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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.

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Manual Organization

Chapter 1: Introduction

The first chapter provides a checklist of the main components included with this chassis and describes the main features of the SC847BEC1/C2 and SC847BA chassis. This chapter also includes contact information.

Chapter 2: Standardized Warning Statements for AC/DC Systems

This chapter lists warnings, precautions, and system safety. It is recommended that you thoroughly familiarize yourself with installing and servicing the chassis and all safety precautions.

Chapter 3: System Interface

Refer to this chapter for details on the system interface, which includes the functions and information provided by the chassis control panel, as well as other LEDs located throughout the system.

Chapter 4: Chassis Setup and Maintenance

Follow the procedures given in this chapter when installing, removing, or reconfiguring components in your chassis.

Chapter 5: Rack Installation

Refer to this chapter for detailed information on chassis rack installation. You should follow the procedures given in this chapter when installing, removing or reconfiguring your chassis into a rack environment.

This section lists compatible cables, power supply specifications, and compatible backplanes. Not all compatible backplanes are listed. Refer to our website for the latest compatible backplane information.

Appendix A: Cables and Hardware

This section provides information on cabling, and other hardware which is compatible with your chassis.

Appendix B: Power Supply Specifications

This chapter lists the specifications of the power supply provided with your chassis.

Appendix C: BPN-SAS3-846EL Backplane Specifications

This chapter contains information on the BPN-SAS3-846EL1 and BPN-SAS3-846EL2 backplanes.

Appendix D: BPN-SAS3-826EL Backplane Specifications

This section covers the BPN-SAS3-826EL1 and BPN-SAS3-826EL2 backplane specifications.

Appendix E: Front to Rear Backplane Cascading- SC847BE1C/2C

This appendix provides information on cascading from the front backplane to the rear backplane on SC847BE1C/2C chassis models only.

Appendix F: BPN-SAS-826A Backplane Specifications

This appendix covers the BPN-SAS-826A backplane specifications.

Appendix G: BPN-SAS-846A Backplane Specifications

This appendix covers the BPN-SAS-846A backplane specifications.

For additional information on all the appendices listed above, visit the Supermicro website at www.supermicro.com.
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Appendix F BPN-SAS-826A Backplane Specifications
Appendix G BPN-SAS3-846A Backplane Specifications
Chapter 1

Introduction

1-1 Overview

Optimized for enterprise-level heavy-capacity storage applications, Supermicro’s SC847BE1C/2C and SC847BA chassis features up to 36x (24 front + 12 rear) 3.5" hot-swap HDD bays SAS/SATA drive bays supporting SAS3/2 or SATA3 HDDs with 12 Gbps throughput.

The SC847BE1C/2C and SC847BA designs provide high-density storage in a 4U form factor, with high power efficiency, optimized HDD signal trace routing and improved HDD carrier design to dampen vibration and maximize performance. Equipped with a 1280W (Platinum Level) high-efficiency redundant power supply and seven hot-plug redundant cooling fans, the SC847BE1C/2C and SC847BA are reliable, high-quality storage workhorse systems.

1-2 Shipping List

Please visit the Supermicro website for the latest shipping lists and part numbers for your particular chassis model at www.supermicro.com.

<table>
<thead>
<tr>
<th>Model</th>
<th>HDD</th>
<th>I/O Slots</th>
<th>Power Supply</th>
</tr>
</thead>
<tbody>
<tr>
<td>SC847BA-R1K28LPB</td>
<td>36x (24 front + 12 rear)</td>
<td>7x LP</td>
<td>1280W redundant (Platinum Level)</td>
</tr>
<tr>
<td>SC847BE1C-R1K28LPB</td>
<td>36x (24 front + 12 rear) 3.5&quot; SAS3</td>
<td>7x LP</td>
<td>1280W redundant (Platinum Level)</td>
</tr>
<tr>
<td>SC847BE2C-R1K28LPB</td>
<td>36x (24 front + 12 rear) 3.5&quot; SAS3</td>
<td>7x LP</td>
<td>1280W redundant (Platinum Level)</td>
</tr>
<tr>
<td>SC847BE1C-R1K28WB</td>
<td>36x (24 front + 12 rear) 3.5&quot; SAS3</td>
<td>4x FH 3x LP (WIO)</td>
<td>1280W redundant (Platinum Level)</td>
</tr>
<tr>
<td>SC847BE2C-R1K28WB</td>
<td>36x (24 front + 12 rear) 3.5&quot; SAS3</td>
<td>4x FH 3x LP (WIO)</td>
<td>1280W redundant (Platinum Level)</td>
</tr>
</tbody>
</table>
1-3 Where to get Replacement Components

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

---

Contacting Supermicro

**Headquarters**
Address: Super Micro Computer, Inc.
980 Rock Ave.
San Jose, CA 95131 U.S.A.
Tel: +1 (408) 503-8000
Fax: +1 (408) 503-8008
Email: marketing@supermicro.com (General Information)
support@supermicro.com (Technical Support)
Website: www.supermicro.com

**Europe**
Address: Super Micro Computer, B.V.
Het Sterrenbeeld 28, 5215 ML
's-Hertogenbosch, The Netherlands
Tel: +31 (0) 73-6400390
Fax: +31 (0) 73-6416525
Email: sales@supermicro.nl (General Information)
support@supermicro.nl (Technical Support)
rma@supermicro.nl (Customer Support)
Website: www.supermicro.nl

**Asia-Pacific**
Address: Super Micro Computer, Inc.
3F, No. 150, Jian 1st Rd.
Zhonghe Dist., New Taipei City 235
Taiwan (R.O.C)
Tel: +886-(2) 8226-3990
Fax: +886-(2) 8226-3992
Email: support@supermicro.com.tw
Website: www.supermicro.com.tw
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.
Chapter 2

Standardized Warning Statements for AC/DC Systems

2-1 About Standardized Warning Statements

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

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

These warnings may also be found on our web site at http://www.supermicro.com/about/policies/safety_information.cfm.

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。

此警告符号代表危险。

您正处於可能身体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。
Warning Statements for AC Systems

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 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.

تحذير!

تحذير! هذا الرمز يعني خطر أنك في حالة يمكن أن تتبث في إصابة جسدية. قبل أن تعمل على أي معدات، كن على علم بالمخاطر الناجمة عن الدوائر الكهربائية وكن على دراية بالإجراءات 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.

설치手順書
시스템을 전원에 연결하기 전에, 설치 안내를 읽어주세요.

警告
将此系统连接电源前，请先阅读安装说明。

警告
将系统与电源连接前，请先阅读安装说明。

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.

Warning!
This product relies on the building's installation for short-circuit (overcurrent) protection. Ensure that the protective device is rated not greater than: 60VDC, 20 A.

설치서
이 제품은 건물의 설치에 의존하여 단락(대류) 보호를 제공합니다. 보호 장치의 경우가 60VDC, 20 A보다 커서는 안됩니다.

설치서
이 제품은 건물의 전원설치에 의존하여 단락(또는 과전류) 보호를 제공합니다. 보호 장치의 경우가 60VDC, 20 A보다 커서는 안됩니다.

설치서
이제이 제품은 건물의 전원설치에 의존하여 단락(또는 과전류) 보호를 제공합니다. 보호 장치의 경우가 60VDC, 20 A보다 커서는 안됩니다.

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

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 Netzan schlusskabel getrennt sein, das von den SpgVersorgungssteilmodulen entfernt wird, bevor es auf den Chassissinnenraum zurückgreift, um Systemsbestandteile anzubringen oder zu entfernen.
Equipment Installation

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

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
只有经过受训且具资格人員才可安裝、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.

¡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.
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.

Warning


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.

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.

Warning

Er is ontplofsingsgevaar 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.

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.

Warning

Er is ontplofsingsgevaar 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。

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.

¡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.

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装置的供电。

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。

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.

¡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.

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装置的供电。

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。

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.
Comply with Local and National Electrical Codes

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

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・条則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。

Warnung
Die Entsorgung dieses Produkts sollte gemäß allen Bestimmungen und Gesetzen des Landes erfolgen.
Chapter 2: Warning Statements for AC/DC Systems

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.

¡Advertencia!

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

Attention

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

¡Advertencia!

Los ventiladores pueden todavía girar cuando se quite el conjunto del ventilador del chasis. Mantenga las manos, los destornilladores y todos los objetos alejados de las aberturas del ventilador.

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.

¡Advertencia!

Los ventiladores podran 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.

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.

¡Advertencia!

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

Attention

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

Warning!

When stranded wiring is required, use approved wiring terminations, such as closedloop or spade-type with upturned lugs. These terminations should be the appropriate size for the wires and should clamp both the insulation and conductor.

Warning

Wenn Litzenverdrahtung erforderlich ist, sind zugelassene Verdrahtungsabschlüsse, z.B. für einen geschlossenen Regelkreis oder gabelförmig, mit nach oben gerichteten Kabelschuhen zu verwenden. Diese Abschlüsse sollten die angemessene Größe für die Drähte haben und sowohl die Isolierung als auch den Leiter festklemmen.

Waarschuwing

Wanneer geslagen bedrading vereist is, dient u bedrading te gebruiken die voorzien is van goedgekeurde aansluitingspunten, zoals het gesloten-lus type of het grijperschop type waarbij de aansluitpunten omhoog wijzen. Deze aansluitpunten dienen de juiste maat voor de draden te hebben en dienen zowel de isolatie als de geleider vast te klemmen.

¡Advertencia!

Cuando se necesite hilo trenzado, utilizar terminales para cables homologados, tales como las de tipo "bucle cerrado" o "espada", con las lengüetas de conexión vuelta hacia arriba. Estos terminales deberán ser del tamaño apropiado para los cables que se utilicen, y tendrán que sujetar tanto el aislante como el conductor.

Attention

Quand des fils torsadés sont nécessaires, utiliser des douilles terminales homologuées telles que celles à circuit fermé ou du type à plage ouverte avec cosses rebroussées. Ces douilles terminales doivent être de la taille qui convient aux fils et doivent être refermées sur la gaine isolante et sur le conducteur.

警告

需要多股佈線時，請使用經核准的佈線終端，如閉環或鏟型接線片。這些終端的大小應適合線路，並且可以同時夾住絕緣體和導體。

주의!

꼬인 배선이 요구 될 때에는 폐회로나 돌출부가 위로 튀어 나온 Spade형태의 승인된 배선 터미네이션들을 사용하세요.

주의!

모든 배선이 요구 될 때에는 폐회로나 돌출부가 위로 튀어 나온 Spade형태의 승인된 배선 터미네이션들을 사용하세요.

주의!

이 터미네이션들은 배선들을 위해 적절한 크기어야 하고, 접연체와 도체 모두를 고정시킬 수 있어야 합니다.

주의!

모든 배선이 요구 될 때에는 폐회로나 돌출부가 위로 튀어 나온 Spade형태의 승인된 배선 터미네이션들을 사용하세요.

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DC Power Disconnection

Warning!
Before performing any of the following procedures, ensure that power is removed from the DC circuit.

Warning: Vor Ausführung der folgenden Vorgänge ist sicherzustellen, daß die Gleichstromschaltung keinen Strom erhält.

¡Advertencia!: Antes de proceder con los siguientes pasos, comprobar que la alimentación del circuito de corriente continua (CC) está cortada (OFF).

Attention
Avant de pratiquer l'une quelconque des procédures ci-dessous, vérifier que le circuit en courant continu n'est plus sous tension.

Warning!
Hazardous Voltage or Energy Present on DC Power Terminals

Warning! Hazardous voltage or energy may be present on DC power terminals. Always replace cover when terminals are not in service. Be sure uninsulated conductors are not accessible when cover is in place.

危険電圧が存在する場合がありますので、カバーを設置する際は、非絶縁導体が可及的に遮蔽されないように注意してください。

주의!
다음 절차들을 수행하기 전에, 전원이 DC회로로부터 제거되었는지를 확인해 주십시오.

Waarschuwing
Wanneer geslagen bedrading vereist is, dient u bedrading te gebruiken die voorzien is van goedgekeurde aansluitpunten, zoals het gesloten-lus type of het gripperschop type waarbij de aansluitpunten omhoog wijzen. Deze aansluitpunten dienen de juiste maat voor de draden te hebben en dienen zowel de isolatie als de geleider vast te klemmen.

Hazardous Voltage or Energy Present on DC Power Terminals

Warning!
Hazardous voltage or energy may be present on DC power terminals. Always replace cover when terminals are not in service. Be sure uninsulated conductors are not accessible when cover is in place.

警告
直流电源終端可能產生危險的電壓或能量。終端不使用時，請務必蓋上機蓋。當蓋上機蓋，確認不絶緣導體無法使用。

주의!
다음 절차들을 수행하기 전에, 전원이 DC회로로부터 제거되었는지를 확인해 주십시오.

Warnung
In mit Gleichstrom betriebenen Terminals kann es zu gefährlicher Spannung kommen. Die Terminals müssen abgedeckt werden, wenn sie nicht in Betrieb sind. Stellen Sie bei Benutzung der Abdeckung sicher, dass alle nicht isolierten, stromführenden Kabel abgedeckt sind.
¡Advertencia!

Puede haber energía o voltaje peligrosos en los terminales eléctricos de CC. Reemplace siempre la cubierta cuando no estén utilizándose los terminales. Asegúrese de que no haya acceso a conductores descubiertos cuando la cubierta esté colocada.

Attention

Le voltage ou l’énergie électrique des terminaux à courant continu peuvent être dangereux. Veillez à toujours replacer le couvercle lors les terminaux ne sont pas en service. Assurez-vous que les conducteurs non isolés ne sont pas accessibles lorsque le couvercle est en place.

주의!

DC전원 단자들에 위험한 전압이나 에너지가 발생할 수 있습니다.

단말기를 운영하지 않을 때에는 덮개로 다시 덮어 놓아 주십시오. 덮개가 제자리에 있어야만 절연되지 않은 도체들의 접근을 막을 수 있습니다.

Waarschuwing

Op DC-aansluitingspunten kunnen zich gevaarlijke voltages of energieën voordoen. Plaats altijd de afsluiting wanneer de aansluitingspunten niet worden gebruikt Zorg ervoor dat blootliggende contactpunten niet toegankelijk zijn wanneer de afsluiting is geplaatst.
Chapter 3

System Interface

3-1 Overview

There are several LEDs on the control panel as well as others on the drive carriers to keep you constantly informed of the overall status of the system as well as the activity and health of specific components. SC847BE1C/2C and SC847BA models have two buttons on the chassis control panel: A reset button and a power on/off switch. This chapter explains the meanings of all LED indicators and the appropriate responses you may need to take.

Figure 3-1. Control Panel
3-2 Control Panel Buttons

There are two push-buttons located on the left handle of the chassis. These are (in order from top to bottom) a power on/off button and a reset button.

**Power:** The main power button 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

The control panel located on the left handle of the SC847BE1C/C2 and SC847BA chassis has five LEDs. These LEDs provide you with critical information related to different parts of the system. This section explains what each LED indicates when illuminated and any corrective action you may need to take.

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

**HDD:** Indicates IDE channel activity. SAS/SATA drive, and/or DVD-ROM drive activity when flashing.

### Informational LED

<table>
<thead>
<tr>
<th>Status</th>
<th>Description</th>
</tr>
</thead>
<tbody>
<tr>
<td>Solid 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 (300 msec)</td>
<td>Remote UID is on. Use this function to identify the server from a remote location.</td>
</tr>
</tbody>
</table>

**Power Failure:** When this LED flashes, it indicates a failure in the redundant power supply.
3-4 Drive Carrier LEDs

The SC847E1C/2C and SC847BA chassis use SAS or SATA drives.

**SAS/SATA Drives**

Each SAS/SATA drive carrier has one set of LEDs, with one blue and red LED indicator for each drive. The LEDs function as follows:

<table>
<thead>
<tr>
<th>Blue Drive Carrier LED Indicator</th>
<th>Status</th>
<th>Description</th>
</tr>
</thead>
<tbody>
<tr>
<td>Steady on</td>
<td></td>
<td>Indicates a SAS drive</td>
</tr>
<tr>
<td>Off</td>
<td></td>
<td>Indicates a SATA drive</td>
</tr>
<tr>
<td>Blinking</td>
<td></td>
<td>Drive is actively being accessed</td>
</tr>
</tbody>
</table>

Each drive carrier has a blue LED. When illuminated in a steady on state, this blue LED (on the front of the SAS/SATA drive carrier) indicates a SAS drive. A connection to the SAS/SATA backplane enables this LED to blink on and off when that particular drive is being accessed.

<table>
<thead>
<tr>
<th>Red Drive Carrier LED Indicator</th>
<th>Status</th>
<th>Description</th>
</tr>
</thead>
<tbody>
<tr>
<td>Steady on</td>
<td></td>
<td>Drive failure</td>
</tr>
<tr>
<td>Blinking</td>
<td></td>
<td>RAID activity</td>
</tr>
</tbody>
</table>

When the red LED is blinking, it indicates that the system is either building, initializing or rebuilding RAID.

**SCSI Drives**

This chassis does not support SCSI drives at this time.
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 you will need to install components and perform maintenance is a Phillips screwdriver. Print this chapter to use as a reference while setting up your chassis.

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 warnings/precautions listed in the setup instructions.

**Safety Warning:** Before performing any chassis setup or maintenance, it is recommended that the chassis be removed from the rack and placed on a stable bench or table. For instructions on how to uninstall the chassis from the rack, refer to Chapter 5 Rack Installation in this manual.
4-2  Removing the Chassis Cover

**Removing the Chassis Cover**

1. Power down the system and remove the power cords from the rear of the power supplies.
2. Remove the screws securing the cover to the chassis.
3. Lift the cover up and off the chassis.

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

---

4-3  3.5" Hard Drives

**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.

The SC847BE1C/2C and SC847BA chassis have hot-swappable 3.5" hard drives which may be removed from the chassis without powering down the system.
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.

Warning: Except for short periods of time (while swapping hard drives), do not operate the server with the drives removed from the chassis drive bays.

Installing a Hard Drive to 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.

Warning! Enterprise level hard disk drives are recommended for use in Supermicro chassis and servers. For information on recommended HDDs, visit the Supermicro website at http://www.supermicro.com/products/nfo/storage.cfm

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.

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.
4-4 2.5” Hard Drives and the Rear Hard Drive Cage

The SC847BE1C/2C chassis comes with a rear hard drive cage which supports two 2.5” hard drives. The 2.5” hard drives are hot-swappable and may be removed from the chassis without powering down the system. When using the hard drive cage it is necessary to modify the air shroud to fit. See page 4-15 of this manual and remove part A-1 from the air shroud.

Installing the 2.5” Hard Drive Cage Into the Chassis

1. Power down the system and remove the power cords from the rear of the power supplies. Remove the chassis cover as described in section 4-2.

2. Place the hard drive cage into the chassis and secure with three screws as illustrated above.

3. Replace the chassis cover, plug the power cords into the rear of the power supplies and power up the system.

Removing 2.5” Hard Drives

1. Press the release button on the hard drive carrier. This extends the drive carrier handle.

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

Installing 2.5” Hard Drives into Carriers

1. Remove the four screws securing the dummy drive from the drive carrier.

2. Lift the dummy drive out of the carrier.

3. Place a hard drive into the carrier with the printed circuit board facing downward.

4. Secure the hard drive to the carrier using the four M3 screws provided in the installation kit.
4-5 Installing the Motherboard

Permanent and Optional Standoffs

Standoffs prevent short circuits by securing space between the motherboard and the chassis surface. The SC847 chassis includes permanent standoffs in locations used by most motherboards. These standoffs accept the rounded Phillips head screws included in the SC847 accessories packaging.

Some motherboards require additional screws for heatsinks, general components or non-standard security. Optional standoffs are included to these motherboards. To use an optional standoff, you must place the hexagonal screw through the bottom the chassis and secure the screw with the hexagon nut (rounded side up).

![M/B standoff 6-32 to 6-32](-image)

Figure 4-11. Chassis Standoffs

Installing the Motherboard

1. Review your motherboard documentation. Become familiar with component placement, requirements, precautions, and cable connections.

2. Power down the system, remove the power cords from the rear of the power supply and remove the chassis cover as described in Section 4-2.

3. As required by your motherboard, install standoffs in any areas that do not have a permanent standoff. To do this:

   3a. Place a hexagonal standoff screw through the bottom the motherboard tray.

   3b. Secure the screw with the hexagon nut (rounded side up).

4. Lay the motherboard on the tray aligning the permanent and optional standoffs.

5. Secure the motherboard to the tray using the rounded, Phillips head screws. Do not exceed eight inch-pounds of torque.

6. Secure the CPUs, heatsinks, and other components to the motherboard as described in the motherboard documentation.

7. Connect the cables between the motherboard, backplane, chassis, front panel, and power supply, as needed. The fans may be temporarily removed to allow access to the backplane ports.
4-6 Expansion Card Setup

The chassis includes PCI slots for expansion cards. The SC847BE1C/2C and SC847BA feature seven low-profile PCI slots.

Figure 4-13. Removing the PCI Slot Cover

Installing Expansion Cards

Installing Expansion Cards into the Chassis

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 PCI slot cover in place in each low-profile PCI slot you want to use. Keep this screw for later use.

Figure 4-14. Installing Expansion Cards

3. Simultaneously slide each expansion card's bracket into an open PCI slot, while plugging the expansion card into the motherboard.

4. Secure each card to the chassis using the screw previously set aside.

5. Plug the power cords into the rear of the power supplies and power up the system.

4-7 Removing and Installing the Backplanes

The chassis comes equipped with a BPN-SAS3-846EL1/EL2 front backplane and a BPN-SAS3-826EL1/EL2 rear backplane. For detailed information and instructions on how to change the backplane settings, see Appendices C, D, and E of this manual.

Removing the Front Backplane

1. Power down the system and remove the power cords from the rear of the power supplies. Remove the chassis cover as described in Section 4-2.

2. Remove the two side screws securing the front backplane to the chassis.

3. Remove the four horizontal screws along the top of the front backplane.

4. Remove the five horizontal screws that go through the bottom of the backplane.

Figure 4-15. Removing the Screws Securing the Backplane

5. Lift the front backplane up and out of the chassis.

Figure 4-16. Removing the Screws Securing the Backplane
**Removing the Rear Backplane**

1. Power down the system and remove the power cords from the rear of the power supplies. Remove the chassis cover as described in Section 4-2.

2. Remove the two side screws (one on each side of the chassis) which secure the rear tray to the chassis.

3. Pull out the blue release tab on the rear of the chassis.

4. Pull the rear tray out of the back of the chassis as illustrated.

5. Remove the five horizontal screws going through the bottom of the rear backplane

6. Remove the three vertical screws securing the backplane to the chassis floor.

7. Lift the backplane up and out of the chassis.

---

**Installing the Front Backplane**

1. Confirm that the power cords are still disconnected from the power supplies.

2. Place the front backplane in the chassis.

3. Install the two side screws to secure the front backplane to the chassis.

4. Install the four horizontal screws along the top of the front backplane.

5. Install the five vertical screws along the bottom of the front backplane.

6. Plug the power cords into the rear of the power supply, replace the chassis cover and power up the system.
**Installing the Rear Backplane**

1. Confirm that the power cords are still disconnected from the power supplies.

2. Slide the rear tray out of the back of the chassis.

3. Place the rear backplane in the chassis and secure it with the three vertical screws along the top of the backplane.

4. Secure the backplane with four horizontal screws through the top of the backplane.

5. Install five horizontal screws through the bottom of the backplane.

6. Plug the power cords into the rear of the power supply, replace the chassis cover and power up the system.

**Air Shroud Installation**

The SC847BE1C/2C and SC847BA chassis come with an air shroud which may be modified to fit over the top of a number of different motherboards. Use the chart and illustration below to set up the air shroud for your particular motherboard.

**MCP-310-49004-0N Air Shroud**

<table>
<thead>
<tr>
<th>Item</th>
<th>Part Number</th>
<th>Description</th>
</tr>
</thead>
<tbody>
<tr>
<td>A</td>
<td>MCP-310-84707-0N</td>
<td>SC847B/417B DP X9 universal PC air shroud main body. Remove part A1 when installing the optional rear HDD cage.</td>
</tr>
<tr>
<td>B</td>
<td>MCP-310-290041N</td>
<td>X9 SC825/826/216/213 universal air shroud component. Carefully pull this component from the main body of the air shroud in the direction shown by the arrows above.</td>
</tr>
<tr>
<td>C</td>
<td>MCP-310-49007-1N</td>
<td>X9 SC847/417 universal air shroud component partition. Remove this part only for 12”x13” motherboards.</td>
</tr>
<tr>
<td>D</td>
<td>MCP-310-29005-1N</td>
<td>X9 SC825/826/216/213 universal air shroud component. Remove both loops from the underside of the air shroud when using X9 motherboards.</td>
</tr>
<tr>
<td>E</td>
<td>MCP-310-29006-1N</td>
<td>X9 SC825/826/216/213 universal air shroud component. Carefully pull this component from the main body of the air shroud in the direction shown by the arrows above.</td>
</tr>
<tr>
<td>F</td>
<td>MCP-310-49008-1N</td>
<td>X9 SC847/417 universal air shroud component partition. Remove this part only when using an X8 motherboard.</td>
</tr>
</tbody>
</table>
Chapter 4: Chassis Setup and Maintenance

Checking the Airflow

- 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 the system's status. See “Chapter 3 System Interface” for details on the LEDs and the control panel buttons.

In most cases, the chassis power supply and fans are pre-installed. If you need to install fans continue to the Systems Fans section of this chapter. If the chassis will be installed into a rack, continue to the next chapter for rack installation instructions.

Figure 4-20. Installing the Air Shroud

Air shrouds concentrate airflow to maximize fan effectiveness. The SC847BE1C2C and SC847BA chassis air shrouds do not require screws for its installation. The air shroud is designed with removeable break-away tabs that allow the air shroud to be adjusted to fit a variety of motherboards.

Installing the Air Shroud

1. Power down the system as described in Section 5-2 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 motherboard.
4-9 System Fans

Seven hot-swappable, heavy-duty fans provide cooling for the chassis. These fans circulate air through the chassis thereby lowering the chassis internal temperature.

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

3. Place the new fan into the vacant space in the housing while 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.

4. Check that the fan is working properly before replacing the chassis cover.
### 4-10 Power Supply

The SC847BE1C/2C and SC847BA chassis have a 1280 Watt high-efficiency redundant power supply. 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.

Redundant power supplies are hot-swappable, and can be changed without powering down the system. New units can be ordered directly from Supermicro (see contact information in the Preface).

**Changing the Power Supply:**

1. If your chassis includes a redundant power supply (at least two power modules), you can leave the server running and remove only one power supply. If your server has only one power supply, you must power down the server and unplug the power cord.

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 the same model.

5. Push the new power supply module into the power bay until you hear a click.

6. If using only one power supply, plug the AC power cord back into the module and power up the server.
5-1  Overview

This chapter provides a quick setup checklist to get your chassis up and running. Following these steps in the order given should enable you to have the system operational within a minimal amount of time.

5-2  Unpacking the System

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

Decide on a suitable location for the rack unit that will hold your chassis. It should be situated in a clean, dust-free area that is well ventilated. Avoid areas where heat, electrical noise and electromagnetic fields are generated. The system needs to be placed near a grounded power outlet. Be sure to read the Rack and Server Precautions in the next section.

5-3  Preparing for Setup

The box your chassis was shipped in should include two sets of rail assemblies and the mounting screws needed for installing the system into the rack. Also included is an optional square hole to round hole converter bracket, for use in racks with round mounting holes. Please read this section in its entirety before you begin the installation procedure outlined in the sections that follow.

Choosing a Setup Location

• Leave enough clearance in front of the rack to enable you to open the front door completely (~25 inches).

• Leave approximately 30 inches of clearance in the back of the rack to allow for sufficient airflow and ease in servicing.

• This product is for installation only in a Restricted Access Location (dedicated equipment rooms, service closets and the like).
5-4 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.

- You should extend only one component at a time - extending two or more 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 upwards.

- 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 plug 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).

Reduced Airflow

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

Mechanical Loading

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

Circuit Overloading

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

Reliable Ground

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

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.
Chapter 5: Rack Installation

5-5 Rack Mounting Instructions

This section provides information on installing the chassis into a rack unit with the rails provided. There are a variety of rack units on the market, which may mean that the assembly procedure will differ slightly from the instructions provided. You should also refer to the installation instructions that came with the rack unit you are using. NOTE: This rail will fit a rack between 26.5” and 36.4” deep.

Identifying the Sections of the Rack Rails

The chassis package includes two rail assemblies in the rack mounting kit. Each assembly consists of three sections: An inner chassis rail which 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.

Locking Tabs

Each inner rail has a locking tab. This tab locks the chassis into place when installed and pushed fully into the rack. These tabs also lock the chassis in place when fully extended from the rack. This prevents the server from coming completely out of the rack when when the chassis is pulled out for servicing.

Releasing the Inner Rail

1. Identify the left and right outer rail assemblies as described on page 5-4.
2. Pull the inner rail out of the outer rail until it is fully extended as illustrated below.
3. Press the locking tab down to release the inner rail.
4. Pull the inner rail all the way out.
5. Repeat steps 1-4 for the second outer rail.
Installing The Inner Rails on the Chassis

**Installing the Inner Rails**

1. Confirm that the left and right inner rails have been correctly identified.

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 rail clicks into the locked position, which secures the inner rail to the chassis.

4. Secure the inner rail to the chassis with the screws provided.

5. Repeat steps 1 through 4 above 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 on 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 of the front of the outer rail onto the slots on the front of the rack. If necessary, use screws to secure the outer rails to the rack, as illustrated above.

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

5. Hang the hooks of the rear portion of the outer rail onto the slots on the rear of the rack. If necessary, use screws to secure the rear of the outer rail to the rear of the rack.

6. Repeat steps 1-5 for the remaining outer rail.
Chapter 5: Rack Installation

Figure 5-6. Installing into a Rack

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

**Standard Chassis Installation**

**Installing the Chassis into a Rack**

1. Confirm that the inner rails are properly installed on the chassis.

2. Confirm that the outer rails are correctly installed on the rack.

3. Pull the middle rail out from the front of the outer rail and make sure that the ball-bearing shuttle is at the front locking position of the middle rail.

4. Align the chassis inner rails with the front of the middle rails.

5. Slide the inner rails on the chassis into the middle rails, keeping the pressure even on both sides, until the locking tab of the inner rail clicks into the front of the middle rail, locking the chassis into the fully extended position.

6. Depress the locking tabs of both sides at the same time and push the chassis all the way into the rear of the rack.

7. If necessary for security purposes, use screws to secure the chassis handles to the front of the rack.

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.

Warning: When initially installing the server into 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.

---

**Optional Quick Installation Method**

The following quick installation method may be used to install the chassis onto a rack.

**Installing the Chassis into a Rack**

1. Install the whole rail assembly onto the rack as described on page X-7.

2. Release the inner rail without retracting the middle rail.

3. Install the inner rails on the chassis as previously described on page X-6.

4. Install the chassis onto the middle rail as described in the previous section.
Appendix A

Cables and Hardware

A-1 Overview

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

A-2 Cables Included

<table>
<thead>
<tr>
<th>Part #</th>
<th>Type</th>
<th>Qty</th>
<th>Length</th>
<th>Description</th>
</tr>
</thead>
<tbody>
<tr>
<td>CBL-0217L</td>
<td>Cable</td>
<td>1</td>
<td>---</td>
<td>16-pin control panel converter cable for SC826,846, 22 cm, PBF</td>
</tr>
<tr>
<td>CBL-0160L</td>
<td>Cable</td>
<td>2</td>
<td>6'</td>
<td>NEMA5-15P to C13 US power cord 16 AWG PBF (default for high Watt)</td>
</tr>
<tr>
<td>CBL-0071L</td>
<td>Cable</td>
<td>1</td>
<td>---</td>
<td>Round 16-pin to 16-pin ribbon FP cable 30</td>
</tr>
</tbody>
</table>
A-3 Compatible Cables

These cables are compatible with the SC847BE1C/2C and SC847BA chassis.

Alternate SAS/SATA Cables

Some compatible motherboards have different connectors. If your motherboard has only one SAS connector that the SAS/SATA cables must share, use one of the following cables. These cables must be purchased separately.

**Cable Name:** SAS Cable  
**Part #:** CBL-0175L  
**Alt. Name:** "Big Four"

**Description:** This cable has one SFF-8484 (32-pin) connector on one end and four SAS connectors (seven 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  
**Part #:** CBL-0116  
**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 one end. This cable connects from the host (motherboard or other controller) to the backplane SAS hard drive port.

---

### Extending Power Cables

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

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

<table>
<thead>
<tr>
<th>Power Cable Extenders</th>
<th>Number of Pins</th>
<th>Cable Part #</th>
<th>Length</th>
</tr>
</thead>
<tbody>
<tr>
<td></td>
<td>24-pin</td>
<td>CBL-0042</td>
<td>7.9” (20 cm)</td>
</tr>
<tr>
<td></td>
<td>20-pin</td>
<td>CBL-0059</td>
<td>7.9” (20 cm)</td>
</tr>
<tr>
<td></td>
<td>8-pin</td>
<td>CBL-0062</td>
<td>7.9” (20 cm)</td>
</tr>
<tr>
<td></td>
<td>4-pin</td>
<td>CBL-0060</td>
<td>7.9” (20 cm)</td>
</tr>
</tbody>
</table>

### Front Panel to the Motherboard

The SC847BE1C/2C and SC847BA 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.

<table>
<thead>
<tr>
<th>Front Panel to Motherboard Cable (Ribbon Cable)</th>
<th>Number of Pins (Front Panel)</th>
<th>Number of Pins (Motherboard)</th>
<th>Cable Part #</th>
</tr>
</thead>
<tbody>
<tr>
<td></td>
<td>16-pin</td>
<td>16-pin</td>
<td>CBL-0049</td>
</tr>
<tr>
<td></td>
<td>16-pin</td>
<td>20-pin</td>
<td>CBL-0048</td>
</tr>
<tr>
<td></td>
<td>20-pin</td>
<td>20-pin</td>
<td>CBL-0047</td>
</tr>
<tr>
<td></td>
<td>16-pin</td>
<td>various*</td>
<td>CBL-0068</td>
</tr>
<tr>
<td></td>
<td>20-pin</td>
<td>various*</td>
<td>CBL-0067</td>
</tr>
</tbody>
</table>

* Split cables: Use these cable if your motherboard requires several different connections from the front panel.
The accessory box includes all the screws needed to set up your chassis. This section lists and describes the most common screws used. Your chassis may not require all the parts listed.

**M/B**
- Pan head 6-32 x 5 mm [0.197]

**HARD DRIVE**
- Flat head 6-32 x 5 mm [0.197]

**DVD-ROM, CD-ROM, and FLOPPY DRIVE**
- Pan head 6-32 x 5 mm [0.197]
- Flat head 6-32 x 5 mm [0.197]
- Round head M3 x 5 mm [0.197]
- Round head M2.6 x 5 mm [0.197]

**RAIL**
- Flat head M4 x 4 mm [0.157]
- Round head M4 x 4 mm [0.157]
- Flat head M5 x 12 mm [0.472]
- Washer for M5

**M/B STANDOFFS**
- M/B standoff 6-32 to 6-32
- M/B (CPU) standoff M5 to 6-32
- Thumb screw 6-32 x 5 mm [0.197]
- 1/U M/B standoff 6-32 x 5 mm [0.197]
Appendix B

SC847BE1C/2C and SC847BA Power Supply Specifications

This appendix lists power supply specifications for your chassis system.

<table>
<thead>
<tr>
<th>MFR Part #</th>
<th>PWS-1K28P-SQ</th>
</tr>
</thead>
<tbody>
<tr>
<td>AC Input</td>
<td>1000W Output @ 100-140V, 12-8A, 50-60Hz</td>
</tr>
<tr>
<td></td>
<td>1280W Output @ 180-240V, 8-6A, 50-60Hz</td>
</tr>
<tr>
<td>DC Output</td>
<td>1000W: +12V/83A; +5Vsb/4A</td>
</tr>
<tr>
<td></td>
<td>1280W: +12V/106.7A, +5Vsb/4A</td>
</tr>
</tbody>
</table>
Notes
Appendix C

BPN-SAS3-846EL Front Backplane Specifications

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

C-1 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 card and peripherals back into their antistatic bags when not in use.

C-2 General Safety Guidelines

• Always disconnect power cables before installing or removing any components from the computer, including the BPN-SAS3-846EL series backplane.

• Make sure that the backplane is properly and securely on the motherboard to prevent damage to the system due to power outages.
C-3  An Important Note to Users

All images and layouts shown in this user's guide are based upon the latest backplane revision available at the time of publishing. The card you have received may or may not look exactly the same as the graphics shown in this manual.

C-4  Introduction to the BPN-SAS3-846EL Backplane

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

This manual reflects BPN-SAS3-846EL Revision 1.01, the most current release available at the time of publication. Always refer to the Supermicro website at www.supermicro.com for the latest updates, compatible parts and supported configurations.

C-5  Overview of the BPN-SAS3-846EL1/EL2 Backplanes

The BPN-SAS3-846EL1 and BPN-SAS3-846EL2 model backplanes are identical, except that the BPN-SAS3-846EL2 backplane has duplicate secondary components which are not found on the BPN-SAS3-846EL1. The BPN-SAS3-846EL2 is divided into a two sections, with the primary components on the right side of the board and the secondary components on the left. SAS3 backplanes are not compatible with legacy SAS (3 Gbps), SATA (1.5 Gbps) backplanes or lower.
C-6 Front Connectors

1. Primary Expander Chip.
2. Secondary Expander Chip (not present on EL1 single port backplanes).
5. Secondary SAS Ports: J51, J52. (not present on EL1 single port backplanes).
6. Primary UART Connector: PRI-UART (J30) for manufacturer's use only.
7. Secondary UART Connector: SEC-UART (J24) for manufacturer's use only, not present on EL1 backplanes.
8. Primary SDB Connector: PRI-SDB (J31), for manufacturer's use only.
9. Secondary SDB Connector: SEC-SDB (J29), for manufacturer's use only, not present on EL1 backplanes.
10. I^2C Connector, EXP I2C0 (J48).

Figure C-1. BPN-SAS3-846EL1/EL2 Connectors and Components
C-7  Front Connector and Pin Definitions

1. - 2. Primary and Secondary Expander Chips
The primary and secondary expander chips allow the backplane to support dual port, cascading, and failover configurations.

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

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

6. - 7. Primary and Secondary UART Connectors
The primary UART connector is designated PRI-UART and J30. The secondary UART connector is designated SEC-UART and J24 and is not present on BPN-SAS3-846EL1. UART connectors are used for manufacturer's diagnostic purposes only.

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

10. I2C Connectors
The I2C connector is designated EXP I2C0 and J48.

<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>

C-8  Front Jumper Locations and Settings

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.

<table>
<thead>
<tr>
<th>Jumper</th>
<th>Jumper Settings</th>
<th>Note</th>
</tr>
</thead>
<tbody>
<tr>
<td>JP3 P_MDIO</td>
<td>Open: Disabled (Default) Closed: Enabled</td>
<td>Primary management data in/out. For manufacturer's use only.</td>
</tr>
<tr>
<td>JP4 S_MDIO</td>
<td>Open: Disabled (Default) Closed: Enabled</td>
<td>Secondary management data in/out. For manufacturer's use only.</td>
</tr>
</tbody>
</table>
### C-9 Front LED Indicators

![Diagram of Front LEDs](image)

**Figure C-3. Front 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>

### C-10 Rear Connectors and LED Indicators

![Diagram of Rear SAS Connectors](image)

**Figure C-4. Rear Connectors and LEDs**

<table>
<thead>
<tr>
<th>Rear Connector</th>
<th>SAS Drive Number</th>
<th>Rear Connector</th>
<th>SAS Drive Number</th>
</tr>
</thead>
<tbody>
<tr>
<td>SAS #0</td>
<td>SAS HDD #0</td>
<td>SAS #12</td>
<td>SAS HDD #12</td>
</tr>
<tr>
<td>SAS #1</td>
<td>SAS HDD #1</td>
<td>SAS #13</td>
<td>SAS HDD #13</td>
</tr>
<tr>
<td>SAS #2</td>
<td>SAS HDD #2</td>
<td>SAS #14</td>
<td>SAS HDD #14</td>
</tr>
<tr>
<td>SAS #3</td>
<td>SAS HDD #3</td>
<td>SAS #15</td>
<td>SAS HDD #15</td>
</tr>
<tr>
<td>SAS #4</td>
<td>SAS HDD #4</td>
<td>SAS #16</td>
<td>SAS HDD #16</td>
</tr>
<tr>
<td>SAS #5</td>
<td>SAS HDD #5</td>
<td>SAS #17</td>
<td>SAS HDD #17</td>
</tr>
<tr>
<td>SAS #6</td>
<td>SAS HDD #6</td>
<td>SAS #18</td>
<td>SAS HDD #18</td>
</tr>
<tr>
<td>SAS #7</td>
<td>SAS HDD #7</td>
<td>SAS #19</td>
<td>SAS HDD #19</td>
</tr>
<tr>
<td>SAS #8</td>
<td>SAS HDD #8</td>
<td>SAS #20</td>
<td>SAS HDD #20</td>
</tr>
<tr>
<td>SAS #9</td>
<td>SAS HDD #9</td>
<td>SAS #21</td>
<td>SAS HDD #21</td>
</tr>
<tr>
<td>SAS #10</td>
<td>SAS HDD #10</td>
<td>SAS #22</td>
<td>SAS HDD #22</td>
</tr>
<tr>
<td>SAS #11</td>
<td>SAS HDD #11</td>
<td>SAS #23</td>
<td>SAS HDD #23</td>
</tr>
</tbody>
</table>
## Rear LED Indicators

<table>
<thead>
<tr>
<th>Rear LED</th>
<th>Hard Drive Activity</th>
<th>Failure LED</th>
</tr>
</thead>
<tbody>
<tr>
<td>SAS #0</td>
<td>ACT0</td>
<td>FAIL0</td>
</tr>
<tr>
<td>SAS #1</td>
<td>ACT1</td>
<td>FAIL1</td>
</tr>
<tr>
<td>SAS #2</td>
<td>ACT 2</td>
<td>FAIL2</td>
</tr>
<tr>
<td>SAS #3</td>
<td>ACT3</td>
<td>FAIL3</td>
</tr>
<tr>
<td>SAS #4</td>
<td>ACT4</td>
<td>FAIL4</td>
</tr>
<tr>
<td>SAS #5</td>
<td>ACT5</td>
<td>FAIL5</td>
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<tr>
<td>SAS #6</td>
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<td>FAIL6</td>
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<td>SAS #7</td>
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<td>FAIL7</td>
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<tr>
<td>SAS #8</td>
<td>ACT8</td>
<td>FAIL8</td>
</tr>
<tr>
<td>SAS #9</td>
<td>ACT 9</td>
<td>FAIL9</td>
</tr>
<tr>
<td>SAS #10</td>
<td>ACT10</td>
<td>FAIL10</td>
</tr>
<tr>
<td>SAS #11</td>
<td>ACT11</td>
<td>FAIL11</td>
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<tr>
<td>SAS #12</td>
<td>ACT12</td>
<td>FAIL12</td>
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<td>SAS #13</td>
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<td>SAS #14</td>
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<td>SAS #15</td>
<td>ACT15</td>
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<tr>
<td>SAS #16</td>
<td>ACT16</td>
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<td>ACT19</td>
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<tr>
<td>SAS #20</td>
<td>ACT20</td>
<td>FAIL20</td>
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<tr>
<td>SAS #21</td>
<td>ACT21</td>
<td>FAIL21</td>
</tr>
<tr>
<td>SAS #22</td>
<td>ACT22</td>
<td>FAIL22</td>
</tr>
<tr>
<td>SAS #23</td>
<td>ACT23</td>
<td>FAIL23</td>
</tr>
</tbody>
</table>
C-11 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.

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.
C-12 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.

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.

C-13 Failover with RAID Cards and Multiple HBAs
The BPN-SAS3-846EL backplane may be configured for failover with multiple HBAs using either RAID controllers or HBAs to achieve failover protection.

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

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

Dual Host Bus Adapter
In a dual host bus configuration, the backplane connects to two HBA’s.

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.
C-14 Connecting HBAs to the Backplane

Connecting an Internal HBA to the Backplane

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

![Diagram of Single Internal Host Bus Adapter](figure_c-11)

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

![Diagram of Dual Internal Host Bus Adapter](figure_c-12)

**Figure C-12. Dual Internal Host Bus Adapter**

Supported Internal HBA Cables

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

**IMPORTANT:** See Section C-13 of this manual, *Failover with RAID Cards and Multiple HBAs* for important information on supported configurations.
Connecting an External HBA to the Backplane

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

Single External Host Bus Adapter

![Diagram of Single External Host Bus Adapter](image1)

CBL-SAST-0573
External Mini-SAS HD Cable

Figure C-13. Single External Host Adapter

Dual External Host Bus Adapter

![Diagram of Dual External Host Bus Adapter](image2)

CBL-SAST-0573
External Mini-SAS HD Cable

Figure C-14. Dual External Host Bus Adapter

IMPORTANT: See Section C-13 of this manual, Fallover 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.

CBL-SAST-0531
Internal Cable

Mini-SAS HD
Internal
to External Adapter
AOM-SAS3-1616E- LP

CBL-SAST-0573
External Cable

Figure C-15. Single HBA Configuration
Single HBA Configuration Cables

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

Cable Name: 1 Meter External Mini-SAS HD to External Mini-SAS HD Cable
Part #: CBL-SAST-0573
Ports: Single
Placement: External Cable
Description: External cascading cable, connects ports between servers and JBODs.

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

Cable Name: 16-port Mini-SAS HD Internal to External Cable Adapter with LP Bracket
Part #: AOM-SAS3-16I16E-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 C-18. Dual HBA Configuration

IMPORTANT: See Section C-13 of this manual, Failover with RAID Cards and Multiple HBAs for important information on supported configurations.
Notes
Appendix D

BPN-SAS3-826EL Backplane Specifications

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

D-1 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 card and peripherals back into their antistatic bags when not in use.

D-2 General Safety Guidelines

• Always disconnect power cables before installing or removing any components from the computer, including the BPN-SAS3-826EL series backplane.

• Make sure that the backplane is properly and securely on the motherboard to prevent damage to the system due to power outages.
D-3 An Important Note to Users

All images and layouts shown in this user’s guide are based upon the latest backplane revision available at the time of publishing. The card you have received may or may not look exactly the same as the graphics shown in this manual.

D-4 Introduction to the BPN-SAS3-826EL Backplane

The BPN-SAS3-826EL 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-SAS3-826EL Revision 1.00, the most current release available at the time of publication. Always refer to the Supermicro Web site at www.supermicro.com for the latest updates, compatible parts and supported configurations.

D-5 Overview of the BPN-SAS3-826EL1/EL2 Backplanes

The BPN-SAS3-826EL1 and BPN-SAS3-826EL2 model backplanes are identical, except that the BPN-SAS3-826EL2 backplane has duplicate secondary components which are not found on the BPN-SAS3-826EL1. The BPN-SAS3-826EL2 is divided into two sections, with the primary components on the right side of the board and the secondary components on the left. SAS3 backplanes are not compatible with legacy SAS (3 Gbps) or SATA (1.5 Gbps) backplanes or lower.
D-6  Front Connectors

1. Primary expander chip.

2. Secondary expander chip (not present on EL1 single port backplanes).


5. Secondary SAS ports: SED-J1 through SED-J4 (not present on EL1 single port backplanes).

6. Primary UART connector: PRI-UART (J22) for manufacturer's use only.

7. Secondary UART connector: SED-UART(J23) for manufacturer's use only, not present on EL1 backplanes.

8. Primary SDB connector: PRI-SDB (J18), for manufacturer's use only.

9. Secondary SDB connector: SED-SDB (J19), for manufacturer's use only, not present on EL1 backplanes.

10. Primary I²C connector. I2C#0 (J20).


Figure D-1. BPN-SAS3-826EL1/EL2 Connectors and Components
D-7 Front Connector and Pin Definitions

1. - 2. Primary and Secondary Expander Chips
The primary and secondary expander chips allow the backplane to support dual port, cascading, and failover configurations.

3. Backplane Main Power Connectors
The 4-pin connectors, designated JPW1, JPW2, and JPW3, provide power to the backplane. See the table on the right for pin definitions.

4. - 5. Primary and Secondary SAS Connectors
The primary SAS connectors are designated PRI-J1 through PRI-J4. The secondary SAS Ports are designated SED-J1 through SED-J4 and are not present on EL1 single port backplanes.

6. - 7. Primary and Secondary UART Connectors
The primary UART connector is designated PRI-UART and J22. The secondary UART connector is designated SED-UART and J23 and is not present on BPN-SAS3-826EL1. UART connectors are used for manufacturer's diagnostic purposes only.

8. - 9. SDB Connectors
The Primary SDB connector is designated PRI-SDB and J18. The secondary SDB connector is designated SED-SDB and J19. (Not present on BPN-SAS3-826EL1) These are debug connectors used for the manufacturer's diagnostic purposes only.

10. - 11. I2C Connectors
The primary I2C connector is designated I2C#0 and J20. The secondary I2C connector is designated I2C#4 and J21.

---

D-8 Front Jumper Location and Settings

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.

**Figure D-2. Front Jumpers**

**Explanation of Jumpers**

**General Jumper Settings**

<table>
<thead>
<tr>
<th>Jumper</th>
<th>Jumper Settings</th>
<th>Note</th>
</tr>
</thead>
<tbody>
<tr>
<td>ACT-LED TEST</td>
<td>Open: Disabled (Default)</td>
<td>Activity LED test.</td>
</tr>
</tbody>
</table>
D-9 Front LED Indicators

Figure D-3. Front LEDs

<table>
<thead>
<tr>
<th>Backplane LEDs</th>
</tr>
</thead>
<tbody>
<tr>
<td>LED</td>
</tr>
<tr>
<td>-----</td>
</tr>
<tr>
<td>HB-LED (J29)</td>
</tr>
<tr>
<td>HB-LED (J28)</td>
</tr>
<tr>
<td>LED27</td>
</tr>
<tr>
<td>5V</td>
</tr>
<tr>
<td>12V</td>
</tr>
</tbody>
</table>

D-10 Rear Connectors and LED Indicators

Figure D-4. Rear Connectors and LEDs

<table>
<thead>
<tr>
<th>Rear SAS Connectors</th>
</tr>
</thead>
<tbody>
<tr>
<td>Rear Connector</td>
</tr>
<tr>
<td>DRV#1</td>
</tr>
<tr>
<td>DRV#2</td>
</tr>
<tr>
<td>DRV#3</td>
</tr>
<tr>
<td>DRV#4</td>
</tr>
<tr>
<td>DRV#5</td>
</tr>
<tr>
<td>DRV#6</td>
</tr>
</tbody>
</table>

<table>
<thead>
<tr>
<th>Rear LED Indicators</th>
</tr>
</thead>
<tbody>
<tr>
<td>Rear LED</td>
</tr>
<tr>
<td>SAS #1</td>
</tr>
<tr>
<td>SAS #2</td>
</tr>
<tr>
<td>SAS #3</td>
</tr>
<tr>
<td>SAS #4</td>
</tr>
<tr>
<td>SAS #5</td>
</tr>
<tr>
<td>SAS #6</td>
</tr>
<tr>
<td>SAS #7</td>
</tr>
<tr>
<td>SAS #8</td>
</tr>
<tr>
<td>SAS #9</td>
</tr>
<tr>
<td>SAS #10</td>
</tr>
<tr>
<td>SAS #11</td>
</tr>
<tr>
<td>SAS #12</td>
</tr>
</tbody>
</table>
D-11 Single and Dual Port Expanders

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

**Single Ports**

BPN-SAS3-826EL1 backplanes have a single port expander that accesses all of the drives and supports cascading.

**Dual Ports**

BPN-SAS3-826EL2 model backplanes have dual-port expanders that access all of the hard drives. These dual-port expanders support cascading, failover, and recovery.
D-12 Failover

The BPN-SAS3-826EL2 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.

![Single HBA](image)

**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.

![Single HBA Failover](image)

---

**D-13 Failover with RAID Cards and Multiple HBAs**

The BPN-SAS3-826EL backplane may be configured for failover with multiple HBAs using either RAID controllers or HBAs to achieve failover protection.

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

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

**Dual Host Bus Adapter**

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

![Dual HBA](image)

**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.

![Dual HBA Failover](image)

**IMPORTANT:** For RAID controllers, redundancy is achieved through port failover. For multiple HBAs MPIO software is required to achieve failover protection.
D-14 Connecting HBAs to the Backplane

Connecting an Internal HBA to the Backplane

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

![Figure D-11. Single Internal Host Bus Adapter](image)

**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.

**IMPORTANT:** See Section D-13 of this manual, *Failover with RAID Cards and Multiple HBAs* for important information on supported configurations.

---

**Appendix D: BPN-SAS3-826EL Backplane Specifications**

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

<table>
<thead>
<tr>
<th>Part #</th>
<th>Length</th>
</tr>
</thead>
<tbody>
<tr>
<td>CBL-SAST-0508-01</td>
<td>50 cm (19 inches)</td>
</tr>
<tr>
<td>CBL-SAST-0507-01</td>
<td>80 cm (31 inches)</td>
</tr>
</tbody>
</table>

**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)

<table>
<thead>
<tr>
<th>Part #</th>
<th>Length</th>
</tr>
</thead>
<tbody>
<tr>
<td>CBL-SAST-0568</td>
<td>35 cm (13 inches)</td>
</tr>
<tr>
<td>CBL-SAST-0593</td>
<td>60 cm (23 inches)</td>
</tr>
<tr>
<td>CBL-SAST-0531</td>
<td>80 cm (31 inches)</td>
</tr>
</tbody>
</table>

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

Single External Host Bus Adapter

![Diagram of Single External Host Bus Adapter](image1)

Figure D-13. Single External Host Adapter

Dual External Host Bus Adapter

![Diagram of Dual External Host Bus Adapter](image2)

Figure D-14. Dual External Host Bus Adapter

IMPORTANT: See Section D-13 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.

![Diagram of Connecting Multiple Backplanes](image3)

Figure D-15. Single HBA Configuration

Appendix D: BPN-SAS3-826EL Backplane Specifications
Single HBA Configuration Cables

Figure D-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 D-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-SAS3-16/16E-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 D-18. Dual HBA Configuration

IMPORTANT: See Section D-13 of this manual, Failover with RAID Cards and Multiple HBAs for important information on supported configurations.
Appendix E

Front and Rear Backplane Cascading

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

E-1 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 card and peripherals back into their antistatic bags when not in use.

E-2 General Safety Guidelines

• Always disconnect power cables before installing or removing any components from the computer, including the BPN-SAS3-826EL series backplane.

• Make sure that the backplane is properly and securely on the motherboard to prevent damage to the system due to power outages.
E-3 An Important Note to Users

All images and layouts shown in this user’s guide are based upon the latest backplane revision available at the time of publishing. The card you have received may or may not look exactly the same as the graphics shown in this manual.

E-4 The BPN-SAS3-846EL Front Backplane

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

This manual reflects BPN-SAS3-846EL Revision 1.01, the most current release available at the time of publication. Always refer to the Supermicro website at www.supermicro.com for the latest updates, compatible parts and supported configurations.

The BPN-SAS3-846EL1 and BPN-SAS3-846EL2 model backplanes are identical, except that the BPN-SAS3-846EL2 backplane has duplicate secondary components which are not found on the BPN-SAS3-846EL1. The BPN-SAS3-846EL2 is divided into a two sections, with the primary components on the right side of the board and the secondary components on the left. SAS3 backplanes are not compatible with legacy SAS (3 Gbps), SATA (1.5 Gbps) backplanes or lower.

E-5 The BPN-SAS3-826EL Rear Backplane

The BPN-SAS3-826EL 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-SAS3-826EL Revision 1.00, the most current release available at the time of publication. Always refer to the Supermicro Web site at www.supermicro.com for the latest updates, compatible parts and supported configurations.

The BPN-SAS3-826EL1 and BPN-SAS3-826EL2 model backplanes are identical, except that the BPN-SAS3-826EL2 backplane has duplicate secondary components which are not found on the BPN-SAS3-826EL1. The BPN-SAS3-826EL2 is divided into a two sections, with the primary components on the right side of the board and the secondary components on the left. SAS3 backplanes are not compatible with legacy SAS (3 Gbps) or SATA (1.5 Gbps) backplanes or lower.
Connecting the Front and Rear Backplanes

This section describes the cables used when cascading from the front backplane to the rear backplane from multiple HBAs. These connections use CBL-SAST-0531 internal cables and CBL-SAST-0573 external cables.

Figure E-1: Dual HBA Configuration

**IMPORTANT:** See Section D-13 of this manual, *Failover with RAID Cards and Multiple HBAs* for important information on supported configurations.
Appendix F

BPN-SAS-826A Backplane Specifications

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

F-1 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 card and peripherals back into their antistatic bags when not in use.

F-2 General Safety Guidelines

Always disconnect power cables before installing or removing any components from the computer, including the BPN-SAS-826A backplane.

Disconnect the power cord before installing or removing any cables from the BPN-SAS-826A backplane.

Make sure that the BPN-SAS-826A backplane is securely and properly installed on the motherboard to prevent damage to the system due to power shortage.
F-3  An Important Note to Users

All images and layouts shown in this user’s guide are based upon the latest PCB Revision available at the time of publishing. The card you have received may or may not look exactly the same as the graphics shown in this manual.

F-4  Introduction to the BPN-SAS-846A Backplane

The BPN-SAS-826A 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-SAS-826A Revision 1.00, the most current release available at the time of publication. Always refer to the Supermicro Web site at www.supermicro.com for the latest updates, compatible parts and supported configurations.
F-4 Front Connectors and Jumpers

Figure F-1: Front Connectors

Front Connectors

1. ACT_IN: JP26 and JP47
2. Chips: MG9071 and MG9072
3. I²C Connector #1: JP37
4. I²C Connector #2: JP95
5. I²C Connector #3: JP52
7. SAS IN #1: JSM1
8. SAS IN #2: JSM2
9. SAS IN #3: JSM3
10. Upgrade Connectors, JP69 and JP78
F-5 Front Connector and Pin Definitions

#1. Activity LED Headers
The activity LED headers, designated JP26 and JP47, are used to indicate the activity status of each SAS drive. The activity LED headers are located on the front panel. For the activity lead headers to work properly, connect to them using a 10-pin LED cable. This is only used when the activity LED is not supported by the hard drive.

<table>
<thead>
<tr>
<th>SAS Activity LED Header</th>
<th>Pin Definitions</th>
</tr>
</thead>
<tbody>
<tr>
<td>Pin #</td>
<td>Definition</td>
</tr>
<tr>
<td>1</td>
<td>ACT IN#0</td>
</tr>
<tr>
<td>2</td>
<td>ACT IN#1</td>
</tr>
<tr>
<td>3</td>
<td>ACT IN#2</td>
</tr>
<tr>
<td>4</td>
<td>ACT IN#3</td>
</tr>
<tr>
<td>5</td>
<td>Ground</td>
</tr>
</tbody>
</table>

#2. MG9071 and MG9072 Chips
The MG9071 and MG9072 are enclosure management chips that support the SES-2 controller and SES-2 protocols.

#3., #4., #5. I2C Connectors
The I2C Connectors, designated JP37, JP52, and JP95, are used to monitor HDD activity and status. See the table on the right for pin definitions.

<table>
<thead>
<tr>
<th>I2C Connector</th>
<th>Pin Definitions</th>
</tr>
</thead>
<tbody>
<tr>
<td>Pin #</td>
<td>Definition</td>
</tr>
<tr>
<td>1</td>
<td>Data</td>
</tr>
<tr>
<td>2</td>
<td>Ground</td>
</tr>
<tr>
<td>3</td>
<td>Clock</td>
</tr>
<tr>
<td>4</td>
<td>No Connection</td>
</tr>
</tbody>
</table>

#6. Backplane Main Power Connectors
The 4-pin connectors, designated JP10, JP13, and JP46 provide power to the backplane. See the table on the right for pin definitions.

<table>
<thead>
<tr>
<th>Backplane Main Power</th>
<th>4-Pin Connector</th>
</tr>
</thead>
<tbody>
<tr>
<td>Pin #</td>
<td>Definition</td>
</tr>
<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>

#7., #8., #9. SAS Ports
The SAS ports are used to connect the SAS drive cables. The three connectors are designated SAS IN #1 - SAS IN #3. Each of the three connectors has four ports for a total of twelve ports. These twelve ports are designated #0 - #11 and they are also compatible with SATA drives.

10. Upgrade Connectors
The upgrade connectors, designated JP69 and JP78, are used for manufacturer's diagnostic purposes only.
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 jumper must be configured to use SGPIO mode or restore your backplane to I²C mode.

<table>
<thead>
<tr>
<th>Jumper</th>
<th>SGPIO (Default) Setting</th>
<th>I²C Setting</th>
</tr>
</thead>
<tbody>
<tr>
<td>JP84</td>
<td>1-2: SGPIO mode enable</td>
<td>2-3: I²C mode enable</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.

<table>
<thead>
<tr>
<th>Jumper</th>
<th>Jumper Settings</th>
<th>Note</th>
</tr>
</thead>
<tbody>
<tr>
<td>JP35</td>
<td>Open: Default</td>
<td>MG9072 Chip Reset #1</td>
</tr>
<tr>
<td></td>
<td>Closed: Reset</td>
<td></td>
</tr>
<tr>
<td>JP50</td>
<td>Open: Default</td>
<td>MG9071 Chip Reset #2</td>
</tr>
<tr>
<td></td>
<td>Closed: Reset</td>
<td></td>
</tr>
<tr>
<td>JP18</td>
<td>Open: Default</td>
<td>Buzzer Reset*</td>
</tr>
<tr>
<td></td>
<td>Closed: Reset</td>
<td></td>
</tr>
</tbody>
</table>

*The buzzer sound indicates that an overheat condition, a fan failure or a drive failure has occurred.
Front Panel LEDs

<table>
<thead>
<tr>
<th>LED</th>
<th>State</th>
<th>Specification</th>
</tr>
</thead>
<tbody>
<tr>
<td>Alarm #1 (D3)</td>
<td>On</td>
<td>Overheat/drive failure in Channel 1 will activate the buzzer.</td>
</tr>
<tr>
<td>Alarm #2 (D36)</td>
<td>On</td>
<td>Overheat/drive failure in Channel 2 will activate the buzzer.</td>
</tr>
<tr>
<td>D53</td>
<td>On</td>
<td>Indicates +5V power. Light is on during normal operation.</td>
</tr>
<tr>
<td>D54</td>
<td>On</td>
<td>Indicates +12V power. Light is on during normal operation.</td>
</tr>
</tbody>
</table>

Figure F-3: Front LEDs

F-7 Rear Connectors and LED Indicators

Rear SAS/SATA Connectors

<table>
<thead>
<tr>
<th>Rear Connector</th>
<th>SAS Drive Number</th>
<th>Rear Connector</th>
<th>SAS Drive Number</th>
</tr>
</thead>
<tbody>
<tr>
<td>SAS #0</td>
<td>SAS/SATA HHD #0</td>
<td>SAS #6</td>
<td>SAS/SATA HHD #6</td>
</tr>
<tr>
<td>SAS #1</td>
<td>SAS/SATA HHD #1</td>
<td>SAS #7</td>
<td>SAS/SATA HHD #7</td>
</tr>
<tr>
<td>SAS #2</td>
<td>SAS/SATA HHD #2</td>
<td>SAS #8</td>
<td>SAS/SATA HHD #8</td>
</tr>
<tr>
<td>SAS #3</td>
<td>SAS/SATA HHD #3</td>
<td>SAS #9</td>
<td>SAS/SATA HHD #9</td>
</tr>
<tr>
<td>SAS #4</td>
<td>SAS/SATA HHD #4</td>
<td>SAS #10</td>
<td>SAS/SATA HHD #10</td>
</tr>
<tr>
<td>SAS #5</td>
<td>SAS/SATA HHD #5</td>
<td>SAS #11</td>
<td>SAS/SATA HHD #11</td>
</tr>
</tbody>
</table>

Rear LED Indicators

<table>
<thead>
<tr>
<th>Rear LED</th>
<th>Hard Drive Activity</th>
<th>Failure LED</th>
</tr>
</thead>
<tbody>
<tr>
<td>SAS #0</td>
<td>D12</td>
<td>D5</td>
</tr>
<tr>
<td>SAS #1</td>
<td>D13</td>
<td>D6</td>
</tr>
<tr>
<td>SAS #2</td>
<td>D14</td>
<td>D7</td>
</tr>
<tr>
<td>SAS #3</td>
<td>D15</td>
<td>D8</td>
</tr>
<tr>
<td>SAS #4</td>
<td>D18</td>
<td>D19</td>
</tr>
<tr>
<td>SAS #5</td>
<td>D21</td>
<td>D20</td>
</tr>
<tr>
<td>SAS #6</td>
<td>D22</td>
<td>D23</td>
</tr>
<tr>
<td>SAS #7</td>
<td>D24</td>
<td>D29</td>
</tr>
<tr>
<td>SAS #8</td>
<td>D25</td>
<td>D30</td>
</tr>
<tr>
<td>SAS #9</td>
<td>D26</td>
<td>D31</td>
</tr>
<tr>
<td>SAS #10</td>
<td>D27</td>
<td>D32</td>
</tr>
<tr>
<td>SAS #11</td>
<td>D28</td>
<td>D33</td>
</tr>
</tbody>
</table>

Figure F-4: Rear Connectors and LEDs
To avoid personal injury and property damage, carefully follow all the safety steps listed below when accessing your system or handling the components.

G-1 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 RAID card 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.

G-2 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.
G-3 A Note to Users

All images and layouts shown in this user's guide are based upon the latest PCB Revision available at the time of publishing. The card you have received may or may not look exactly the same as the graphics shown in this manual.

G-4 Introduction to the BPN-SAS-846A Backplane

The BPN-SAS-846A 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-SAS-846A Revision 1.00, the most current release available at the time of publication. Always refer to the Supermicro Web site at www.supermicro.com for the latest updates, compatible parts and supported configurations.
G-5 Front Connectors and Jumpers

Figure G-1: Front Components

Front Connectors and Components

1. Chip: MG9072
4. I²C Connector #1 (JP37) and #2 (JP95)
5. I²C Connector #3 (JP52) and #4 (JP96)
6. I²C Connector #5 (JP116) and #6 (JP117)
8. IPASS Connector CH# 0-3, JSM1
9. IPASS Connector CH# 4-7, JSM2
10. IPASS Connector CH# 8-11, JSM3
11. IPASS Connector CH# 12-15, JSM4
12. IPASS Connector CH# 16-19, JSM5
13. IPASS Connector CH# 20-23, JSM6
G-6 Front Connector and Pin Definitions

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

2. Upgrade Connectors
   The upgrade connectors are designated JP69, JP78, and JP115 and are used for manufacturer’s diagnostic purposes only.

3. Activity LED Header
   The activity LED header, designated JP26, JP47 and JP108, is used to indicate the activity status of each SAS drive. 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.

4., 5., 6. I2C Connectors
   The I2C Connectors, designated JP37, JP95, JP52, JP96, JP116, and JP117, are used to monitor HDD activity and status. See the table on the right for pin definitions.

7. Backplane Main Power Connectors

---

G-7 Front Jumper Locations and Pin Definitions

**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.

**Appendix G: BPN-SAS-846A Backplane Specifications**

The buzzer alarm is triggered by the following conditions:

1. Hard drive failure
2. Fan failure

---

<table>
<thead>
<tr>
<th>Jumper</th>
<th>Jumper Setting</th>
<th>Notes</th>
</tr>
</thead>
<tbody>
<tr>
<td>JP35</td>
<td>1-2: Reset</td>
<td></td>
</tr>
<tr>
<td></td>
<td>2-3: Default</td>
<td></td>
</tr>
<tr>
<td>JP50</td>
<td>1-2: Reset</td>
<td></td>
</tr>
<tr>
<td></td>
<td>2-3: Default</td>
<td></td>
</tr>
<tr>
<td>JP129</td>
<td>1-2: Reset</td>
<td></td>
</tr>
<tr>
<td></td>
<td>2-3: Default</td>
<td></td>
</tr>
<tr>
<td>JP18</td>
<td>1-2: Reset</td>
<td>Buzzer disabled*</td>
</tr>
<tr>
<td></td>
<td>2-3: Not reset (Default)</td>
<td>Buzzer enabled*</td>
</tr>
</tbody>
</table>

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

This backplane can use up to four fans. To utilize each fan, you must configure both jumpers as indicated below.

<table>
<thead>
<tr>
<th>Jumper</th>
<th>Jumper Settings</th>
<th>Note</th>
</tr>
</thead>
<tbody>
<tr>
<td>JP61</td>
<td>1-2: With Fan (Default) 2-3: No Fan</td>
<td>FAN#1</td>
</tr>
<tr>
<td>JP97</td>
<td>1-2: With Fan (Default) 2-3: No Fan</td>
<td>FAN#1</td>
</tr>
<tr>
<td>JP62</td>
<td>1-2: With Fan (Default) 2-3: No Fan</td>
<td>FAN#2</td>
</tr>
<tr>
<td>JP98</td>
<td>1-2: With Fan (Default) 2-3: No Fan</td>
<td>FAN#2</td>
</tr>
<tr>
<td>JP63</td>
<td>1-2: With Fan (Default) 2-3: No Fan</td>
<td>FAN#3</td>
</tr>
<tr>
<td>JP99</td>
<td>1-2: With Fan (Default) 2-3: No Fan</td>
<td>FAN#3</td>
</tr>
<tr>
<td>JP64</td>
<td>1-2: With Fan (Default) 2-3: No Fan</td>
<td>FAN#4</td>
</tr>
<tr>
<td>JP100</td>
<td>1-2: With Fan (Default) 2-3: No Fan</td>
<td>FAN#4</td>
</tr>
</tbody>
</table>

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 jumper. The following information details which jumper must be configured to use SGPIO mode or restore your backplane to I²C mode.

<table>
<thead>
<tr>
<th>Jumper</th>
<th>SGPIO Jumper Setting (Default)</th>
<th>I²C Jumper Setting</th>
</tr>
</thead>
<tbody>
<tr>
<td>JP84</td>
<td>1-2</td>
<td>2-3</td>
</tr>
</tbody>
</table>

Front LED Indicators

<table>
<thead>
<tr>
<th>LED</th>
<th>State</th>
<th>Specification</th>
</tr>
</thead>
<tbody>
<tr>
<td>D45</td>
<td>On</td>
<td>Failure in Fan #1</td>
</tr>
<tr>
<td>D47</td>
<td>On</td>
<td>Failure in Fan #2</td>
</tr>
<tr>
<td>D49</td>
<td>On</td>
<td>Failure in Fan #3</td>
</tr>
<tr>
<td>D51</td>
<td>On</td>
<td>Failure in Fan #4</td>
</tr>
<tr>
<td>D3</td>
<td>On</td>
<td>Alarm #1: Overheat/Drive Failure in Channel 1</td>
</tr>
<tr>
<td>D36</td>
<td>On</td>
<td>Alarm #2: Overheat/Drive Failure in Channel 2</td>
</tr>
<tr>
<td>D89</td>
<td>On</td>
<td>Alarm #3: Overheat/Drive Failure in Channel 3</td>
</tr>
<tr>
<td>D53</td>
<td>Off</td>
<td>+5V : Backplane power failure. Light is on during normal operation.</td>
</tr>
<tr>
<td>D54</td>
<td>Off</td>
<td>+12V : Backplane power failure. Light is on during normal operation.</td>
</tr>
</tbody>
</table>
G-8  Rear Connectors and LED Indicators

Figure G-4: Rear Connectors and LEDs

<table>
<thead>
<tr>
<th>Rear SAS/SATA Connectors</th>
<th>Rear Connector</th>
<th>SAS Drive Number</th>
<th>Rear Connector</th>
<th>SAS Drive Number</th>
</tr>
</thead>
<tbody>
<tr>
<td>SAS #0</td>
<td>SAS/SATA HDD #1</td>
<td>SAS #12</td>
<td>SAS/SATA HDD #13</td>
<td></td>
</tr>
<tr>
<td>SAS #1</td>
<td>SAS/SATA HDD #2</td>
<td>SAS #13</td>
<td>SAS/SATA HDD #14</td>
<td></td>
</tr>
<tr>
<td>SAS #2</td>
<td>SAS/SATA HDD #3</td>
<td>SAS #14</td>
<td>SAS/SATA HDD #15</td>
<td></td>
</tr>
<tr>
<td>SAS #3</td>
<td>SAS/SATA HDD #4</td>
<td>SAS #15</td>
<td>SAS/SATA HDD #16</td>
<td></td>
</tr>
<tr>
<td>SAS #4</td>
<td>SAS/SATA HDD #5</td>
<td>SAS #16</td>
<td>SAS/SATA HDD #17</td>
<td></td>
</tr>
<tr>
<td>SAS #5</td>
<td>SAS/SATA HDD #6</td>
<td>SAS #17</td>
<td>SAS/SATA HDD #18</td>
<td></td>
</tr>
<tr>
<td>SAS #6</td>
<td>SAS/SATA HDD #7</td>
<td>SAS #18</td>
<td>SAS/SATA HDD #19</td>
<td></td>
</tr>
<tr>
<td>SAS #7</td>
<td>SAS/SATA HDD #8</td>
<td>SAS #19</td>
<td>SAS/SATA HDD #20</td>
<td></td>
</tr>
<tr>
<td>SAS #8</td>
<td>SAS/SATA HDD #9</td>
<td>SAS #20</td>
<td>SAS/SATA HDD #21</td>
<td></td>
</tr>
<tr>
<td>SAS #9</td>
<td>SAS/SATA HDD #10</td>
<td>SAS #21</td>
<td>SAS/SATA HDD #22</td>
<td></td>
</tr>
<tr>
<td>SAS #10</td>
<td>SAS/SATA HDD #11</td>
<td>SAS #22</td>
<td>SAS/SATA HDD #23</td>
<td></td>
</tr>
<tr>
<td>SAS #11</td>
<td>SAS/SATA HDD #12</td>
<td>SAS #23</td>
<td>SAS/SATA HDD #24</td>
<td></td>
</tr>
</tbody>
</table>

Rear LED Indicators

<table>
<thead>
<tr>
<th>Rear LED</th>
<th>Hard Drive Activity</th>
<th>Failure LED</th>
</tr>
</thead>
<tbody>
<tr>
<td>SAS #0</td>
<td>D12</td>
<td>D5</td>
</tr>
<tr>
<td>SAS #1</td>
<td>D13</td>
<td>D6</td>
</tr>
<tr>
<td>SAS #2</td>
<td>D14</td>
<td>D7</td>
</tr>
<tr>
<td>SAS #3</td>
<td>D15</td>
<td>D8</td>
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<tr>
<td>SAS #4</td>
<td>D18</td>
<td>D19</td>
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<tr>
<td>SAS #5</td>
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<td>D20</td>
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<tr>
<td>SAS #6</td>
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<td>D23</td>
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<tr>
<td>SAS #7</td>
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<td>D29</td>
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<tr>
<td>SAS #8</td>
<td>D25</td>
<td>D30</td>
</tr>
<tr>
<td>SAS #9</td>
<td>D26</td>
<td>D31</td>
</tr>
<tr>
<td>SAS #10</td>
<td>D27</td>
<td>D32</td>
</tr>
<tr>
<td>SAS #11</td>
<td>D28</td>
<td>D33</td>
</tr>
<tr>
<td>SAS #12</td>
<td>D40</td>
<td>D37</td>
</tr>
<tr>
<td>SAS #13</td>
<td>D41</td>
<td>D38</td>
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<tr>
<td>SAS #14</td>
<td>D42</td>
<td>D39</td>
</tr>
<tr>
<td>SAS #15</td>
<td>D87</td>
<td>D88</td>
</tr>
<tr>
<td>SAS #16</td>
<td>D100</td>
<td>D103</td>
</tr>
<tr>
<td>SAS #17</td>
<td>D101</td>
<td>D105</td>
</tr>
<tr>
<td>SAS #18</td>
<td>D102</td>
<td>D107</td>
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<tr>
<td>SAS #19</td>
<td>D104</td>
<td>D108</td>
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<tr>
<td>SAS #20</td>
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<td>SAS #21</td>
<td>D111</td>
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<tr>
<td>SAS #22</td>
<td>D118</td>
<td>D119</td>
</tr>
<tr>
<td>SAS #23</td>
<td>D120</td>
<td>D121</td>
</tr>
</tbody>
</table>
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