8U/6U/4U SuperBlade™

Network System Options

MBM-XEM-002 10-Gbps
Ethernet Switch Module

MBM-XEM-001 10-Gbps
Ethernet Switch Module

SBM-25G-100 25-Gbps
Ethernet Switch Module

MBM-GEM-004 1-Gbps
Ethernet Switch Module

MBM-GEM-001 2.5-Gbps/1-Gbps
Ethernet Switch Module

MBM-XEM-100 10-Gbps
Ethernet Switch Module

SBM-XEM-X8SM 10-Gbps
Ethernet Switch Module

SBM-OPH-C4020
Omni-Path Architecture (OPA)
100-Gbps Switch Module

SBM-IBS-E3616
InfiniBand
100-Gbps Switch Module

User's Manual

Revison 1.0c

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

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

WARNING: HANDLING OF LEAD SOLDER MATERIALS USED IN THIS PRODUCT MAY EXPOSE YOU TO LEAD, A CHEMICAL KNOWN TO THE STATE OF CALIFORNIA TO CAUSE BIRTH DEFECTS AND OTHER REPRODUCTIVE HARM.

SuperBlade User's Manual
Release Date: November 25, 2019

Preface

About this Manual

This manual is written for professional system integrators, Information Technology professionals, service personnel and technicians. It provides information for the installation and use of Supermicro's network modules. Installation and maintenance should be performed by experienced professionals only.

Manual Organization

Chapter 1: Introduction

The first chapter provides an overview of this manual.

Chapter 2: System Safety

You should familiarize yourself with this chapter for a general overview of safety precautions that should be followed when installing and servicing 8U/6U/4U SuperBlade Network System Options.

Chapter 3: Setup and Installation

Refer here for details on installing the modules into a SuperBlade enclosure and for their setup and configuration.

Chapter 4: Ethernet Modules

This chapter details all Ethernet switches for the SuperBlade system.

Appendix A: LED Descriptions

LED descriptions are summarized here in this appendix for quick reference.

Notes

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Chapter 1
Introduction

1-1 Overview

The 8U/6U/4U SuperBlade Network System Options User's Manual contains information on all network modules used for the 8U/6U/4U Supermicro system. This incorporates information on the Ethernet switch module for Ethernet.

1-2 Product Checklist of Typical Components

All modules are shipped alone or with a SuperBlade enclosure when ordered. Aside from packaging, no cables or cords are included.

Please refer to our web site for information on operating systems that have been certified for use with the SuperBlade (www.supermicro.com/products/SuperBlade/).

Note: For your system to work properly, please follow the links below to download all necessary drivers/utilities and the user's manual for your server.

- Supermicro product manuals: http://www.supermicro.com/support/manuals/
- Product drivers and utilities: ftp://ftp.supermicro.com
- Product safety information: http://www.supermicro.com/about/policies/safety_information.cfm
- If you have any questions, please contact our support team at: **support@supermicor.com**

Note: A complete list of safety warnings is provided on the Supermicro web site at http://www.supermicro.com/about/policies/safety_information.cfm.

1-3 Features

See Chapter 4: " Ethernet Switch Modules" on page 4-1 for information on all Ethernet switches.

1-4 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
Website:	www.supermicro.nl
	sales@supermicro.nl (General Information)
Email:	support@supermicro.nl (Technical Support)
	rma@supermicro.nl (Customer Support)

Asia-Pacific

Address:	Super Micro Computer, Inc.
	3F, No. 150, Jian 1st Rd.
	Zhonghe Dist., New Taipei City 23511
	Taiwan (R.O.C)
Tel:	+886-(2) 8226-3990
Fax:	+886-(2) 8226-3992
Website:	www.supermicro.com.tw
Technical Support:	
Email:	support@supermicro.com.tw

Chapter 2
Standardized Warning Statements

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。

此警告符號代表危險。

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

Warnung

WICHTIGE SICHERHEITSHINWEISE

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

BEWAHREN SIE DIESE HINWEISE GUT AUF.

INSTRUCCIONES IMPORTANTES DE SEGURIDAD

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

GUARDE ESTAS INSTRUCCIONES.

IMPORTANTES INFORMATIONS DE SÉCURITÉ

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

CONSERVEZ CES INFORMATIONS.

תקנון הצהרות אזהרה

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

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

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

안전을 위한 주의사항

경고 !

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

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

BELANGRIJKE VEILIGHEIDSINSTRUCTIES

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

BEWAAR DEZE INSTRUCTIES

Installation Instructions

Warning!

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

設置手順書

システムを電源に接続する前に、設置手順書をお読み下さい。

警告

将此系统连接电源前 , 请先阅读安装说明。

警告

將系統與電源連接前，請先閱讀安裝說明。

Warnung

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

¡Advertencia!

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

Attention

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

יש לקרוא את הוראות התקנה לפני חיבור המערכת למקור מתח.

اقر إرشادات التركيب قبل توصيل النظام إلى مصدر للطاقة

시스템을 전원에 연결하기 전에 설치 안내를 읽어주십시오 .

Waarschuwing

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

Circuit Breaker

Warning!

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

サーキット・ブレーカー

この製品は、短絡（過電流）保護装置がある建物での設置を前提としています。

保護装置の定格が 250 V、20 A を超えないことを確認下さい。

警告

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

警告

此產品的短路 (過載電流) 保護由建築物的供電系統提供 , 確保短路保護設備的額定電流不大於 250V,20A。

Warnung

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

¡Advertencia!

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

Attention

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

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

هذا المنتج يعتمد على معدات الحماية من الدوائرالقصيرة التي تم تثبيتها في المبنى
تأكد من أن تقييم الجهاز الوقائي ليس أكثر من: 20A, 250V

경고 !

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

Waarschuwing

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

Power Disconnection Warning

Warning!

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

電源切断の警告

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

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

警告

在你打开机箱并安装或移除内部器件前 , 必须将系统完全断电 , 并移除电源线。

警告

在您打開機殼安裝或移除內部元件前，必須將系統完全斷電，並移除電源線。

Warnung

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

¡Advertencia!

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

Attention

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

אזהרה מפני ניתוק חשמלי

אזהרה !

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

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

경고 !

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

Waarschuwing

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

Equipment Installation

Warning!

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

機器の設置

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

警告

只有经过培训且具有资格的人员才能进行此设备的安装、更换和维修。

警告

只有經過受訓且具資格人員才可安裝、更換與維修此設備。

Warnung

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

¡Advertencia!

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

Attention

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

אזהרה !

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

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

경고 !

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

Waarschuwing

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

Restricted Area

Warning!

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

アクセス制限区域

このユニットは、アクセス制限区域に設置されることを想定しています。

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

警告

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

警告

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

Warnung

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

¡Advertencia!

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

Attention

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

אזור עם גישה מוגבלת

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

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

경고 !

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

Waarschuwing

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

Battery Handling

Warning!

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

電池の取り扱い

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

警告

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

警告

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

Warnung

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

Attention

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

¡Advertencia!

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

אזהרה !

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

סילוק הסוללות המשומשות יש לבצע לפי הוראות היצרן.

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

경고 !

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

Waarschuwing

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

Redundant Power Supplies

Warning!

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

冗長電源装置

このユニットは複数の電源装置が接続されている場合があります。

ユニットの電源を切るためには、すべての接続を取り外さなければなりません。

警告

此部件连接的电源可能不止一个，必须将所有电源断开才能停止给该部件供电。

警告

此裝置連接的電源可能不只一個，必須切斷所有電源才能停止對該裝置的供電。

Warnung

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

¡Advertencia!

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

Attention

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

אם קיים יותר מספק אחד

אזהרה!
ליחדה יש יותר מחיבור אחד של ספק. יש להסיר את כל החיבורים על מנת לרוקן את היחידה.

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

경고!

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

Waarschuwing

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

Backplane Voltage

Warning!

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

バックプレーンの電圧

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

修理する際には注意ください。

警告

当系统正在进行时，背板上有很危险的电压或能量，进行维修时务必小心。

警告

當系統正在進行時，背板上有危險的電壓或能量，進行維修時務必小心。

Warnung

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

¡Advertencia!

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

Attention

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

מתח בפנל האחורי

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

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

경고 !

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

Waarschuwing

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

Comply with Local and National Electrical Codes

Warning!

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

地方および国の電気規格に準拠

機器の取り付けはその地方および国の電気規格に準拠する必要があります。

警告

设备安装必须符合本地与本国电气法规。

警告

設備安裝必須符合本地與本國電氣法規。

Warnung

Die Installation der Geräte muss den Sicherheitsstandards entsprechen.

¡Advertencia!

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

Attention

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

תיאום חוקי החשמל הארצי

אזהרה !
התקנת הציוד חייבת להיות תואמת לחוקי החשמל המקומיים והארציים.

تركيب المعدات الكهربائية يجب أن يمتثل للقوانين المحلية والوطنية المتعلقة بالكهرباء

경고 !

현 지역 및 국가의 전기 규정에 따라 장비를 설치해야 합니다 .

Waarschuwing

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

Product Disposal

Warning!

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

製品の廃棄

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

警告

本产品的废弃处理应根据所有国家的法律和规章进行。

警告

本產品的廢棄處理應根據所有國家的法律和規章進行。

Warnung

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

¡Advertencia!

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

Attention

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

סילוק המוצר

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

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

경고 !

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

Waarschuwing

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

Hot Swap Fan Warning

Warning!

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

ファン・ホットスワップの警告

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

警告

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

靠近风扇

警告

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

Warnung

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

¡Advertencia!

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

Attention

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

אזהרה !

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

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

경고 !

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

Waarschuwing

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

Power Cable and AC Adapter

Warning!

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

電源コードと AC アダプター

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

警告

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

警告

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

Warnung

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

¡Advertencia!

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

Attention

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

חשמליים ומתאמי AC

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

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

Notes

경고 !

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

Waarschuwing

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

Chapter 3
Setup and Installation

This chapter covers the setup and installation of the SuperBlade Ethernet switch module.

SuperMicro has several 100-Gigabit, 25-Gigabit, 10-Gigabit and Gigabit Ethernet switch modules for its system. Modules contain various external Ethernet uplinks. The following pages contain some installation instructions that are common to all switches.

3-1 Installing/Removing a Switch Module

Follow the procedures below for installing or uninstalling a switch module into a SuperBlade system.

Installing a Switch Module

1. Make sure the cover to the module has been installed before proceeding. Follow the anti-static precautions described in Chapter 2.
2. Remove the dummy cover from the bay you want to place the module in.
3. Place the module's release handle in the open position.
4. Slide the module into the module bay until it stops (see Figure 3-1).

Figure 3-1. Installing a Single and Triple Wide Switch Module

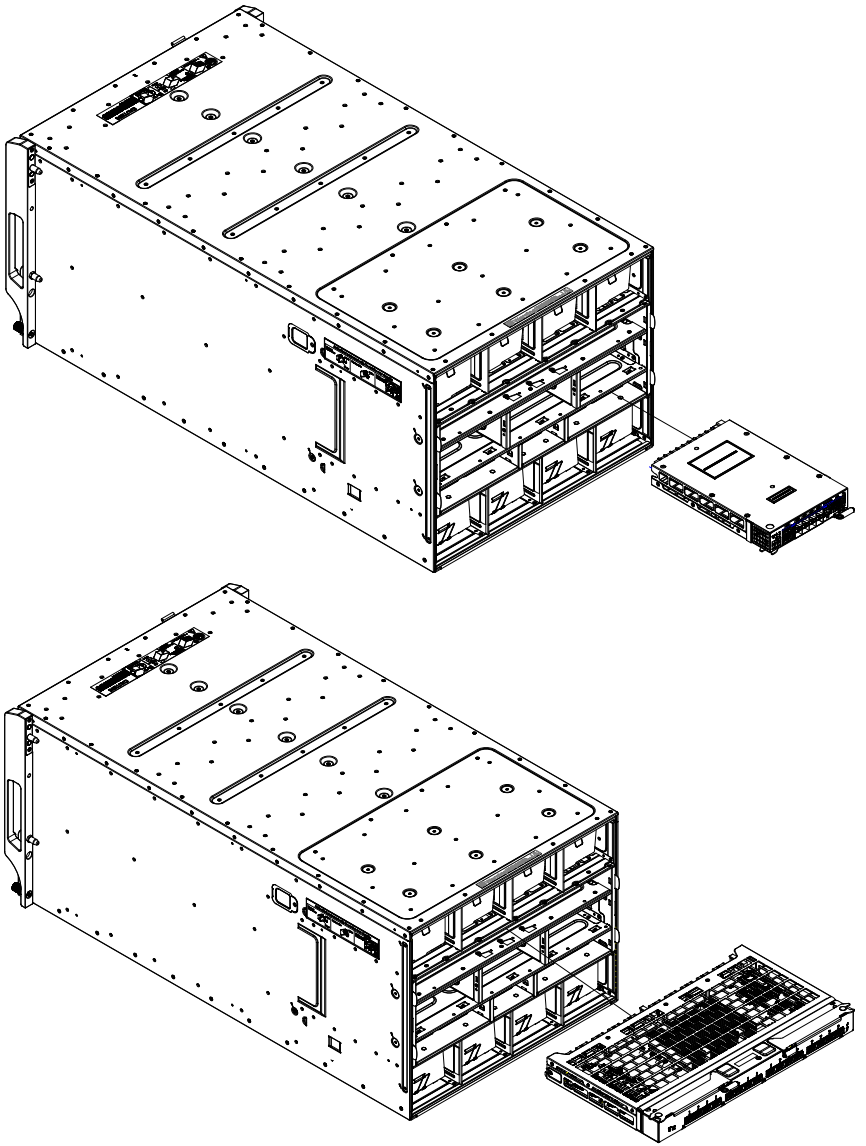


Figure 3-2. 8U 820C Blade Enclosure with Switch Modules Installed

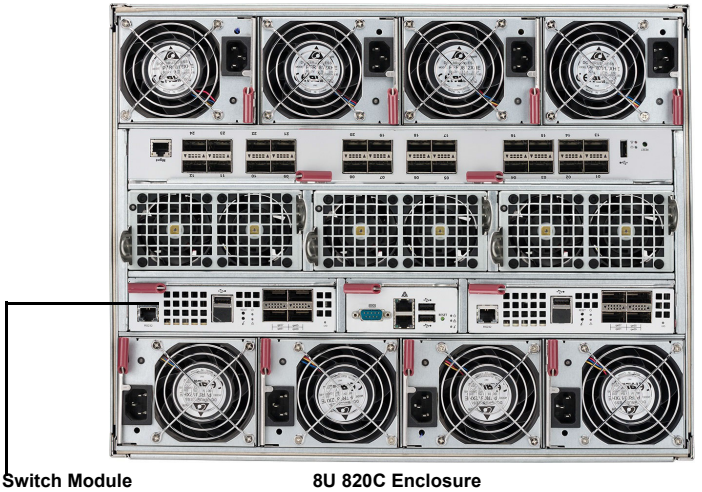


Figure 3-3. 8U 820J Blade Enclosure with Switch Modules Installed

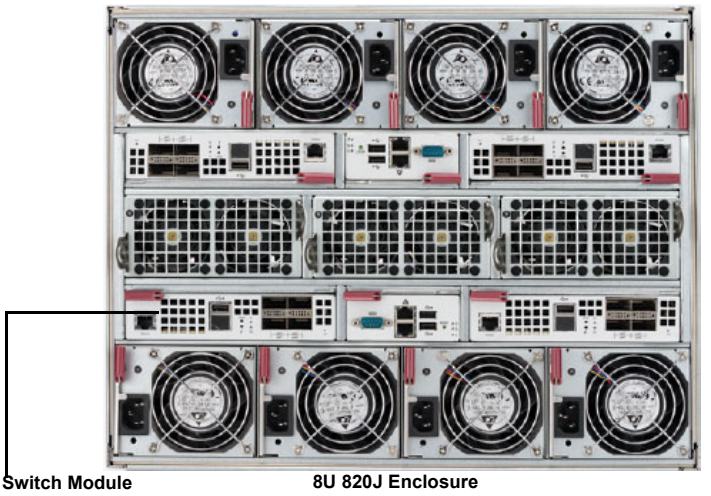


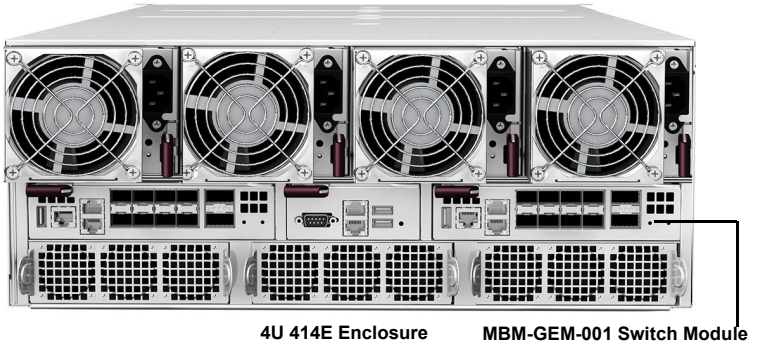
Figure 3-4. 6U 610J Blade Enclosure with Switch Modules Installed

Switch Module 6U 610J Enclosure

Figure 3-5. 6U 614E Blade Enclosure with Switch Modules Installed

Switch Module 6U 614E Enclosure

Figure 3-6. 4U Blade Enclosure with Switch Modules Installed



5. Push the release handle to the closed position.

NOTE: After the module has been installed and the handle locked, it will turn on and a POST test will run to verify it is working properly. If there are no problems the blue **Init. OK** LED on the module will illuminate and you will see an **OK** under INITIATED in the SWITCH screen of the management software utility.

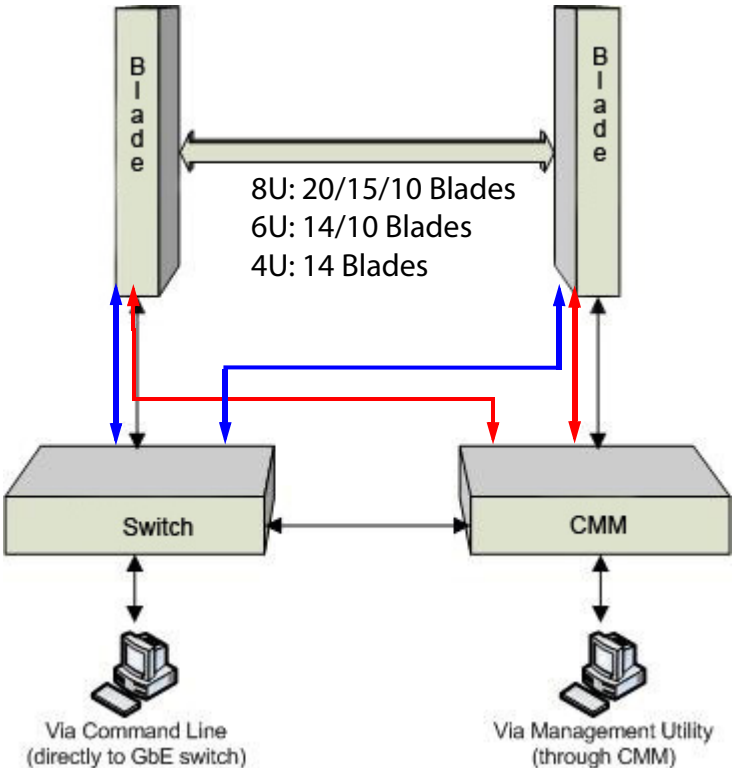
NOTE: If the module is installed in a top bay it must be positioned upside-down.

Removing a Switch Module

1. Pull out the release handle to the open position.
2. Pull the module out of the bay.
3. Replace immediately with another module or with a dummy module cover to maintain airflow integrity.

3-2 Configuring the Switch Module

Figure 3-7. Configuring the Switch Module



A Gigabit Ethernet switch module can be configured using two methods (as shown in Figure 3-7). You may configure it:

- Through the web-based management utility or IPMI (via the CMM module)
- Directly through a command line (using a telnet interface or a serial console)

The management utility and IPMI access the switch module through the CMM module. To access it directly, use the command line.

Note that any port may be configured as *up* (active) or *down* (inactive). All ports are active by default.

Web-based Management Utility/IPMI

Using the Web-based Management Utility or IPMI is the most user-friendly method of configuring the switch module. You can access the configuration menu either through the management utility or by a network connection.

Network Connection

Use the procedure below to connect and login to the IPMI system.

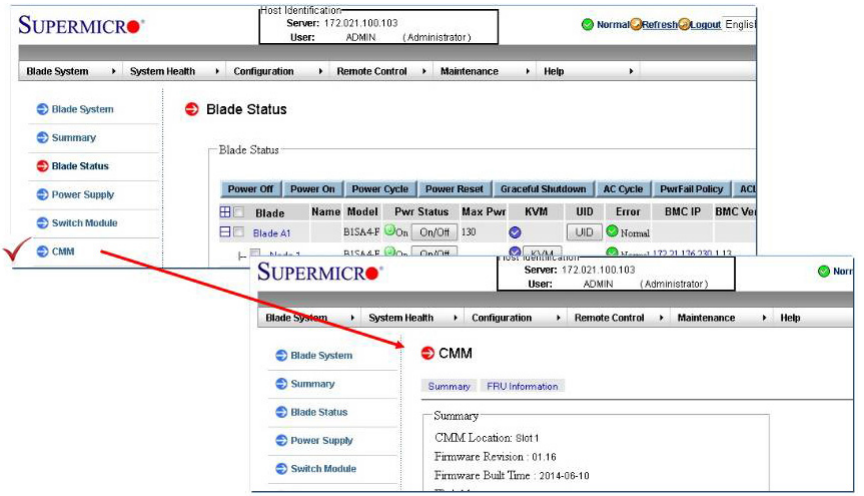
Logging In to the IPMI:

1. Connect a PC to a network that is accessible to the switch.

   For example, connect a PC to any of the front panel ports of the switch and make sure the PC has an IP address on the same subnet as the switch management IP.

2. Type the IP address of the switch that you want to connect to in the address bar of your browser, and hit <ENTER>. Once the connection is made, the LOGIN screen displays.

Figure 3-8. Blade Status Screen



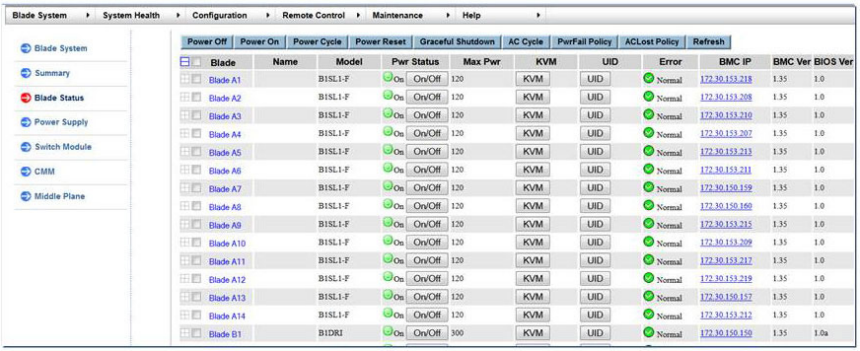
a. Type in your Username in the USERNAME box.

b. Type in your Password in the PASSWORD box and click on LOGIN.

NOTE: The default username and the default password are both **ADMIN**. The default IP address is **https://192.168.100.100**.

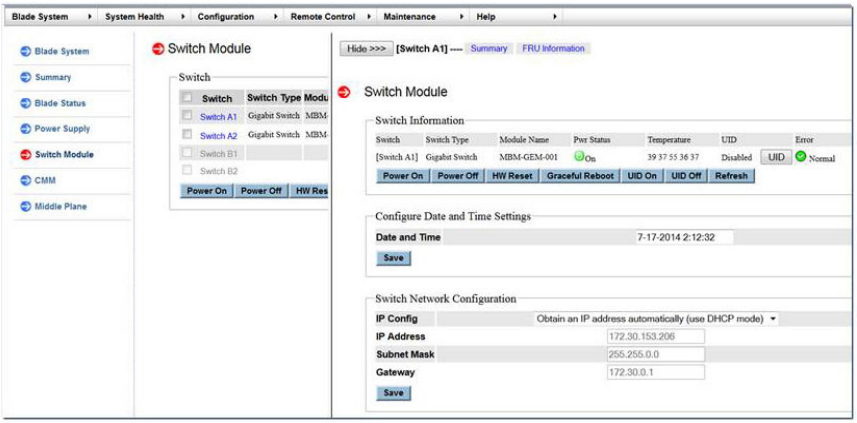
The IPMI BLADE SYSTEM screen shown in Figure 3-8 and Figure 3-9 is then displayed.

Figure 3-9. Blade System Screen



3. Clicking on a switch module will display the module in the SWITCH panel on the screen (Figure 3-10). You may make changes in the configuration of the switch module in this panel to your needs.

Figure 3-10. Switch Panel



Address Defaults

The following defaults in Table 3-1 are the default addresses that are initially set. Afterwards, you can change these values within the program.

Table 3-1. MBM-GEM-001 Switch Module Address Default Settings

Address	Default Setting
Default IP Address	**https://192.168.100.102**
Default Gateway Address	192.168.100.1
Default Subnet Mask	255.255.255.0

NOTE: If two switches are installed in a SuperBlade system, you will have to change the IP address of one from the default so that both switches have unique addresses.

3-3 Locating and Identifying Switches and Switch Ports on a Blade Enclosure

Use this section to help you in locating and identifying the switch ports and switches on a blade enclosure.

Locating and Identifying a Switch on a Blade Enclosure

When you are looking at the rear of the blade enclosure, you can identify the switch associating with a CMM designation by using the information in Table 3-2.

Table 3-2. Locating and Identifying a Switch in 820C Enclosure

Switch Name[a]	Switch Location
A1	Right Slot
A2	Left Slot

a. As shown on the CMM.

Table 3-3. Locating and Identifying a Switch in 820J Enclosure

Switch Name[a]	Switch Location
A1	Upper Right Slot
A2	Upper Left Slot
B1	Lower Right Slot
B2	Lower Left Slot

a. As shown on the CMM.

Table 3-4. Locating and Identifying a Switch in 610J Enclosure

Switch Name[a]	Switch Location
A1	Upper Right Slot
A2	Upper Left Slot
B1	Lower Right Slot
B2	Lower Left Slot

a. As shown on the CMM.

Table 3-5. Locating and Identifying a Switch in 614E Enclosure

Switch Name[a]	Switch Location
A1	Right Slot
A2	Left Slot

a. As shown on the CMM.

Table 3-6. Locating and Identifying a Switch in 414E Enclosure

Switch Name[a]	Switch Location
A1	Right Slot
A2	Left Slot

a. As shown on the CMM.

Locating and Identifying a Switch Port on a Blade Enclosure

In general, a switch that is designated on the CMM as "Switch A1", has its ports electrically routed to the first network interfaces of the blade servers, while the switch designed as "Switch A2" has its ports electrically routed to the second network interfaces of the blade servers. However, pass-through Ethernet modules have a one-to-one relationship between their internal and external ports.

Managed switches have internal ports that are associated with the blade server slots and network interfaces (NIC).

NOTE: Not all switches shown are supported on all blade enclosures. Please check the Superblade matrix for the supported models.

Notes

Chapter 4
Ethernet Switch Modules

This chapter covers the Ethernet switch modules available for your SuperBlade enclosure. The Ethernet switch modules can only be installed in the single-wide and right module bays.

4-1 MBM-GEM-001 Gb Ethernet Switch Module

The MBM-GEM-001 Gigabit Ethernet switch module is a layer 2 Ethernet switch. It includes eight 10-Gb/s uplink (SFP+) ports and fifty-six 1/2.5-Gb/s downlink ports for the SuperBlade's LAN interfaces. This module has two internal Ethernet paths to the CMM(s). The switch is used to provide a connection between the Ethernet controller integrated on the mainboard and an external Ethernet device. This module is a hot-pluggable. See Figure 4-1, Table 4-1 and Table 4-2 for switch details.

Figure 4-1. MBM-GEM-001 Gb Ethernet Switch Module

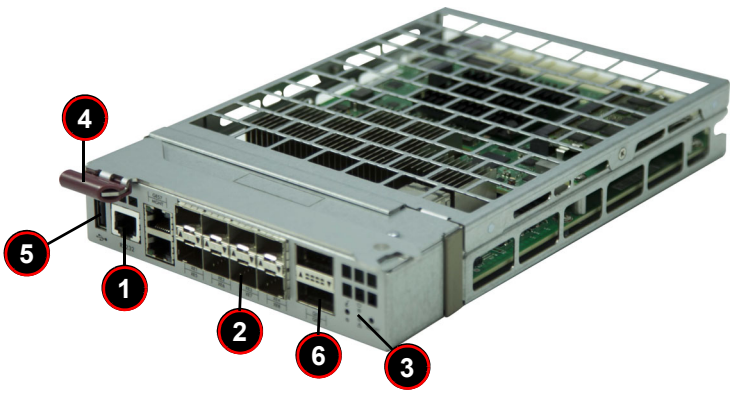


Table 4-1. MBM-GEM-001 Gb Ethernet Switch Module Interface

Item	Description
1	RS232 (COM) Serial Port (Baud Rate: 115200)
2	SFP+ Ethernet Ports
3	LEDs
4	Module Release Handle
5	USB Ports
6	40-Gb QSFP Ports (2)

Table 4-2. MBM-GEM-001 Gb Ethernet Switch Module Features

Feature	Description
Chipset	Intel FM5224
Internal/External Ports	Internal: Fifty-six (56) 1/2.5-Gb downlink ports / External: Eight 10-Gb SFP+ uplink ports or two 40-Gb QSFP uplink ports.
Bandwidth	442-Gb non-blocking
Trunking	Link aggregation support
Jumbo Frame Support	Up to 9kb
Remote Management	Browser-based management
Protocols	Spanning Tree, Rapid Spanning Tree, Multiple Spanning Tree (802.1d.1w)
Power Consumption	~100W
Dimensions (W x D x H)	267mm x 159mm x 36mm (10.5" x 6.25" x 1.4")
Weight	3.2lbs/1.5kg
Minimum Firmware Version to operate with 820C Enclosure	Version 1.0.1-19
Supported by Enclosure Models	820C, 820J, 614E, 610J and 414E

LED Indicators

LED indicators for the MBM-GEM-001 Gigabit Ethernet switch module are listed and described in Table A-1 of Appendix A.

Ports

The MBM-GEM-001 Gigabit Ethernet switch module contains several front-mounted ports as described below in Table 4-3.

Table 4-3. MBM-GEM-001 Gb Ethernet Switch Module Ports

Port	Description
RS-232 Compatible Serial Port	This port accepts an connector cable for uplink using RS-232 connection to a console (Baud Rate: 115200).
10-Gb SFP+ Ethernet Ports	These eight ports accept a SFP+ connector for 10-Gb uplink communications.
USB Ports	A USB port is provided on the front of the server for peripheral device connections.
40-Gb QSFP Ports	Two QSFP 40-Gb ports are provided on the front of the server for uplink.

4-2 MBM-GEM-004 Gb Ethernet Switch Module

The MBM-GEM-004 Gigabit Ethernet switch module is a layer 2 Ethernet switch. This module has two internal Ethernet paths to the CMM(s). The module is used to provide a connection between the Ethernet controller integrated on the mainboard and an external Ethernet device. This module is a hot-pluggable. See Figure 4-2, Table 4-4 and Table 4-5 for switch details.

Figure 4-2. MBM-GEM-004 Gb Ethernet Switch Module

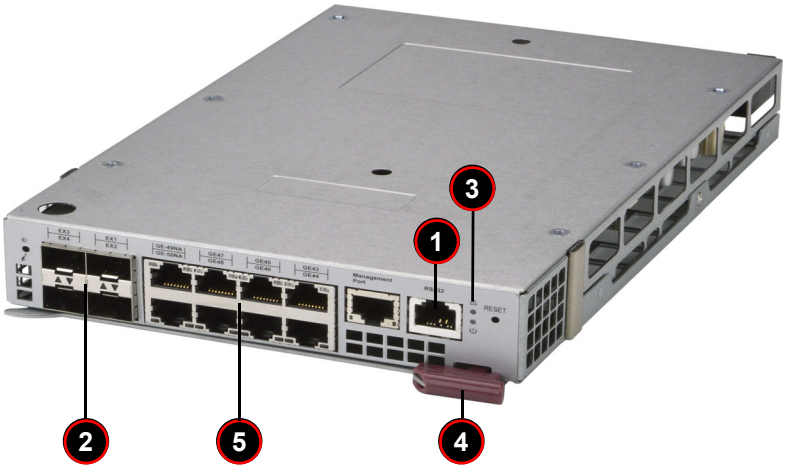


Table 4-4. MBM-GEM-004 Gb Ethernet Switch Module Interface

Item	Description
1	RS232 (COM) Serial Port
2	10-Gb SFP+ Uplink ports (4)
3	Switch LEDs
4	Module Release Handle
5	1-Gb RJ-45 uplink Ports (8)

Table 4-5. MBM-GEM-004 Gb Ethernet Switch Module Features

Feature	Description
Chipset	Broadcom BCM56151
Internal/External Ports	Internal: twenty-eight (28) 1-Gb downlink ports / External: four 10-Gb SFP+ uplink ports and eight 1-Gb RJ45 ports
Bandwidth	88-Gb non-blocking
Trunking	Link aggregation support
Jumbo Frame Support	Up to 9kb
Remote Management	Browser-based management
Protocols	Spanning Tree, Rapid Spanning Tree, Multiple Spanning Tree
Power Consumption	55 W
Dimensions (W x D x H)	267mm x 159mm x 36mm (10.5" x 6.25" x 1.4")
Weight	3.1lbs/1.4kg
Minimum Firmware Version to operate with 820C Enclosure	Version 1.1.0-10
Supported by Enclosure Models	820C, 820J, 614E, 610J and 414Z

LED Indicators

LED indicators for the MBM-GEM-004 Gb Ethernet switch module are listed and described in Table A-2 of Appendix A.

Ports

The MBM-GEM-004 Gb Ethernet switch module contains several front-mounted ports as described below in Table 4-6.

Table 4-6. MBM-GEM-004 Gb Ethernet Switch Module Ports

Port	Description
RS-232 Compatible Serial Port	This port accepts an connector cable for uplink using RS-232 connection to a console (Baud Rate: 9600).
10-Gb SFP+ Ethernet Ports	These four ports accept a SFP+ connector for 10-Gb uplink communications.
1-Gb RJ45 Ports	Eight 1-Gb RJ45 ports are provided on the front of the server for downlink.

4-3 MBM-XEM-001 10-Gb Ethernet Switch Module

The MBM-XEM-001 10-Gigabit Ethernet switch module is a layer 2 Ethernet switch. This module has two internal Ethernet paths to the CMM(s). This module is used to provide a connection between the Ethernet controller integrated on the mainboard and an external Ethernet device. This module is a hot-pluggable module. See Figure 4-3, Table 4-7 and Table 4-8 for switch details.

Figure 4-3. MBM-XEM-001 10-Gb Ethernet Switch Module

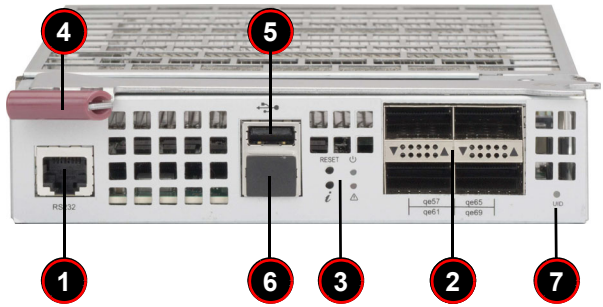


Table 4-7. MBM-XEM-001 10-Gb Ethernet Switch Module Interface

Item	Description
1	RS232 (COM) Serial Port
2	40Gb QSFP Uplink ports (4)
3	Switch LEDs
4	Module Release Handle
5	USB Port
6	Port reserved for manufacturer debugging purposes.
7	UID LED

Table 4-8. MBM-XEM-001 10-GGbigabit Ethernet Switch Module Features

Feature	Description
Chipset	Intel FM6348
Internal/External Ports	Internal: Fifty-six (56) 10Gb or 1Gb downlink ports / External: Four 40Gb QSFP
Bandwidth	960-Gb non-blocking
Trunking	Link aggregation support
Jumbo Frame Support	Up to 9kb
Remote Management	Browser-based management
Protocols	Spanning Tree, Rapid Spanning Tree, Multiple Spanning Tree
Power Consumption	140 W
Dimensions (W x D x H)	267mm x 159mm x 36mm (10.5" x 6.25" x 1.4")
Weight	3.2lbs/1.5kg
Minimum Firmware Version to operate with 820C Enclosure	Version 1.0.1-20
Supported by Enclosure Models	820C, 820J, 614E, 610J and 414E.

LED Indicators

LED indicators for the MBM-XEM-001 10-Gigabit Ethernet switch module are listed and described in Table A-3 of Appendix A.

Ports

The MBM-XEM-001 10-Gigabit Ethernet switch module contains several front-mounted ports as described below in Table 4-9.

Table 4-9. MBM-XEM-001 Available Switch Module Ports

Port	Description
RS-232 Compatible Serial Port	This port accepts an connector cable for uplink using RS-232 connection to a console (Baud Rate: 115200).
40-Gb QSFP Ports	These four ports accept a QSFP connector for 40-Gb uplink communications.
USB Port	One USB port is provided on the front of the server for peripheral device connections.

4-4 MBM-XEM-002 10-Gb Ethernet Switch Module

The MBM-XEM-002 10-Gigabit Ethernet switch module is a layer 2/3 Ethernet switch. This module has two internal Ethernet paths to the CMM(s). This module is used to provide a connection between the Ethernet controller integrated on the mainboard and an external Ethernet device. This module is a hot-pluggable module. See Figure 4-4, Table 4-10 and Table 4-11 for switch details.

Figure 4-4. MBM-XEM-002 10-Gb Ethernet Switch Module

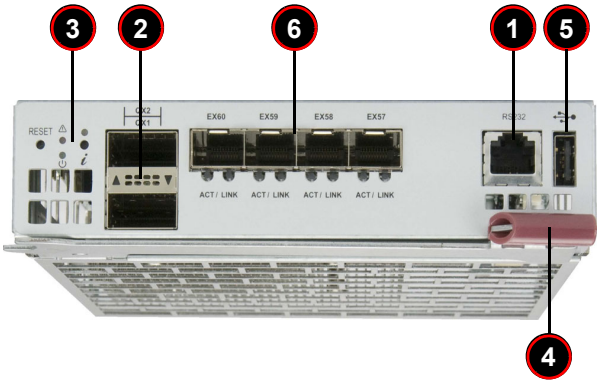


Table 4-10. MBM-XEM-002 10-Gb Ethernet Switch Module Interface

Item	Description
1	RS232 (COM) Serial Port
2	40Gb QSFP Uplink ports (2)
3	Switch LEDs
4	Module Release Handle
5	USB Port
6	10Gps SFP+ Uplink Ports (4)

Table 4-11. MBM-XEM-002 10-Gb Ethernet Switch Module Features

Feature	Description
Chipset	Broadcom BCM 56846
Internal/External Ports	Internal: Fifty-six (56) 10Gb or 1Gb downlink ports / External: Two 40-Gb QSFP and two 10-Gb SFP+ ports
Bandwidth	960-Gb non-blocking
Trunking	Link aggregation support
Jumbo Frame Support	Up to 9kb
Remote Management	Browser-based management
Protocols	Spanning Tree, Rapid Spanning Tree, Multiple Spanning Tree
Power Consumption	85 W
Dimensions (W x D x H)	267mm x 159mm x 36mm (10.5" x 6.25" x 1.4")
Weight	3.2lbs/1.5kg
Minimum Firmware Version to operate with 820C Enclosure	Version 2.0.3-27
Supported by Enclosure Models	820C, 820J, 614E, 610J and 414E

LED Indicators

LED indicators for the MBM-XEM-002 10-Gigabit Ethernet switch module are listed and described in Table A-4 of Appendix A.

Ports

The MBM-XEM-002 10-Gigabit Ethernet switch module contains several front-mounted ports as described below in Table 4-12.

Table 4-12. MBM-XEM-002 Gb Ethernet Switch Module Ports

Port	Description
RS-232 Compatible Serial Port	This port accepts an connector cable for uplink using RS-232 connection to a console (Baud Rate: 9600).
40-Gb QSFP Ports	These two ports accept a QSFP connector for 40-Gb uplink communications.
USB Port	One USB port is provided on the front of the server for peripheral device connections.
10Gb SFP+ Ethernet Port	Four SFP+ ports accept an SFP+ connector for 10Gb's uplink communications

4-5 SBM-XEM-X8SM 10-Gb Ethernet Switch Module

The SBM-XEM-X8SM 10-Gigabit Ethernet switch module is a layer 2/3 Ethernet switch. This module has two internal Ethernet paths to the CMM(s). This module is used to provide a connection between the Ethernet controller integrated on the mainboard and an external Ethernet device. This module is a hot-pluggable module. See Figure 4-5, Table 4-13 and Table 4-14 for switch details.

Figure 4-5. SBM-XEM-X8SM 10-Gb Ethernet Switch Module

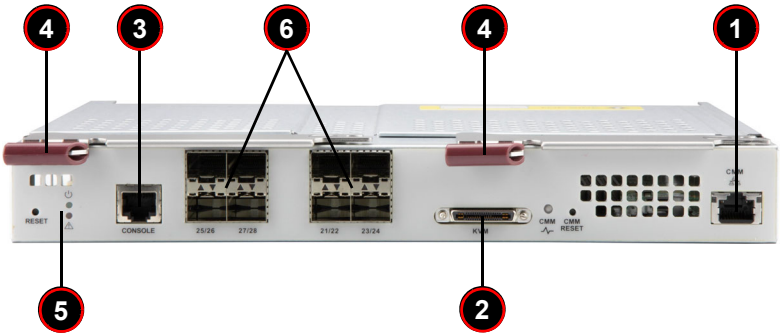


Table 4-13. SBM-XEM-X8SM 10-Gb Ethernet Switch Module Interface

Item	Description
1	1G RJ45 Port
2	KVM Management Port
3	Console Port
4	Module Release Handles
5	Switch LEDS
6	10Gps SFP+ Uplink Ports (4 TwinBlade/8 10 or 14 Blade)

Table 4-14. SBM-XEM-X8SM 10-Gb Ethernet Switch Module Features

Feature	Description
Chipset	Broadcom BCM56842
Internal/External Ports	Internal: 10 (Ten-Blade) or 14 (Fourteen-Blade) or 20 (TwinBlade) internal 10-Gigabit connections to Blades External: 4 (Twin-Blade) or 8 (Ten-Blade/Fourteen-Blade) external 10-Gigabit Ethernet ports (SFP+)
Bandwidth	320 Gb
Trunking	Link aggregation support
Jumbo Frame Support	Up to 9kb
Remote Management	Browser-based management
Protocols	Spanning Tree, Rapid Spanning Tree, Multiple Spanning Tree
Power Consumption	83.24 W
Dimensions (W x D x H)	9.875 x 10.8125 x 1.5 inches (250.825 x 274.6375 x 38.1 mm)
Weight	4.319 lbs (1.96 kg)
Supported by Enclosure Models	720E (midplane BPN-SB-E202)

LED Indicators

LED indicators for the SBM-XEM-X8SM 10-Gigabit Ethernet switch module are listed and described in Table A-5 of Appendix A.

Ports

The SBM-XEM-X8SM 10-Gigabit Ethernet switch module contains several front-mounted ports as described below in Table 4-15.

Table 4-15. SBM-XEM-X8SM Gb Ethernet Switch Module Ports

Port	Description
RS-232 Compatible Serial Port	This port accepts an connector cable for uplink using RS-232 connection to a console (Baud Rate: 9600).
RJ45 Port	One RJ45 port is provided for CMM usage
10Gb SFP+ Ethernet Port	Four or eight SFP+ ports are available to accept an SFP+ connector for 10Gb's uplink communications
KVM Port	One KVM Management port

4-6 SBM-IBS-E3616 100-Gb InfiniBand Switch Module

The SBM-IBS-E3616 is a 100-Gb InfiniBand switch module that is hot-pluggable.The InfiniBand switch is based on point-to-point bi-directional serial link systems. This module provides high-speed interconnectivity among the blade modules, and to other external InfiiniBand peripherals. This module is useful for supporting clustered high-performance computing.

This module supports up to twenty (20) internal (100-Gb) and sixteen (16) external EDR QSFP28 connectors. See Figure 4-6, Table 4-16 and Table 4-17 for switch details.

Figure 4-6. SBM-IBS-E3616 100-Gb InfiniBand Switch Module

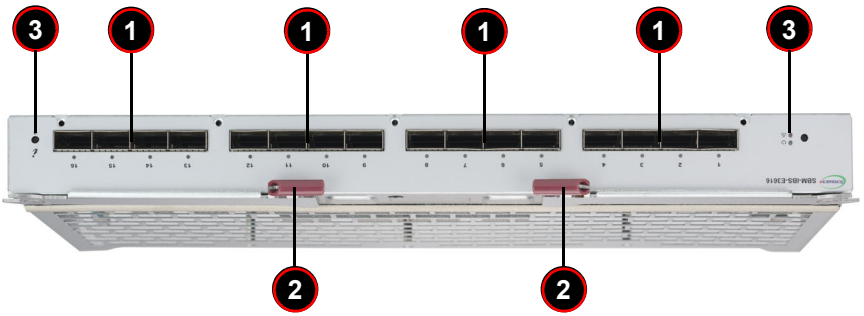


Table 4-16. SBM-IBS-E3616 100-Gb InfiniBand Switch Module Interface

Item	Description
1	External EDR QSFP28 Ports (16)
2	Module Release Handle (2)
3	Switch LEDs

Table 4-17. SBM-IBS-E3616 100-Gb InfiniBand Switch Module Features

Feature	Description
Chipset	Mellanox Switch IB.
Internal/External Ports	Internal: Twenty (20) 100-Gb InfiniBand ports / External: Sixteen (16) 100-Gb QSFP28 ports
Bandwidth	7.2-Tbps total switch bandwidth (36-port)

LED Indicators

LED indicators for the SBM-IBS-E3616 100-Gb InfiniBand switch module are listed and described in Table A-6 of Appendix A.

Ports

The SBM-IBS-E3616 100-Gb InfiniBand switch module contains sixteen front-mounted EDR QSFP28 100-Gb Ports.

4-7 SBM-OPA-C4020 100-Gb Omni-path Switch Module

The SBM-OPA-C4020 is a 100-Gb OPA switch module that is hot-pluggable. Omni-Path Architecture (OPA) leverages the Intel Scalable System Framework (SSF) to address evolving demands across high performance data analytics, machine learning, visualization, traditional modeling and simulation workloads. The OPA switch is based on point-to-point bi-directional serial link systems. This module provides high-speed interconnectivity among the blade modules, and to other external OPA peripherals.

This module supports up to twenty (20) internal (100-Gb) and twenty-four (24) external QSFP28 connectors. See Figure 4-7, Table 4-18 and Table 4-19 for switch details.

Figure 4-7. SBM-OPA-C4020 100-Gb Omni-path Switch Module

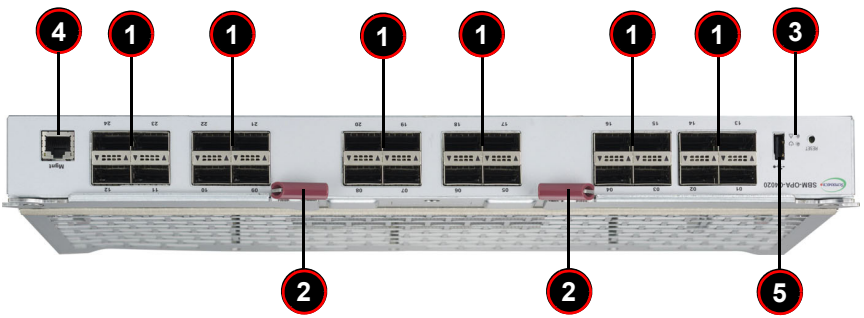


Table 4-18. SBM-OPA-C4020 100-Gb Omni-path Switch Module Interface

Item	Description
1	External QSFP28 Ports (24)
2	Module Release Handle (2)
3	Switch LEDs
4	Management Port
5	USB Port

Table 4-19. SBM-OPA-C4020 100-Gb Omni-path Switch Module Features

Feature	Description
Chipset	Intel Omni-path chipset
Internal/External Ports	Internal: Twenty (20) 100-Gb InfiniBand ports / External: Twenty-four (24) 100-Gb QSFP28 ports
Bandwidth	8.8-Tbps total switch bandwidth (44-port)

LED Indicators

LED indicators for the SBM-OPA-C4020 100-Gb OPA switch module are listed and described in Table A-8 of Appendix A.

Ports

The SBM-OPA-C4020 100-Gb OPA switch module contains twenty-four front-mounted QSFP28 100-Gb Ports, one Management port and one USB port.

4-8 SBM-25G-100 25-Gb Ethernet Switch Module

The SBM-25G-100 is a 25-Gb Level 2 Ethernet switch module that is hot-pluggable. This module has two internal Ethernet paths to the CMM(s). The module is used to provide a connection between the Ethernet controller on the Mezzanine card and an external Ethernet device. See Figure 4-8, Table 4-20 and Table 4-21 for switch details.

Figure 4-8. SBM-25G-100 25-Gb Omni-path Switch Module

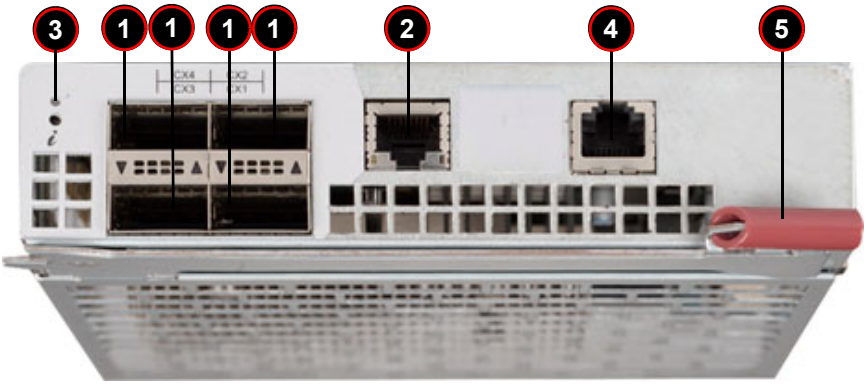


Table 4-20. SBM-25G-100 25-Gb Omni-path Switch Module Interface

Item	Description
1	100G/40G Ethernet uplinks (4), each can split into 4x 25G or 4x 10G uplinks with optional fan-out cables
2	RJ45 uplink port
3	Switch LEDs
4	RS232 (COM) Serial Port
5	Module Release Handle

Table 4-21. SBM-25G-100 25-Gb Omni-path Switch Module Features

Feature	Description
Internal/External Ports	Internal: Twenty (20) 25/10-Gb downlinks 4x100/406-bps QSFP28 uplinks 1 Console port

LED Indicators

LED indicators for the SBM-25G-100 25-Gb switch module are listed and described in Table A-8 of Appendix A.

Ports

The SBM-25G-100 25-Gb switch module contains sixteen front-mounted Ports, one Management port and one USB port.

4-9 Mezzanine Cards

For any blade module to access the InfiniBand or Omni-path switches, they need to have an installed mezzanine card in the module. Four cards (one InfiniBand, one Omni-path, two 25G) are currently available for installation in blade modules.

AOC-IBH-X4ES Mezzanine EDR HCA Card

Figure 4-9. AOC-IBH-X4ES Mezzanine EDR HCA Card

The AOC-IBH-X4ES EDR HCA mezzanine card is available for installation in blade modules in order to communicate with the SBM-IBS-E3616 InfiniBand switch. Card features are shown below:

Table 4-22. AOC-IBH-X4ES EDR HCA Mezzanine Card

Feature	Description
Chipset	Mellanox ConnectX-4
InfiniBand Ports	One EDR 100-Gb port
Power Consumption	12.5W typical/14.6W max

AOC-OPA-WFR Mezzanine OPA Card

Figure 4-10. AOC-OPA-WFR Mezzanine OPA Card

The AOC-OPA-WFR OPA mezzanine card is available for installation in blade modules in order to communicate with the SBM-OPA-C4020 OPA switch. Card features are shown below:

Table 4-23. AOC-OPA-WFR OPA Mezzanine Card

Feature	Description
Chipset	Intel Omni-path Wolfriver
InfiniBand Ports	One 100-Gb port
Power Consumption	13.1W typical/16.6W max

AOC-B25G-X4D Mezzanine 25G Card

Figure 4-11. AOC-B25G-X4D Mezzanine 25G Card

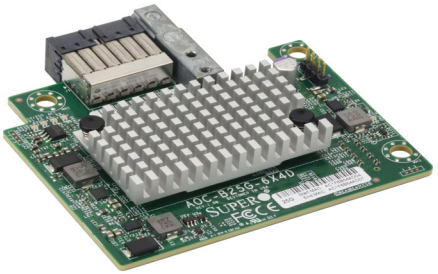
The AOC-B25G-X4D 25G mezzanine card is available for installation in blade modules in order to communicate with the system's switches. The card features are shown below:

Table 4-24. AOC-B25G-X4D 25G Mezzanine Card

Feature	Description
Chipset	Mellanox ConnectX-4
InfiniBand Ports	Two 25G/10G ports
Power Consumption	12.5W typical/ 14.6W max

AOC-B25G-6X4D Mezzanine 25G Card

Figure 4-12. AOC-B25G-6X4D Mezzanine 25G Card



The AOC-B25G-6X4D 25G mezzanine card is available for installation in blade modules in order to communicate with the system's switches. The card features are shown below:

Table 4-25. AOC-B25G-6X4D OPA Mezzanine Card

Feature	Description
Chipset	Mellanox ConnectX-4
InfiniBand Ports	Two 25G/10G ports
Power Consumption	12.5W typical/ 14.6W max

Appendix A
LED Descriptions

This appendix covers LED descriptions for the blade enclosure and other module components.

A-1 MBM-GEM-001 Gigabit Ethernet Module LED Descriptions

MBM-GEM-001 Gigabit Ethernet module LEDs are described below in Table A-1.

Table A-1. MBM-GEM-001 Gigabit Ethernet Switch LED Indicators

LED	State	Description
Module Initiation OK LED	Steady On	The MBM-GEM-001 GbE switch module is operational and has passed the POST (Power-On Self-Test) with no critical faults.
Module Fault LED (Red)	Steady On	When lit, this LED indicates that the MBM-GEM-001 GbE switch module has either failed the POST or has detected an operational fault within the module. When this LED is lit, the fault LED on the blade enclosure will also turn on.
Speed Ethernet Port Status LED	Amber	Connection speed of the port is 1-Gb/sec
	Green	Connection speed of the port is 100-Mb/sec
	Off	Connection speed of the port is 10-Mb/sec

A-2 MBM-GEM-004 Gigabit Ethernet Module LED Descriptions

MBM-GEM-004 Gigabit Ethernet module LEDs are described below in Table A-2.

Table A-2. MBM-GEM-004 Gigabit Ethernet Switch LED Indicators

LED	State	Description
Module Initiation OK LED	Steady On	The MBM-GEM-004 GbE switch module is operational and has passed the POST (Power-On Self-Test) with no critical faults.
Module Fault LED (Red)	Steady On	When lit, this LED indicates that the MBM-GEM-004 GbE switch module has either failed the POST or has detected an operational fault within the module. When this LED is lit, the fault LED on the blade enclosure will also turn on.
Link/Activity Ethernet Port Status LED	Solid Green	This indicates that the link is established, no activity
	Blinking Green	This indicates that data is being transmitted (Tx) or received (Rx)
	Off	This indicates that no link is established
Speed Ethernet Port Status LED	Amber	Connection speed of the port is 1-Gb/sec
	Green	Connection speed of the port is 100-Mb/sec
	Off	Connection speed of the port is 10-Mb/sec

A-3 MBM-XEM-001 10-Gigabit Ethernet Module LED Descriptions

MBM-XEM-001 10-Gigabit Ethernet module LEDs are described below in Table A-3.

Table A-3. MBM-XEM-001 10-Gigabit Ethernet Switch LED Indicators

LED	State	Description
Module Initiation OK LED	Steady On	The MBM-XEM-001 switch module is operational and has passed the POST (Power-On Self-Test) with no critical faults.
Module Fault LED (Red)	Steady On	When lit, this LED indicates that the MBM-XEM-001 switch module has either failed the POST or has detected an operational fault within the module. When this LED is lit, the fault LED on the blade enclosure will also turn on.
Link/Activity Ethernet Port Status LED	Solid Green	This indicates that the link is established, no activity
	Blinking Green	This indicates that data is being transmitted (Tx) or received (Rx)
	Off	This indicates that no link is established
Speed Ethernet Port Status LED	Amber	Connection speed of the port is 10-Gb/sec
	Green	Connection speed of the port is 1-Gb/sec
	Off	Connection speed of the port is 100-Mb/sec

A-4 MBM-XEM-002 10-Gigabit Ethernet Module LED Descriptions

MBM-XEM-002 10-Gigabit Ethernet module LEDs are described below in Table A-4.

Table A-4. MBM-XEM-002 10-Gigabit Ethernet Switch LED Indicators

LED	State	Description
Module Initiation OK LED	Steady On	The MBM-XEM-002 switch module is operational and has passed the POST (Power-On Self-Test) with no critical faults.
Module Fault LED (Red)	Steady On	When lit, this LED indicates that the MBM-XEM-002 switch module has either failed the POST or has detected an operational fault within the module. When this LED is lit, the fault LED on the blade enclosure will also turn on.
Link/Activity Ethernet Port Status LED	Solid Green	This indicates that the link is established, no activity
	Blinking Green	This indicates that data is being transmitted (Tx) or received (Rx)
	Off	This indicates that no link is established
Speed Ethernet Port Status LED	Amber	Connection speed of the port is 10-Gb/sec
	Green	Connection speed of the port is 1-Gb/sec
	Off	Connection speed of the port is 100-Mb/sec

A-5 SBM-XEM-X8SM 10-Gigabit Ethernet Module LED Descriptions

SBM-XEM-X8SM 10-Gigabit Ethernet module LEDs are described below in Table A-5.

Table A-5. SBM-XEM-X8SM 10-Gigabit Ethernet Switch LED Indicators

LED	State	Description
Module Initiation OK LED	Steady On	The SBM-XEM-X8SM switch module is operational and has passed the POST (Power-On Self-Test) with no critical faults.
Module Fault LED (Red)	Steady On	When lit, this LED indicates that the SBM-XEM-X8SM switch module has either failed the POST or has detected an operational fault within the module. When this LED is lit, the fault LED on the blade enclosure will also turn on.
Link/Activity Ethernet Port Status LED	Solid Green	This indicates that the link is established, no activity
	Blinking Green	This indicates that data is being transmitted (Tx) or received (Rx)
	Off	This indicates that no link is established

A-6 SBM-IBS-E3616 100-Gigabit InfiniBand Module LED Descriptions

SBM-IBS-E3616 100-Gigabit InfiniBand module LEDs are described below in Table A-6.

Table A-6. SBM-IBS-E3616 100-Gigabit Ethernet Switch LED Indicators

LED	State	Description
Module Initiation OK LED	Steady On	The SBM-IBS-E3616 switch module is operational and has passed the POST (Power-On Self-Test) with no critical faults.
Module Fault LED (Red)	Steady On	When lit, this LED indicates that the SBM-IBS-E3616 switch module has either failed the POST or has detected an operational fault within the module. When this LED is lit, the fault LED on the blade enclosure will also turn on.
Information LED	Continuously on and red	An overheat condition has occurred. (This may be caused by cable congestion.)
	Blinking red (1 Hz)	Fan failure: check for an inoperative fan.
	Blinking red (0.25 Hz)	Power failure: check for an inoperative power supply.
	Solid blue	Local UID has been activated. Use this function to locate the server in a rack environment.
	Blinking blue (300 Msec)	Remote UID has been activated. Use this function to locate the server from a remote location.

A-7 SBM-25G-100 25-Gigabit Ethernet Module LED Descriptions

SBM-25G-100 25-Gigabit Ethernet module LEDs are described below in Table A-4.

Table A-7. SBM-25G-100 25-Gigabit Ethernet Switch LED Indicators

LED	State	Description
Module Initiation OK LED	Steady On	The SBM-25G-100 switch module is operational and has passed the POST (Power-On Self-Test) with no critical faults.
Module Fault LED (Red)	Steady On	When lit, this LED indicates that the SBM-25G-100 switch module has either failed the POST or has detected an operational fault within the module. When this LED is lit, the fault LED on the blade enclosure will also turn on.
Link/Activity Ethernet Port Status LED	Solid Green	This indicates that the link is established, no activity
	Blinking Green	This indicates that data is being transmitted (Tx) or received (Rx)
	Off	This indicates that no link is established
Speed Ethernet Port Status LED	Amber	Connection speed of the port is 10-Gb/sec
	Green	Connection speed of the port is 1-Gb/sec
	Off	Connection speed of the port is 100-Mb/sec

A-8 SBM-OPA-C4020 100-Gigabit OPA Module LED Descriptions

SBM-OPA-C4020 100-Gigabit OPA module LEDs are described below in Table A-6.

Table A-8. SBM-OPA-C4020 100-Gigabit OPA Switch LED Indicators

LED	State	Description
Module Initiation OK LED	Steady On	The SBM-OPA-C4020 switch module is operational and has passed the POST (Power-On Self-Test) with no critical faults.
Module Fault LED (Red)	Steady On	When lit, this LED indicates that the SBM-OPA-C4020 switch module has either failed the POST or has detected an operational fault within the module. When this LED is lit, the fault LED on the blade enclosure will also turn on.

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