

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

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

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

Manual Revision 1.0
Release Date: March 29, 2016

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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.

This manual may be periodically updated without notice. Please check the Supermicro Web site for possible updates.

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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Chapter 1

Introduction

1-1 Overview

The SC846 JBOD storage enclosure is designed to scale your Supermicro server storage expansion capacity. In a 4U form factor, it offers twenty-four hot-swappable 3.5" SAS/SATA hard drive bays, without compromising superior cooling capabilities. The SC846BE2C-R1K03JBOD model offers two expanders for high availability.

Just install hard drives and use an external SAS cable and connect to a host bus adapter (HBA) on the head node server. The storage capacity can be expanded instantly and reduce the initial investment.

The chassis is equipped with a redundant, efficient power supply for outstanding power savings, with specially designed optimized cooling. Quick release, tool-less slide rails are available for quick installation.

Note: A complete list of safety warnings is provided on the Supermicro web site at www.supermicro.com.

<table>
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<th>SC846 JBOD Chassis Models</th>
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<tr>
<td>Model</td>
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1-2 Shipping List

Refer to the Supermicro website for the latest shipping lists and part numbers for your chassis model.
1-3 Components

The SC846 JBOD 4U high-performance chassis includes the following features:

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

**Power Supply**
The chassis features two redundant digital power supplies, each 1000 Watts with a Titanium 80-Plus efficiency certification level.

**Cooling**
The chassis includes three hot-plug 80 mm heavy-duty, hot-swap fans and two 80 mm exhaust fans. System fans are powered and controlled by IPMI using 4-pin connectors.

**Control Board**
The 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.

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

1-4 Where to get Replacement Components

If you need replacement parts for your system, to ensure the highest level of professional service and technical support, purchase exclusively from our Supermicro Authorized Distributors/System Integrators/Resellers. A list can be found at: http://www.supermicro.com. Click the "Where to Buy" link.
1-5 Returning Merchandise for Service

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

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

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

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

During the warranty period, contact your distributor first for any product problems.
1-6 Contacting Supermicro

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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。

您正处于可能导致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。请根据每项警告结束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。在您使用任何设备之前，请注意触电的危险，並且要熟悉預防事故發生的標準工作程序。請依照每一注意事项後的號碼找到相關的翻譯說明內容。
Warnung

WICHTIGE SICHERHEITSHINWEISE


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 trouverez 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.
Chapter 2: Warning Statements for AC Systems

Warning! This symbol indicates danger. You are in a situation that can cause physical injury. Before working on any equipment, be aware of all risks associated with the electrical circuits and comply with the standard procedures to avoid accidents. Use the numbers at the end of each warning to refer to the respective location.

BELANGRIJKE VEILIGHEIDSINSTRUCTIES

Dit waarschuwing symbool betekent gevaar. U verkeert in een situatie die lichamelijk letsel kan veroorzaken. Voordat u enige apparatuur gaat werken, dient u 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.

Warning
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.

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

Warning
将此系统连接电源前,请先阅读安装说明。

警告
将系统與電源連接前，請先閱讀安裝說明。

警告
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
将系統與電源連接前，請先閱讀安裝说明。

警告
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
将系统与电源连接前，请先阅读安装说明。

Warning
将此系统连接电源前，请先阅读安装说明。

Warning
将系统与电源连接前，请先阅读安装说明。
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。

¡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.

 миров 250 V, 20 A

يمتاز هذا المنتج بسماع م nadzieję في المبنى

المبنى

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

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 apparaat niet groter gedimensioneerd is dan 220V, 20A.

Power Disconnection Warning

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 système.

¡Atención!
El sistema debe ser desconectado de todas las fuentes de energía y del cable eléctrico antes de tener acceso el interior del chasis para instalar o para quitar componentes del sistema.

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

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

Warning!

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

Warning

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.

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。

警告

訓練有素之工程師才可安裝、更換與維修此設備。

경고!

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

Restricted Area

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

¡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.
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


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.
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らない。

警告

此部件连接的电源可能不止一个，必须将所有电源断开才能停止给该部件供电。

警告

此装置连接的电源可能不只一个，必须切断所有电源才能停止对该装置的供电。

Warnung

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

¡Advertencia!

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

Attention

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

אא קיים ייחר משק אוחו

ואוחר

ליחודו יש ייחר מחברים אוחר של שק. יש לטעיר את כל החיבורים על נרתיק

את החיבור.
Chapter 2: Warning Statements for AC Systems

Backplane Voltage

Warning!

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

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.

¡Advertencia!

¡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.
**Comply with Local and National Electrical Codes**

*Warning!*

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

**경고!**

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

**Waarschuwing**

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

---

**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。

*¡Advertencia!*

La instalacion del equipo debe cumplir con las normas de electricidad locales y nacionales.
Chapter 2: Warning Statements for AC Systems

Product Disposal

**Warning!**

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

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。

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.

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.

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.

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
Chapter 2: Warning Statements for AC Systems

Warning


¡Advertencia!

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

Attention

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

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


¡Advertencia!

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

Attention

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

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。

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

安装此產品時，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


¡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.

**AC Systems**

אזהרה!

כאשר מתקינים את המוצר, יש להשתמש בכבלים, ספקים ומדאבים AC שנועדו וסופקו למטרה. בשימוש בכבל אחר או מותאם אחר יוצר גורם לתקלות או קץ חשמלי. על פי הנחיות והרממות המוסמכים על ידי UL או CSA (כשא Armour UL/CSA)gebung לכל מותר חשמלי אחור של כבל עם דא Macedonia של UL/CSA.

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
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 applies or removes primary power from the power supply to the JBOD Control Board but maintains standby power. To perform most maintenance tasks, unplug the system to remove all power.

UID and IPMI

This button performs two functions. Press it briefly to toggle the UID alert light. To reset IPMI to the factory default settings, press and hold for ten seconds.

3-3 Control Panel LEDs

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

Power

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

NIC1

Indicates network activity on GLAN1 when flashing.
Information LED
Alerts operator to several states, as noted in the table below.

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

Power Fail
Indicates a power supply module has failed.

Overheating
A sensor on the backplane will issue a warning at 45°C. Overheating is critical at 49°C. There are several possible responses if the system overheats.

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.
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.

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

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.
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: Warning Statements for AC Systems and the warning/precautions listed in the setup instructions.
4-2  Power Up/Power Down Sequences

There are several procedures to turn on or off the system with the CB3 JBOD control board.

**Power Up**

*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 JBOD control board initiates the power up sequence in three seconds.

*After Normal Shutdown by IPMI or Power Button*
Press the power button once. The 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**
1. Hold down the power button. The blue Information 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.
Removing Power from the System

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

1. 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.

2. Disconnect the cord from the power strip or wall outlet.

4-3 Cable Connections

IPMI

The SC846 JBOD chassis offers intelligent management with IPMI providing hardware health monitoring and remote power control. To enable, connect to the storage enclosure using the dedicated IPMI LAN connector (Figure 4-2).

For details on configuring and using IPMI, refer to the Supermicro IPMI manual.

Simple setup configuration:

- **IPMI default IP**: 192.168.1.99
- **User name**: ADMIN
- **Password**: ADMIN
SAS Cables

This drawing shows connectors for SAS cabling. For primary and secondary, the top two connectors are marked In, and the bottom two connectors are marked In/Out.

Connect two mini-SAS HD cables (SFF-8644) from the head server node host bus adapter (HBA) card to the top two Primary receptacles marked In. If using the E2C model (SC846BE2C-R1K03JBOD) for redundancy, connect two more mini-SAS HD cables to the top two Secondary receptacles also marked In. Cables are described in Appendix B.

To cascade out, connect cables from the two receptacles marked In/Out to the next JBOD storage enclosure. (see Figure 4-4 and 4-5)
Cascading Storage

The following diagram shows a server with a single host bus adapter (HBA) and requires only the primary expander on the backplane. The SC846 JBOD storage enclosure model E1C can accommodate this configuration.

Figure 4-4. Sample Cascading Storage, Single HBA
The following diagram shows a server with dual HBAs and requires the primary and secondary expanders on the backplane. The SC846 JBOD storage enclosure model E2C accommodates this configuration.

Figure 4-5. Sample Cascading Storage, Dual HBAs
Section 4-4 Removing the Chassis Cover

Removing the Chassis Cover

1. Power down the system and remove the power cords from the back of the power supplies.

2. Press the release tabs to remove the cover from the locked position. Press both tabs at the same time.

3. Once the top cover is released from the locked position, slide the cover toward the rear of the chassis.

4. Lift the cover off the chassis.

**Caution:** Except for short periods of time, do not operate the server without the cover in place. The chassis cover provides proper airflow and prevents overheating.
4-5 Installing Hard Drives

The drives are mounted in drive carriers to simplify their installation and removal from the chassis. These carriers also help promote proper airflow for the drive bays. **Caution:** Except for short periods of time, such as swapping hard drives, do not operate the server with the hard drive bays empty.

**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 out of the chassis.

Place the drive carrier on a flat surface such as a desk, table or work bench.
Installing a Hard Drive

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

2. Slide the hard drive into the carrier with the printed circuit board side facing down.

Figure 4-6. Removing a Dummy Drive from the Drive Carrier
3. Carefully align the mounting holes in both the drive carrier and the hard drive.

4. Secure the hard drive to the carrier using six screws.

5. Replace the drive carrier into the chassis. Make sure to close the drive carrier handle to lock the drive carrier into place.
4-6 System Fans

Five heavy-duty hot-swap system fans (three mid-chassis and two rear exhaust) provide cooling for the chassis.

Replacing a System Fan

1. If necessary, 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 open.)

2. Remove the failed fan's power cord from the JBOD control board.

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

4. Place the new fan into the vacant space in the housing making sure the arrows on the top of the fan, indicating air 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 4-11. Placing a Mid-chassis Fan
4-7 Power Supply

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

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

![Figure 4-12. Power Supply Release Tab](image)

**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.
3. Pull the power supply out using the handle provided.

4. Replace the failed power module with another of the same model.

5. Push the new power supply module into the power bay until it clicks into the locked position.

6. Plug the AC power cord back into the module.
4-8 Control Board

The JBOD control board (CSE-PTJBOD-CB3) 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. The location is shown in the figure below.

Figure 4-13. Control Board Location
4-9 Accessing the Backplane

The chassis backplane is located behind the hard drives and in front of the front system fans. In order to change jumper settings on the backplane, it may be necessary to remove the backplane from the chassis.

Removing the Backplane

1. Power down the system, remove the power cords from the back of the power supplies and remove the chassis cover.

2. Disconnect the cabling to the backplane.

3. On the right side of the chassis, remove the two screws that secure the backplane bracket and set these aside for later use.

4. Remove the four upper screws securing backplane housing to the chassis and set these aside for later use.

Figure 4-14. Removing the Upper Backplane Housing Screws
5. Remove the five lower screws securing the backplane housing to the chassis floor and set these aside for later use.

6. Gently ease the backplane up and out of the chassis.
Installing the Backplane

1. Gently slide the backplane and its housing back into position in the chassis.

2. Install the five lower screws which secure the backplane housing to the chassis floor.
Figure 4-19. Installing the Upper Screws

3. Install the four upper screws which secure the backplane housing to the chassis.

4. Install the two screws on the right side of the chassis to secure the backplane bracket.

5. Reconnect the cabling to the backplane.
Chapter 5

Rack Installation

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

5-1 Unpacking the System

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

5-2 Preparing for Setup

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

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

Choosing a Setup Location

- Leave at least 25 inches clearance in front of the rack to open the front door completely.
- Leave approximately 30 inches of clearance in the back of the rack to allow for sufficient airflow and access for servicing.
- It should be a restricted access location, such as a dedicated equipment room or a service closet.
5-3 Warnings and Precautions

Rack Precautions

• Ensure that the leveling jacks on the bottom of the rack are fully extended to the floor with the full weight of the rack resting on them.

• In single rack installations, stabilizers should be attached to the rack.

• In multiple rack installations, the racks should be coupled together.

• Always make sure that the rack is stable before extending a component from the rack.

• Only one chassis should be extended from the rack at a time. Extending two or more chassis simultaneously may cause the rack to become unstable.

• When initially installing the server to a rack, test that the rail locking tabs engage to prevent the server from being overextended. Have a rack lift in place as a precaution in case the test fails.

• In any instance of pulling the system from the rack, always use a rack lift and follow all associated safety precautions.

General Server Precautions

• Review the electrical and general safety precautions that came with the components you are adding to your chassis.

• Determine the placement of each component in the rack before you install the rails.

• Install the heaviest server components on the bottom of the rack first, and then work upward.

• Use a regulating uninterruptible power supply (UPS) to protect the server from power surges, voltage spikes and to keep your system operating in case of a power failure.

• Allow the hot-swappable hard drives and power supply modules to cool before touching them.

• Always keep the rack's front door and all panels and components on the servers closed when not servicing to maintain proper cooling.
Rack Mounting Considerations

**Ambient Operating Temperature**
If installed in a closed or multi-unit rack assembly, the ambient operating temperature of the rack environment may be greater than the ambient temperature of the room. Therefore, consideration should be given to installing the equipment in an environment compatible with the manufacturer’s maximum rated ambient temperature (TMRA).

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

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

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

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

- This unit should be mounted at the bottom of the rack if it is the only unit in the rack.

- When mounting this unit in a partially filled rack, load the rack from the bottom to the top with the heaviest component at the bottom of the rack.

- If the rack is provided with stabilizing devices, install the stabilizers before mounting or servicing the unit in the rack.

- Slide rail mounted equipment is not to be used as a shelf or a work space.
5-4 Installing the Rails

There are a variety of rack units on the market, and some may require a slightly different assembly procedure. The following is a basic guideline for installing the system into a rack with the provided rack rails. Also refer to the installation instructions that came with the specific rack you are using.

This rail set fits a rack between 26.5" and 36.4" deep. Do not use a two post "telco" type rack.

Identifying the Rails

The chassis package includes two rail assemblies. Each assembly consists of three sections: An inner rail that secures directly to the chassis, an outer rail that secures to the rack, and a middle rail which extends from the outer rail. These assemblies are specifically designed for the left and right side of the chassis and labeled.

Figure 5-1. Identifying the Outer Rail, Middle Rail and Inner Rail
(Left Rail Assembly Shown)

Note: Both front chassis rails and the rack rails have a locking tab, which serves two functions. First, it locks the server into place when installed and pushed fully into the rack (its normal operating position. In addition, these tabs lock the server in place when fully extended from the rack. This prevents the server from coming completely out of the rack when pulled out for servicing.
Releasing the Inner Rail

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

To mount the rail onto the chassis, first release the 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

![Diagram of inner rails being installed on chassis]

**Figure 5-3. Installing the Inner Rails**

---

**Installing the Inner Rails**

1. Identify the left and right side inner rails. Place the correct inner rail on the side of the chassis, aligning the hooks of the chassis with the inner rail holes. Make sure the rail faces "outward" so that it will fit with the rack's mounting bracket.

2. Slide the rail toward the front of the chassis to hook the inner rail onto the side of the chassis.

3. If desired, secure the rail with two flat head M4 x 4mm screws as illustrated.

4. Repeat for the other inner rail.
**Warning:** Do not pick up the server by the front handles. They are designed to pull the system from a rack only.
Installing the Outer Rails onto the Rack

Installing the Outer Rails

1. Press upward on the locking tab at the rear end of the middle rail.

2. Push the middle rail back into the outer rail.

3. Hang the hooks on the front of the outer rail onto the square holes on the front of the rack. If desired, use screws to secure the outer rails to the rack.

4. Pull out the rear of the outer rail, adjusting the length until it just fits within the posts of the rack.

5. Hang the hooks of the rear section of the outer rail onto the square holes on the rear of the rack. Take care that the proper holes are used so the rails are level. If desired, use screws to secure the rear of the outer rail to the rear of the rack.

6. Repeat for the other outer rail.

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

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

Figure 5-4. Extending and Mounting the Outer Rails
Installing the Chassis into a Rack

Installing the Chassis into a Rack:

1. Align the chassis rails (A) with the front of the rack rails (B).

2. Slide the chassis rails into the rack rails, keeping the pressure even on both sides. You may have to depress the locking tabs while inserting. When the server has been pushed completely into the rack, the locking tabs should "click" into the locked position.

3. If screws are used, tighten the screws on the front and rear of the outer rails.

4. (Optional) Insert and tighten the thumbscrews that hold the front of the server to the rack.

Figure 5-5. Installing the Chassis into a Rack

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

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

![Figure 5-6. Removing the Chassis From the Rack](image)

**Removing the Chassis from the Rack**

1. Pull the chassis forward out the front of the rack until it stops.

2. Press the release latches on each of the inner rails downward simultaneously and move the chassis forward in the rack.
Appendix A

SC846 JBOD Power Supply Specifications

This appendix lists power supply specifications for your chassis system.

<table>
<thead>
<tr>
<th>1000W (Redundant)</th>
</tr>
</thead>
<tbody>
<tr>
<td><strong>MFR Part #</strong></td>
</tr>
<tr>
<td><strong>AC Input</strong></td>
</tr>
<tr>
<td><strong>DC Output</strong></td>
</tr>
</tbody>
</table>
Appendix B

BPN-SAS3-846EL Backplane Specifications

This appendix provides details about the backplanes used in the SC846 JBOD chassis.

<table>
<thead>
<tr>
<th>Chassis Model</th>
<th>Backplane</th>
<th>Feature</th>
</tr>
</thead>
<tbody>
<tr>
<td>SC846BE1C-R1K03JBOD</td>
<td>BPN-SAS3-846EL1</td>
<td>Single SAS expander</td>
</tr>
<tr>
<td>SC846BE2C-R1K03JBOD</td>
<td>BPN-SAS3-846EL2</td>
<td>Dual SAS expanders</td>
</tr>
</tbody>
</table>

B-1 Safety Guidelines

ESD Safety

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

- Use a grounded wrist strap designed to prevent static discharge.
- Touch a grounded metal object before removing a component from the antistatic bag.
- Handle the backplane by its edges only; do not touch its components, peripheral chips, memory modules or gold contacts.
- When handling chips or modules, avoid touching their pins.
- Put the card and peripherals back into their antistatic bags when not in use.

General Safety

- Always disconnect power cables before installing or removing any components from the computer, including the backplane.
- Disconnect the power cable before installing or removing any cables from the backplane.
- Make sure that the backplane is securely and properly installed on the motherboard to prevent damage to the system due to power shortage.
B-2 Version Information

The BPN-SAS3-846EL backplane has been designed to utilize the most up-to-date technology available, providing your system with reliable, high-quality performance. This manual reflects BPN-SAS3-846EL Revision 1.01, the most current release available at the time of publication. All images and layouts shown in this guide are based upon the latest backplane revision available at the time of publishing. Always refer to the Supermicro Web site at www.supermicro.com for the latest updates, compatible parts and supported configurations.
B-3 Rear Connectors and Jumpers

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

Figure B-1. Rear Connectors and Jumpers

Rear Connectors

1. Primary Expander Chip
2. Secondary Expander Chip (not present on EL1 single port backplanes)
3. Backplane Power Connectors: PWR1 through PWR6
4. Primary SAS Ports: J49, J50
5. Secondary SAS Ports: J51, J52. (not present on EL1 single port backplanes)
6. Primary UART Connector: PRI-UART (J30) for manufacturer's use only
7. Secondary UART Connector: SEE-UART(J24) for manufacturer's use only, not present on EL1 backplanes
8. Primary SDB Connector: PRI-SDB (J31), for manufacturer's use only
9. Secondary SDB Connector: SEE-SDB (J29), for manufacturer's use only, not present on EL1 backplanes
10. I²C Connector: EXP I2C0 (J48) and EXP I2C4 (J47)
11. JP3 P_MDIO and JP4 P_MDIO: Primary and secondary management data in/out. For manufacturer's use only.
1-2. Primary and Secondary Expander Chips
The primary and secondary expander chips allow the backplane to support dual port, cascading, and failover configurations.

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

<table>
<thead>
<tr>
<th>Pin#</th>
<th>Definition</th>
</tr>
</thead>
<tbody>
<tr>
<td>1</td>
<td>+12V</td>
</tr>
<tr>
<td>2 and 3</td>
<td>Ground</td>
</tr>
<tr>
<td>4</td>
<td>+5V</td>
</tr>
</tbody>
</table>

4-5. Primary and Secondary SAS Ports
The primary SAS connectors are designated J49 and J50. The secondary SAS Ports are designated J51 through J52 and are not present on EL1 single port backplanes.

6-9. Primary and Secondary UART Connectors and SDB Connectors
For manufacturer’s diagnostic purposes only.

10. I²C Connectors
The I²C connectors accept cables to the JBOD Control Board.

11. Management Data Port
For manufacturer’s use only. JP3 P_MDIO and JP4 P_MDIO are primary and secondary management data in and out.
Appendix B: BPN-SAS3-846EL Backplane Specifications

B-5  Rear Jumper Locations and Pin Definitions

Figure B-2. Rear Jumpers

<table>
<thead>
<tr>
<th>Jumper</th>
<th>Jumper Settings</th>
<th>Note</th>
</tr>
</thead>
<tbody>
<tr>
<td>LED Testing Only</td>
<td>Open: Disabled (Default)</td>
<td>Activity LED test.</td>
</tr>
<tr>
<td>ACTLED</td>
<td>Closed: Enabled</td>
<td></td>
</tr>
</tbody>
</table>

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.
B-6  Rear LED Indicators

Figure B-3. Rear LEDs

<table>
<thead>
<tr>
<th>LED</th>
<th>Normal State</th>
<th>Abnormal State</th>
<th>Specification</th>
</tr>
</thead>
<tbody>
<tr>
<td>12V_LED1</td>
<td>On</td>
<td>Off</td>
<td>12V power status.</td>
</tr>
<tr>
<td>12V_LED2</td>
<td>Blinking</td>
<td>Steady on, or off</td>
<td>Primary expander heartbeat indicator.</td>
</tr>
<tr>
<td>5V_LED1</td>
<td>On</td>
<td>Off</td>
<td>5V power status.</td>
</tr>
<tr>
<td>5V_LED2</td>
<td>Blinking</td>
<td>Steady on, or off</td>
<td>Secondary expander heartbeat indicator (not present on BPN-SAS3-846EL1 backplanes).</td>
</tr>
<tr>
<td>OVERHEATFAIL1</td>
<td>Off</td>
<td>On</td>
<td>System overheat/failure LED.</td>
</tr>
</tbody>
</table>
## B-7 Front Components, Connectors and LED Indicators

### Front SAS/SATA Connectors and LED Indicators

<table>
<thead>
<tr>
<th>Drive Number</th>
<th>Label</th>
<th>HDD Activity LED (blue)</th>
<th>Failure LED (red)</th>
</tr>
</thead>
<tbody>
<tr>
<td>SAS #0</td>
<td>J0</td>
<td>ACT0</td>
<td>FAIL0</td>
</tr>
<tr>
<td>SAS #1</td>
<td>J1</td>
<td>ACT1</td>
<td>FAIL1</td>
</tr>
<tr>
<td>SAS #2</td>
<td>J2</td>
<td>ACT2</td>
<td>FAIL2</td>
</tr>
<tr>
<td>SAS #3</td>
<td>J3</td>
<td>ACT3</td>
<td>FAIL3</td>
</tr>
<tr>
<td>SAS #4</td>
<td>J4</td>
<td>ACT4</td>
<td>FAIL4</td>
</tr>
<tr>
<td>SAS #5</td>
<td>J5</td>
<td>ACT5</td>
<td>FAIL5</td>
</tr>
<tr>
<td>SAS #6</td>
<td>J6</td>
<td>ACT6</td>
<td>FAIL6</td>
</tr>
<tr>
<td>SAS #7</td>
<td>J7</td>
<td>ACT7</td>
<td>FAIL7</td>
</tr>
<tr>
<td>SAS #8</td>
<td>J8</td>
<td>ACT8</td>
<td>FAIL8</td>
</tr>
<tr>
<td>SAS #9</td>
<td>J9</td>
<td>ACT9</td>
<td>FAIL9</td>
</tr>
<tr>
<td>SAS #10</td>
<td>J10</td>
<td>ACT10</td>
<td>FAIL10</td>
</tr>
<tr>
<td>SAS #11</td>
<td>J11</td>
<td>ACT11</td>
<td>FAIL11</td>
</tr>
<tr>
<td>SAS #12</td>
<td>J12</td>
<td>ACT12</td>
<td>FAIL12</td>
</tr>
<tr>
<td>SAS #13</td>
<td>J13</td>
<td>ACT13</td>
<td>FAIL13</td>
</tr>
<tr>
<td>SAS #14</td>
<td>J14</td>
<td>ACT14</td>
<td>FAIL14</td>
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<tr>
<td>SAS #15</td>
<td>J15</td>
<td>ACT15</td>
<td>FAIL15</td>
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<tr>
<td>SAS #16</td>
<td>J16</td>
<td>ACT16</td>
<td>FAIL16</td>
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<tr>
<td>SAS #17</td>
<td>J17</td>
<td>ACT17</td>
<td>FAIL17</td>
</tr>
<tr>
<td>SAS #18</td>
<td>J18</td>
<td>ACT18</td>
<td>FAIL18</td>
</tr>
<tr>
<td>SAS #19</td>
<td>J19</td>
<td>ACT19</td>
<td>FAIL19</td>
</tr>
</tbody>
</table>
### Front SAS/SATA Connectors and LED Indicators

<table>
<thead>
<tr>
<th>Drive Number</th>
<th>Label</th>
<th>HDD Activity LED (blue)</th>
<th>Failure LED (red)</th>
</tr>
</thead>
<tbody>
<tr>
<td>SAS #20</td>
<td>J20</td>
<td>ACT20</td>
<td>FAIL20</td>
</tr>
<tr>
<td>SAS #21</td>
<td>J21</td>
<td>ACT21</td>
<td>FAIL21</td>
</tr>
<tr>
<td>SAS #22</td>
<td>J22</td>
<td>ACT22</td>
<td>FAIL22</td>
</tr>
<tr>
<td>SAS #23</td>
<td>J23</td>
<td>ACT23</td>
<td>FAIL23</td>
</tr>
</tbody>
</table>
Dual Port and Cascading Configurations

B-8 Single and Dual Port Expanders

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

Single Ports

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

![Figure B-5. BBPN-SAS3-846EL1 Single Port Configuration](image)

Dual Ports

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

![Figure B-6. BPN-SAS3-846EL2 Dual Port Configuration](image)
Connecting an Internal HBA to the Backplane

This section shows connections and cables that connect an internal HBA to the backplane. **Note:** Not applicable for the SC846 JBOD chassis.

**Figure B-11. Single Internal Host Bus Adapter**

**Figure B-12. Dual Internal Host Bus Adapter**
Supported Internal HBA Cables

Use the following cables to create connections between the internal HBA and BPN-SAS3-846EL 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-SAS3-846EL backplane.

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

- **Part #:** CBL-SAST-0568  
  **Length:** 35 cm (13 inches)
- **Part #:** CBL-SAST-0593  
  **Length:** 60 cm (23 inches)
- **Part #:** CBL-SAST-0531  
  **Length:** 80 cm (31 inches)

**Description:** This cable has a Mini-SAS HD (SFF-8643) connector at both ends. It connects from the SAS3 HBA to the BPN-SAS3-846EL backplane.
B-9 Failover

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

**Single Host Bus Adapter**

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

![Figure B-7. Single HBA](image1)

**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 B-8. Single HBA Failover](image2)
Failover with RAID Cards and Multiple HBAs
The BPN-SAS3-846EL backplane may be configured for failover with multiple HBAs using either RAID controllers or HBAs to achieve failover protection.

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

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

---

**Dual Host Bus Adapter**
In a dual host bus configuration, the backplane connects to two HBAs.

**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.

---

**IMPORTANT:** For RAID controllers, redundancy is achieved through port failover. For multiple HBAs MPIO software is required to achieve failover protection.
B-12 JBOD Control Board

In a cascaded configuration, the first chassis includes a motherboard and at least one host bus adapter (HBA). Other storage enclosures in the system must be equipped with a JBOD control board. This board controls power and provides some management over the chassis components. For more information, see Appendix C in this manual, or the Supermicro web site at www.supermicro.com.

The SC846 JBOD chassis includes the JBOD control board.

Figure B-11. SAS I²C Cabling
B-13 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 adding a JBOD storage enclosure to an existing system.

**Single External Host Bus Adapter**

![Diagram of Single External Host Bus Adapter](image)

**Dual External Host Bus Adapter**

![Diagram of Dual External Host Bus Adapter](image)

**Figure B-13. Single External Host Adapter**

**Figure B-14. Dual External Host Bus Adapter**

**IMPORTANT:** See *Failover with RAID Cards and Multiple HBAs* in this manual for important information on supported configurations.
Single HBA Configuration Cables

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 B-16. External Mini-SAS HD to External Mini-SAS HD Cable

Cable Name: 16-port Mini-SAS HD Internal to External Cable Adapter
Part #: AOM-SAS3-1616E
Ports: Four wide ports (sixteen ports total)
Placement: Internal cable with adapter
Description: Internal cable, connects the SAS3 backplane to external ports.

Figure B-17. Mini-SAS HD Internal to External Adapter
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 B-15. Single HBA Configuration
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.

![Diagram of dual HBA configuration]

Figure B-18. Dual HBA Configuration

**IMPORTANT:** See Section B-10 of this manual, *Failover with RAID Cards and Multiple HBAs* for important information on supported configurations.
Appendix C

CSE-PTJBOD-CB3 Control Board

C-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.

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 control board by its edges only; do not touch its components, peripheral chips, memory modules or gold contacts.
- When handling chips or modules, avoid touching their pins.
- Put the control board 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 control board.
- Disconnect the power cable before installing or removing any cables from the control board.
- Make sure that the control board is securely and properly installed in the chassis to prevent damage to the system due to power shortage.

C-3 Components, Connectors, Jumpers and LEDs

Component and Connector Locations

6. IPMI LAN Connector: J8
7. (SC847D only) SAS2 I2C Connectors: J4 - J7
8. Control Panel Connector: JF1
9. PMBus Connector: JP1^2C1
10. Fan Connectors: FAN1 - FAN10
11. ATX Power Connector: JPW1

Components and Connectors

1. BMC Chip
3. Manufacturing Test Connector: J3
4. Manufacturer's USB Test Connector: FB1
5. IPMI LAN LED Header: JP6
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. **I2C Connectors**
   These connectors (JP1-JP4) accept cables for up to four SAS2/SAS3 backplanes that carry management data between the backplane and the control board.

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**
   (Used for SC847D only) The backplane connectors, designated J4-J7, accept internal cables to connect 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.

Jumpers and LED Indicators

<table>
<thead>
<tr>
<th>Jumper</th>
<th>Description</th>
</tr>
</thead>
<tbody>
<tr>
<td>JP7</td>
<td>Pins 1-2: IPMI factory mode, IP 192.168.1.99</td>
</tr>
<tr>
<td></td>
<td>Pins 2-3: User mode (static/DHCP)</td>
</tr>
<tr>
<td>JP5</td>
<td>Pins 1-2: SAS3 enabled</td>
</tr>
<tr>
<td></td>
<td>Pins 2-3: SAS2 enabled and SC847D</td>
</tr>
</tbody>
</table>

To enable SAS2 or SAS3 functionality on the I²C connectors, set the JP5 jumper as noted.
Appendix C: CB3 JBOD Control Board

LED Indicators

<table>
<thead>
<tr>
<th>LED</th>
<th>Description</th>
</tr>
</thead>
<tbody>
<tr>
<td>LE1</td>
<td>Heartbeat LED: A blinking LED indicates BMC activity</td>
</tr>
<tr>
<td>LE2</td>
<td>Power LED: DC power indicator</td>
</tr>
</tbody>
</table>

Figure CB3-3. LED Indicators
C-4  I²C Cabling to the Backplane

This JBOD storage enclosure is preconfigured with the internal cables connected. Use this section for reference if a cable becomes disconnected during maintenance. Ensure that the JP5 jumper on the JBOD control board is set according to the table in the section, *Jumpers and LED Indicators.*

When enabling SAS2/SAS3 functionality, connect the I²C connectors on the JBOD control board (Figure CB3-1) to the proper connector on the backplane. Refer to the table below and the backplane documentation to determine the correct connector.

---

**Connections for SC846 JBOD Chassis**

Specific I²C connectors (JP1-JP4) on the JBOD control board are connected to the backplane.

---

**I²C Cable Connections for SC846 JBOD**

<table>
<thead>
<tr>
<th>JP1</th>
<th>JP2</th>
<th>JP3</th>
<th>JP4</th>
</tr>
</thead>
<tbody>
<tr>
<td><strong>Control Board</strong></td>
<td><strong>BPN-SAS3-846EL Backplane</strong></td>
<td></td>
<td></td>
</tr>
<tr>
<td>JP1</td>
<td>EXP I²C0 connector</td>
<td></td>
<td></td>
</tr>
</tbody>
</table>
C-5  JBOD Power Up/Power Down Sequences

There are several procedures to turn on or off the system with the CB3 JBOD control board.

**Power Up**

*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 JBOD control board initiates the power up sequence in three seconds.

*After Normal Shutdown by IPMI or Power Button*
Press the power button once. The 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**
1. Hold down the power button. The blue Information 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
**C-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 JBOD 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:

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

    Where: xx-xx-xx is, enter the JBOD control 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 JBOD control board. Enter the IP in browser and access the IPMI web GUI.
Disclaimer (cont.)
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