SSH-C48Q
Top-of-Rack Omni-Path Switch

Installation Manual

Revison 1.0b

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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.

SSH-C48Q Installation Manual
Release Date: January 5, 2017

Preface

About this Manual

This manual is written for professional system integrators, Information Technology professionals, service personnel, technicians and network administrators who are responsible for installing and setting up network equipment; consequently, it assumes a basic working knowledge of LANs (Local Area Networks). It provides information for the installation and use of the Supermicro's SSH-C48Q switches. Installation and maintenance should be performed by experienced professionals only.

Manual Organization

Chapter 1: Introduction

The first chapter provides a checklist of the main components included with the switch and describes its main features.

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 the switch.

Chapter 3: Installation

This chapter describes how to install the switch.

Chapter 4: Connecting

This chapter covers how to connect the switches to PCs and servers, as well as to other switches and hubs.

Chapter 5: Hardware Specifications

This chapter lists and describes hardware specifications for the switch.

Chapter 6: Switch Management

This chapter lists and describes switch management software for the switch.

Chapter 7: Troubleshooting

This chapter covers troubleshooting issues for the switch.

Chapter 8: Installing the Management Card

This chapter covers the installation of the optional management card for your switch.

Notes

Table of Contents

Chapter 1
Introduction

1-1 Overview

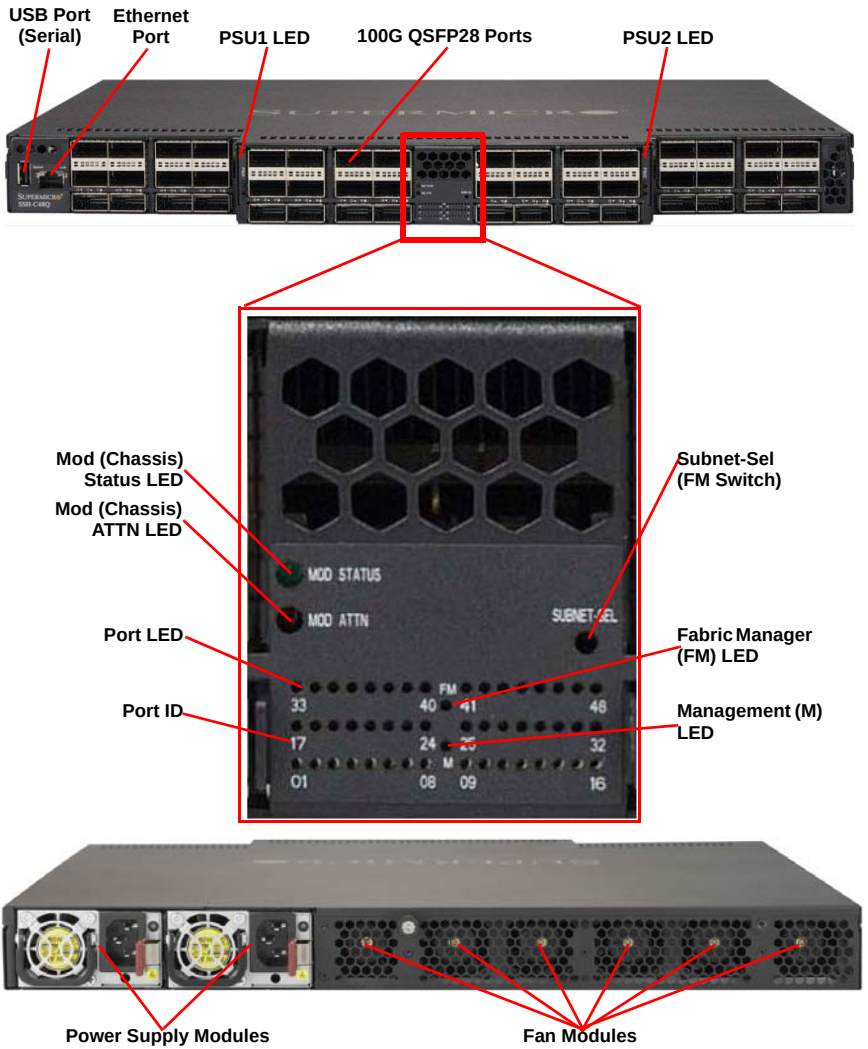
The Supermicro SSH-C48Q switch is a 1U 48-port top-of-rack network switch that supports the 100Gbps Intel® Omni-Path Architecture (OPA). This provides a unique HPC cluster solution offering excellent bandwidth, latency and message rate that is highly scalable and easily serviceable.

The SSH-C48Q 48-port 100Gbps supporting Omni-Path Architecture leverages the Intel Scalable System Framework (SSF) to address evolving demands across high performance data analytics, machine learning, visualization, traditional modeling and simulation workloads. Designed specifically for HPC, the 48-port SSH-C48Q offers a 9.6 Tb/s total fabric bandwidth with high scalability and the capability of using 27,648 nodes in a 2-tier configuration. The Supermicro SSH-C48Q is designed to overcome the scaling challenges of large-sized clusters.

1-2 Key Hardware Components

The switch consists of several key hardware components (Figure 1-1). This manual describes each specific component, or related components, together with their installation requirements and procedures in each chapter. To understand each component in detail, refer to the relevant section.

Figure 1-1. Front and Rear Panels



Ethernet Port

With optional management card installed, the Ethernet port on the front panel provides access for remote management. For more information, see Section 6-2: "How to Access CLI Through a USB Serial Port or Ethernet Port" on page 6-2.

100G QSFP28 Ports

The switch contains 48 Quad Small Form Factor Pluggable 28 (QSFP28) ports operate up to 100 Gbps. For more information, see Section 4-3: "QSFP28 Cable Connections" on page 4-3.

Subnet-Sel (FM Switch)

On an unmanaged switch the FM Switch LED is used to restrict whether the end-node attached to a switch port is allowed to source Fabric Manager-related packets. The user activates the LED using a small, straight instrument (e.g., a standard-size paper clip). For more information, see Section 6-3: "How to Reset the Switch" on page 6-5.

Mod (Chassis) Status LED

For information on Mod (chassis) status LED indicators, see Section 6-1: "Understanding the System Status LED" on page 6-1.

Port LEDs

For information on port status LED indicators, see Section 4-2: "Understanding the Port Status LEDs" on page 4-2.

USB Port (Serial)

With optional management card installed, the USB connector on the front panel provides an out-of-band serial connection to a terminal or a PC running terminal emulation software. The port can be used for performing switch monitoring and configuration only with optional management module installed. For more information, see Section 6-2: "How to Access CLI Through a USB Serial Port or Ethernet Port" on page 6-2.

Fan Tray Module

The fan tray module provides air cooling for the switch system. For more information, see "Switch Cooling Requirements" on page 3-2.

Power Supply Modules

The switch supports dual hot-swappable AC power supply units (PSUs). You can install up to two PSUs with matching airflow direction in the switch. For more information on the switch power supplies, how to intall them, and how to power-on the switch, see Section 3-3: "Switch Installation Tasks" on page 3-4.

Notes

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)

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.

Notes

Chapter 3
Installing the Switch

This chapter covers switch installation.

3-1 Package Contents

After unpacking the switch, check the contents to be sure you have received all the additional accessories.

- Bracket Mounting Kit containing two brackets and eight screws for attaching the brackets to the switch
- Power cord (two)
- USB console cable (Type A to Type A)
- Power supply dummy cover

3-2 Switch Chassis

The SSH-C48Q switch is designed to be installed in a standard 19-inch equipment rack. Be sure to take into account switch cooling requirements.

Before continuing with switch installation, first review the general guidelines and switch cooling requirements in this chapter.

General Installation Guidelines

Be sure to follow the guidelines below when choosing a location.

- The installation location should:
  - be able to maintain its temperature within 0 to 40 °C (32 to 104 °F) and its humidity within 5% to 85%, non-condensing.
  - provide adequate space (approximately five centimeters or two inches) on all sides for proper air flow.
  - be accessible for installing, cabling and maintaining the device.
  - allow the status LEDs to be clearly visible.
- Make sure twisted-pair cable is always routed away from power lines, fluorescent lighting fixtures and other sources of electrical interference, such as radios and transmitters.
- Make sure that the unit is connected to a separate grounded power outlet within 2 m (6.6 feet) of each device and is powered from an independent circuit breaker. As with any equipment, using a filter or surge suppressor is recommended. Verify that the external power requirements for the switch can be met as listed under "Power Supply Modules" on page 3-7.

How to Install the Switch in a Rack

When rack mounting the switch, pay particular attention to the following factors:

- **Rack Types:** You can use any standard EIA 19-inch equipment rack with either two or four posts. The bracket hole pattern should be spaced 1U (1.75 in. or 4.45 cm) apart.
- **Rack Stability:** Whenever possible, secure the rack to the building ceiling or floor, particularly if you are located in a region where earthquakes are common.
- **Rack Planning:** When installing equipment in a rack, first plan how units can be best arranged. Try to always mount the heaviest equipment at the bottom of the rack.
- **Temperature:** Since the temperature within a rack assembly may be higher than the ambient room temperature, check that the rack-environment temperature is within the specified operating temperature range. See "Switch Cooling Requirements" on page 3-2.
- **Mechanical Loading:** Do not place any equipment on top of a rack-mounted unit.
- **Circuit Overloading:** Be sure that the supply circuit to the rack assembly is not overloaded.
- **Grounding:** Rack-mounted equipment should be properly grounded.

Rack-Mounting Items

Before you start to rack-mount the switch, be sure to have the following items available:

- Four mounting screws for each device you plan to install in a rack—these are not included. Be sure to use the rack mounting screws that are supplied with the rack.
- A screwdriver (Phillips or flathead, depending on the type of screws used).

Rack-Mount Procedure

The switch can be mounted in a rack using the included mounting brackets or optional mounting rails. Due to the weight of the switch, it is strongly recommended that is be supported by a rack shelf or by using Supermicro mounting rails (part number MCP-290-00063-0N).

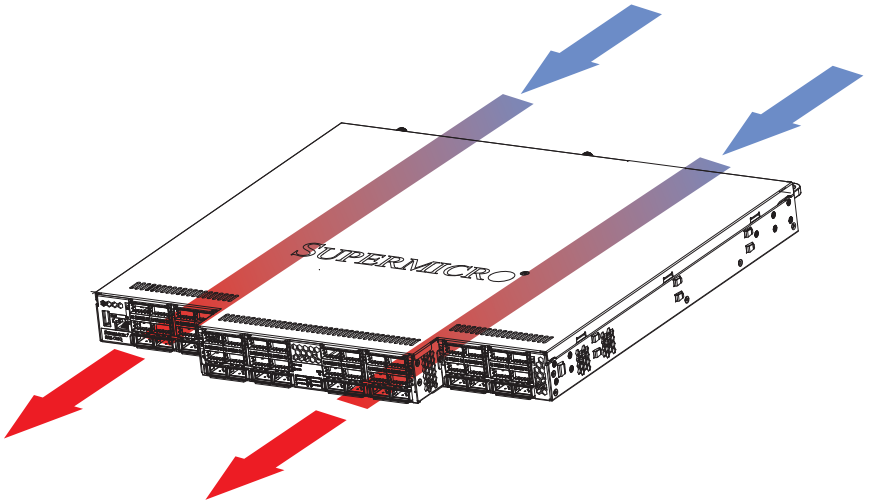
Switch Cooling Requirements

Wherever the switch is located, be sure to pay close attention to switch cooling requirements. The location should be well ventilated and provide unrestricted air flow at the front, back, and sides of the switch. If the air flow is insufficient, it may cause the switch to overheat and possibly fail.

The switch includes a fan tray module located in its rear for back-to-front (B2F) airflow direction.

Figure 3-1 shows the airflow types through the switch.

Figure 3-1. Switch Cooling



Rack Cooling

When mounting the switch in an enclosed rack or cabinet, be sure to check the following guidelines to prevent overheating:

- Make sure that enough cool air can flow into the enclosure for the equipment it contains.
- Check that the rack or cabinet allows the hot air to exit the enclosure (normally from the top) without circulating back into equipment.
- If the enclosure has sides or doors with ventilation holes, make sure they are not blocked by cables or other obstructions.
- Route cables within the rack or cabinet to maximize the air flow.
- When possible, do not completely fill the rack or cabinet with equipment, allow some unused space within the enclosure for better air flow.

Fan Tray Module

The fan tray module is an important part of the switch air cooling system. A fan tray module must be installed in the switch at all times. If a fan should fail, the whole switch must be replaced as soon as possible; fan trays are not field replaceable.

The fan tray, located in the rear of the switch, includes four fixed fans and supports fan speed control. The fan speed is dynamically controlled as a function of temperature: the higher the internal temperature, the faster the speed of the fans. The fan tray module does not include LED indicators.

3-3 Switch Installation Tasks

Follow these tasks to install the SSH-C48Q switch in your network. For full details on each task, go to the relevant chapter or section by clicking on the link.

CAUTION: Before installing your switch, first review all the safety statements and guidelines in the Regulatory and Safety Information document.

Task 1: Unpack package and check contents

Unpack your switch and check the package contents to be sure you have received all the items. See Section 3-1: "Package Contents" on page 3-1.

Task 2: Install the Chassis

The switch is designed to be installed in a standard 19-inch equipment rack. Plan your rack installation and install the switch chassis in the rack. Be sure to take into account switch cooling requirements.

The switch can be mounted in a rack using the included mounting brackets or optional mounting rails. Due to the weight of the switch, it is strongly recommended that it be supported by a rack shelf or by using Supermicro mounting rails (part number MCP-290-00063-0N).

For detailed instructions on rack mounting the switch, refer to the *Quick Installation Guide*.

For general rack installation information, see the chapter Section 3-2: "Switch Chassis" on page 3-1.

Task 3: Install Power Modules and Power On

Install power modules, connect the power cord, then power on. The switch supports up to two PSUs.

Installing the Power Modules and Powering On

1. If not already present, install one or two universal AC power modules in the switch.
2. Connect an external AC power source to the modules.

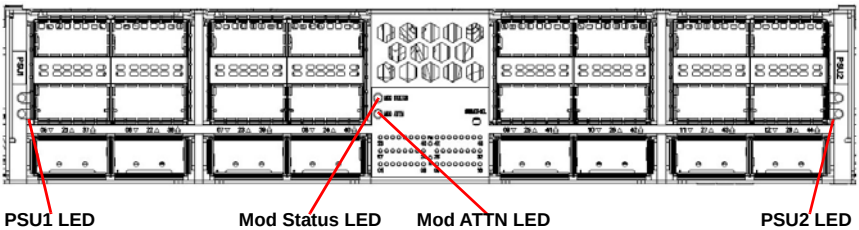
Go to the chapter Section 3-4: "Power" on page 3-7.

Task 4: Verify Switch Operation

Verify basic switch operation by checking the system LEDs (Figure 3-2).

When operating normally, the PSU1/PSU2 and Mod Status LEDs should all be on green. If any of the LEDs are on amber, see Section 7-1: "Diagnosing LED Indicators" on page 7-1.

Figure 3-2. System LEDs



Task 5: Make Initial Configuration Changes

At this point you may need to make a few basic switch configuration changes by accessing CLI before connecting to the network. The CLI can be accessed two ways (with optional management card):

1. Using the USB serial port
2. Through an Ethernet port, using Telnet or SSH

The serial port's configuration requirements are as follows: 115200 bps, no parity, one stop bit, 8 data bits, and no flow control. The serial port does not require a login and password.

To access through Ethernet using the default IP address:

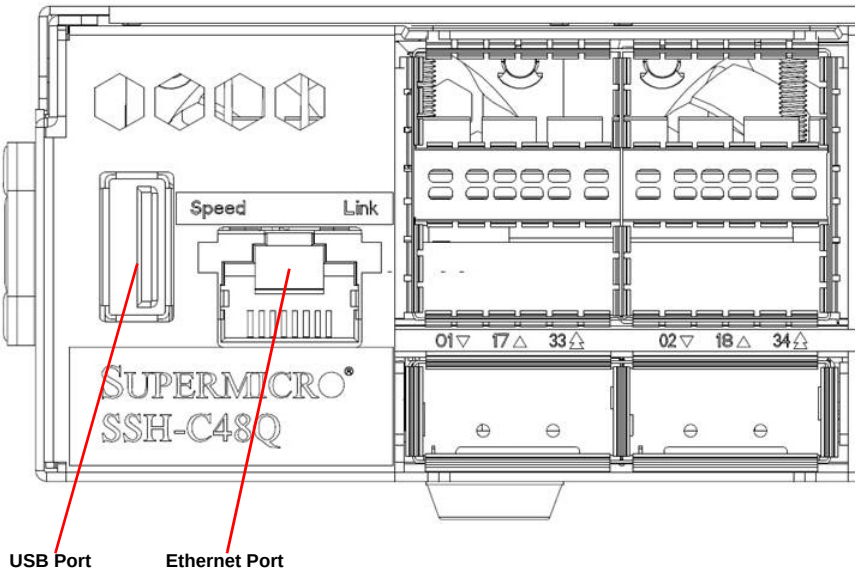
Telnet: 192.168.100.9

SSH: 192.168.100.9

Default user name is "**admin**" and the default password is "**adminpass**".

Go to Section 6-2: "How to Access CLI Through a USB Serial Port or Ethernet Port" on page 6-2.

Figure 3-3. Console Ports



Task 6: Connect Cables

Connect DAC or AOC cables to the QSFP28 ports. As connections are made, check the port status LEDs to be sure the links are valid.

Go to Chapter 4 for further details.

3-4 Power

This section focuses on the switch power supplies, how to install them, and how to power-on the switch.

Power Supply Modules

The switch supports hot-swappable power supply units (PSUs). You can install up to two PSUs in the switch. The PSUs operate in a load-sharing mode and provide 1+1 redundancy.

NOTE: 1+1 redundancy is a system where a switch power supply is backed up by another switch power supply in a load-sharing mode. If one power supply fails, the other power supply takes over the full load of the switch.

The AC Power Supply Modules require power from an external AC power supply that can provide 100 to 240 VAC, 50-60 Hz. A standard AC power socket is located on the rear panel of the PSU. The power socket is for the AC power cord.

Figure 3-4. AC Power Supply Module

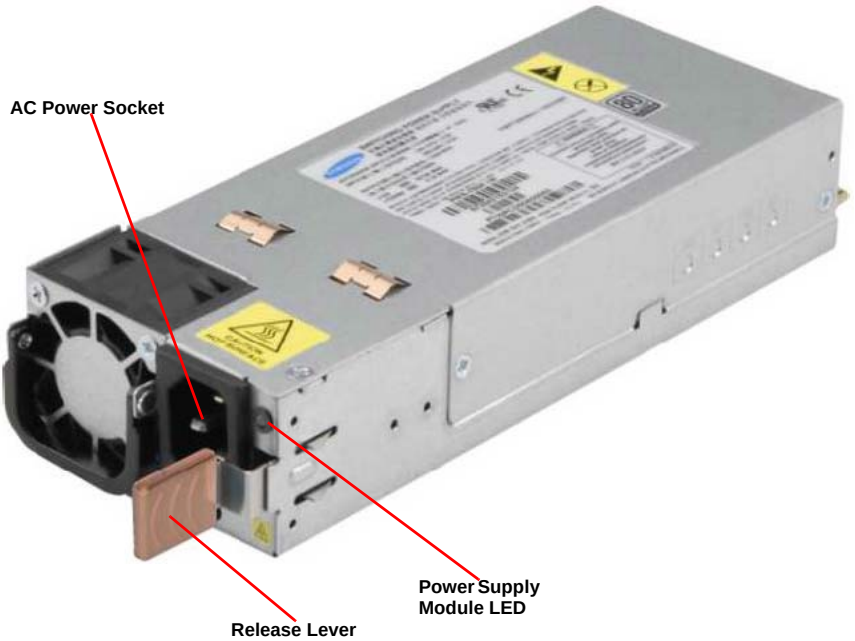


Table 3-1. AC Power Supply Module Specifications

Item	Description
AC Input	100-240 VAC, 50-60 Hz, 9.5-4.5 A
DC Output	+12V @ 40A +12Vsb @ 2A
Power Supply	100-240 VAC, 50-60 Hz, auto-sensing; hot pluggable 750 Watts @ 220V/110V per module
Power Consumption	(Typical/Max): 189/238 W (Copper); 356/408 (All max 3W Optical)
Maximum Current	9.5 A @ 100 VAC 4.5 A @ 240 VAC
Size	W x D x H: 73.5 x 185 x 40 mm (2.89 x 7.28 x 1.57 inches)

The PSU also includes an AC power status LED. This LED is described in the following table.

Table 3-2. Power Supply Module LED

LED	Condition	Status
AC	Green	External AC power is connected to the module.
	Amber	External power is not connected or has failed.

Grounding the Chassis

The switch chassis must be connected to ground to ensure proper operation and to meet electromagnetic interference (EMI) and safety requirements.

The switch chassis is connected internally to 0 V, which is then grounded through an installed AC PSU when it is connected to a grounded AC power outlet by an AC power cord.

There are no grounding points on the switch that require a connection to a rack ground or other earth ground.

How to Connect to AC Power

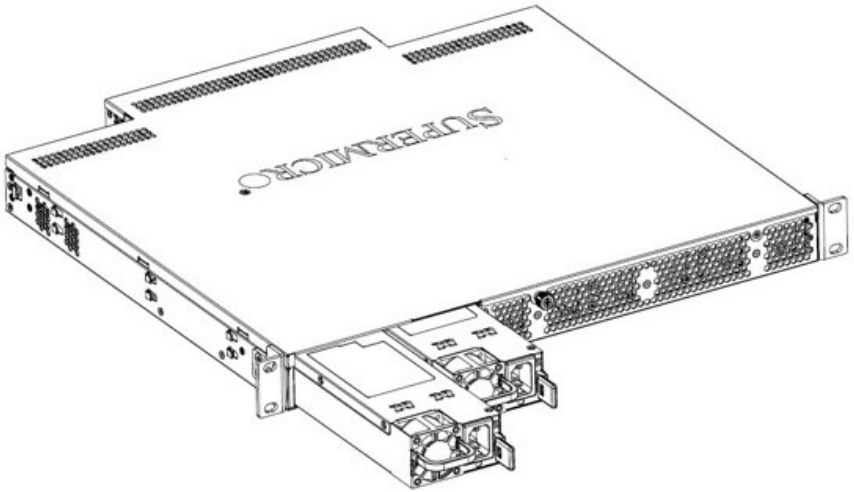
To supply AC power to the switch, first verify that the external AC power supply can provide 100 to 240 VAC, 50-60 Hz, 4.5 A minimum.

NOTE: For electrical safety purposes, please pay attention to the warning notices that are printed on the switch unit.

Connecting the Switch to a Power Source

1. If not already present, install one or two AC PSU modules. Slide them into the PSU slots at the rear of the switch until they click into place. (Push the red release lever to remove a module from the switch.)

Table 3-3. AC PSU and Power Socket



2. Plug the power cord into a grounded, 3-pin, AC power source.

NOTE: For international use, you may need to change the AC power cord. You must use a cord set that has been approved for the socket type in your country.

3. Insert the plug on the other end of the power cord directly into the socket on the AC PSU.
4. Check the LED indicators on the PSU and switch front panel as the unit is powered on to verify that power is being received. If not, recheck the PSU and power cord connections at the AC supply source and PSU.
5. If you have installed a second PSU, repeat steps 2 to 4.

NOTE: If one of the PSUs is removed for any reason, then you must install a power supply dummy cover (found in the accessory box) to cover the hole until a new PSU is available to replace it.

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Notes

Chapter 4
Making Network Connections

This chapter focuses on making connections to SSH-C48Q switch network interfaces, including details on network cable specifications.

The SSH-C48Q switch features forty-eight (48) 100G QSFP28 ports and one 1G RJ-45 port. The sections that follow describe these interfaces.

4-1 Cable Labeling and Connection Records

When planning a network installation, it is essential to label the opposing ends of cables and to record where each cable is connected. Doing so will enable you to easily locate inter-connected devices, isolate faults and change your topology without need for unnecessary time consumption.

To best manage the physical implementations of your network, follow these guidelines:

- Clearly label the opposing ends of each cable.
- Using your building's floor plans, draw a map of the location of all network-connected equipment. For each piece of equipment, identify the devices to which it is connected.
- Note the length of each cable and the maximum cable length supported by the switch ports.
- For ease of understanding, use a location-based key when assigning prefixes to your cable labeling.
- Use sequential numbers for cables that originate from the same equipment.
- Differentiate between racks by naming accordingly.
- Label each separate piece of equipment.
- Display a copy of your equipment map, including keys to all abbreviations at each equipment rack.

4-2 Understanding the Port Status LEDs

The switch includes LED indicators for each port to indicate link status. The port LEDs are shown below and described in the following table.

Figure 4-1. Port Status LEDs

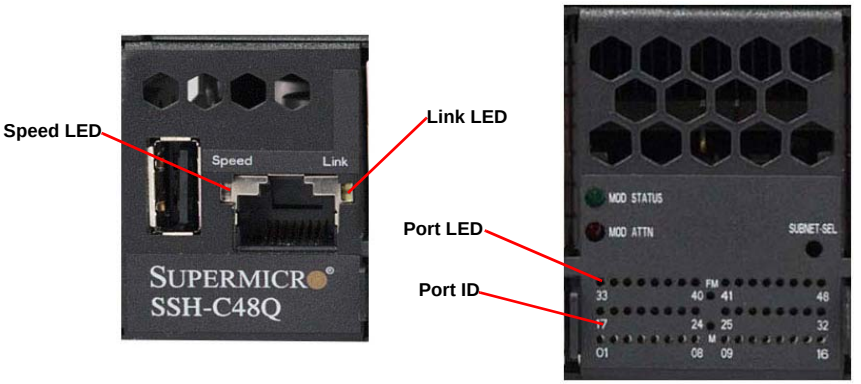


Table 4-1. Port Status LEDs

LED	Condition	Status
100G QSFP28 Ports (1-48)		
Link	On	The logical link is up (port is in the Active state).
	Off	The physical link is down (port is in the Down state).
1G RJ-45 Port		
Speed	On Green	Port has a valid 1000 Mbps link.
	On Amber	Port has a valid 10/100 Mbps link.
	Off	The link is down.
Link	Flashing Amber	Flashing indicates activity on the port.

4-3 QSFP28 Cable Connections

This section covers the specifics and issues for QSFP28 cable connections of the SSH-C48Q switch.

Cable Distances

When planning the location of the switches, consider the distance limitations for signaling, EMI, and connector compatibility. It is recommended that the user does not exceed specified transmission rate and distance limits.

Cable Guidelines

Building and electrical codes vary depending on the location. Comply with all code specifications when planning the site and installing cable. When running cable to the equipment, consider the following:

- Do not run cables where they can be stepped on or rolled over.
- Be sure cables are intact with no cuts, bends, or nicks.
- If the user is making a cable, ensure that the cable is properly crimped.
- Provide proper strain relief for cables.
- Support cables using a cable manager mounted above connectors to avoid unnecessary weight on the cable bundles.
- Bundle cable using Velcro straps to avoid injuring cables.
- Keep all ports and connectors free of dust.
- Untwisted Pair (UTP) cables can build up Electrostatic Discharge (ESD) charges when being placed into a new installation. Before installing category 5 UTP cables discharge ESD from the cable by plugging it into a port on a system that is not powered on.
- When required for safety and fire rating requirements, plenum-rated cable can be used. Check the local building codes to determine when it is appropriate to use plenum-rated cable, or refer to IEC standard 850.
- In order to create enough space, QSFP cables connectors may need to be rotated when plugging into alternate rows of switch components.

Cable Handling and Bend Radius

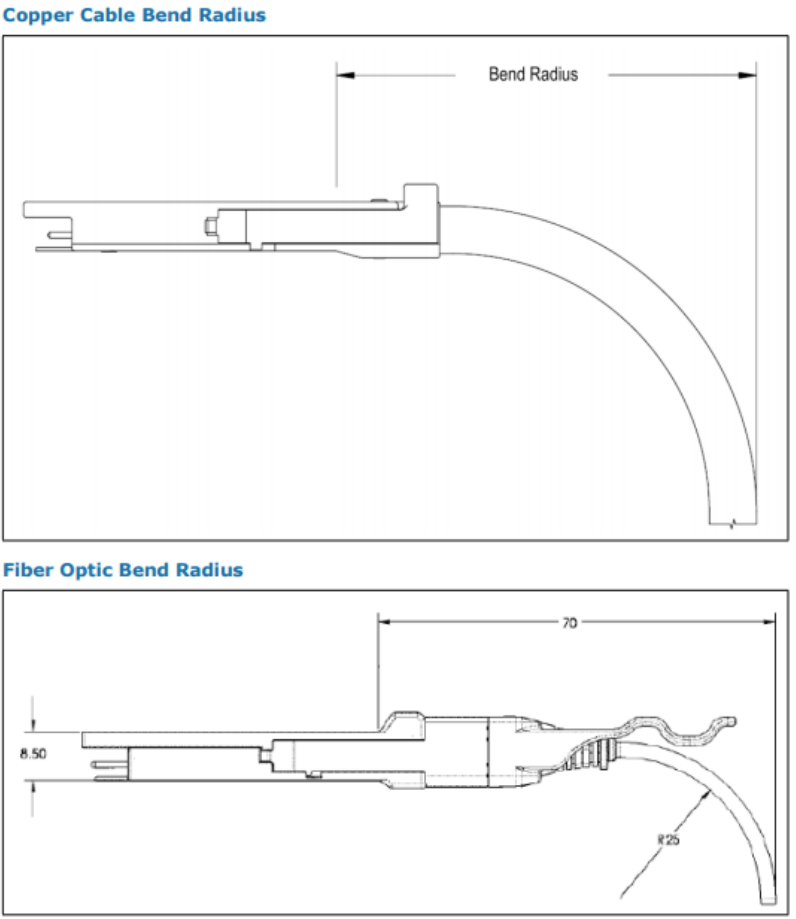
The cable handling and bend radius for QSFP28 cables is listed below:

- Intel® Omni-Path Copper Cable 100 Series:
  - Recommended minimum bend radius is >69mm.
- Intel® Omni-Path Active Optical Cable 100 Series:
  - Recommended minimum bend radius is >105 mm within 100 mm of either cable end module, and >60 mm on the rest of the cable.

Table 4-2. Cable Bend Radius Guidelines

American Wire Gauge (AWG) Size Cable	Bend Radius
Intel® Omni-Path Copper Cable 100 Series	
26	>69-mm
30	>66-mm
Intel Omni-Path Active Optical Cable 100 Series	
Optical	>105-mm within 100-mm of either cable end module; >60-mm on the rest of the cable

Figure 4-2. Cable Bend Radius

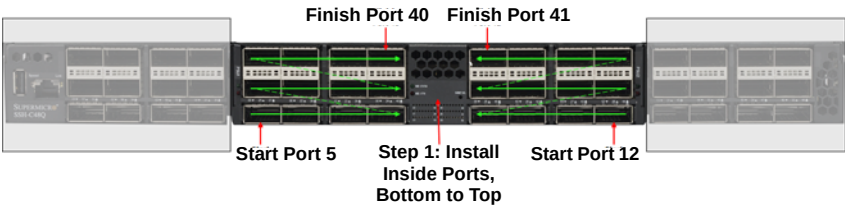


Switch Cabling Recommendations

To minimize complexity, the following figure details cabling recommendations for the switch.

Figure 4-3. Installing Cables, Step 1

Figure 4-4. Installing Cables, Step 2



All cables can be inserted or removed with the unit powered on.

- To insert a cable, press the connector into the port receptacle until the connector is firmly seated. The LED indicator, corresponding to each data port, will light when the physical connection is established. When a logical connection is made the relevant port LED will turn on.
- To remove a cable, disengage the locks and slowly pull the connector away from the port receptacle. The LED indicator for that port will turn off when the cable is unseated.

For more information about port LEDs refer to Section 4-2: "Understanding the Port Status LEDs" on page 4-2.

Notes

Chapter 5
Hardware Specifications

This chapter lists and describes hardware specifications for the SSH-C48Q switches.

5-1 Physical Characteristics

Physical characteristic specifications for the switches are shown below:

Ports

- 48x100Gbps QSFP28 ports
- 1x10/100/1000 Mbps RJ-45 port

Network Interface

- 100G QSFP28 connectors
- 10/100/1000 Mbps RJ45 connector

LEDs

- System: PSU1, PSU2, Mod Status, FM, M
- Data Interface (QSFP28): Status
- Management Interface (RJ45): Link/Speed

Weight

7.6 kg (16 lb), with two installed power supply modules

Size

(W x D x H): 438 x 421.0 x 43.6 mm (17.2 x 16.6 x 1.72 inches)

Temperature

- Operating: 0°C to 40°C (32°F to 104°F)
- Storage: -40°C to 65°C (-40°F to 149°F)

Humidity

Operating: Operating: 5% to 85% (non-condensing)

AC Input

100 to 240V, 50-60 Hz

Power Supply

100-240VAC, 50-60 Hz, auto-sensing; hot pluggable, 750W@ 220V/110V per module

Power Consumption

(Typical/Max): 189/238 W (Copper) 356/408 (All max 3W Optical)

5-2 Management Features

- Out-of-band management card (optional)
- Built-in Fabric Manager
- Subnet Management Agent (SMA)
- Performance Management Agent (PMA)
- Enables Command Line Interface and Chassis Management GUI through 10/100/1000 Base-T Ethernet
- Enables Serial Console through USB Serial Port
- Supports Embedded Subnet Manager (ESM) and Performance Manager (PM)
- Enables Network Time Protocol (NTP), SNMP/MIBs, and LDAP
- FastFabric Toolset
- Fabric Management GUI

5-3 Compliances

Regulatory Compliance

Electromagnetic Emissions:

FCC Class A, EN 55022 Class A, EN 61000-3-2/3-3, CISPR 22 Class A

Electromagnetic Immunity:

EN 55024/CISPR 24, (EN 61000-4-2, EN 61000-4-3, EN 61000-4-4, EN 61000-4-5, EN 61000-4-6, EN 61000-4-8, EN 61000-4-11)

EMC:

FCC (CLASS A)/CE/BSMI/VCCI/(CLASS A)/C-TICK

Safety:

CSA/EN/IEC/UL 60950-1 Compliant, UL or CSA Listed (USA and Canada), CE Marking (Europe)

Chapter 6
Switch Bring-Up

6-1 Understanding the System Status LED

The switch includes system LED indicators (Figure 6-1). The LEDs, which are located on the front panel, are shown below and described in the following table.

Figure 6-1. System LEDs

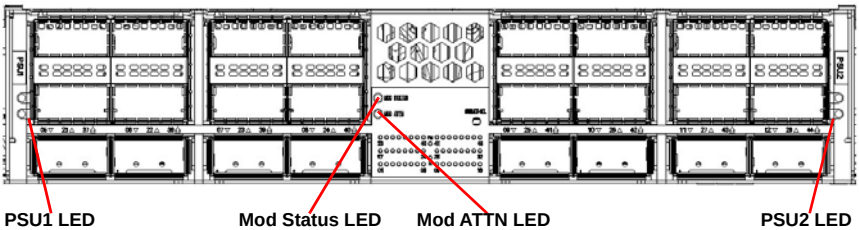


Table 6-1. System Status LEDs

LED	Condition	Status
PSU1/PSU2	On Green	Power supply 1/2 is installed and operating normally.
	On Red	The power supply has detected a fault or not installed.
Mod Status	Solid Green	The module is operating normally.
	Blinking Green	This indicates an LED test state.
Mod Attn	Off	The system functioning normally
	On Red	The system requires some attention, which could indicate one of the following conditions: • The switch temperature is at a warning level on the module. • The switch Silicon temperature is at a warning level (approximately 90 degrees C). • DC voltages on the board are slightly out of tolerance (12V Bulk, 5V, 3.3V and 1.8V are all monitored). • The module can no longer function properly. The system will take the appropriate actions to ensure that no damage is done to its components.
	Blinking Red (once every four seconds)	This indicates an LED test state.

6-2 How to Access CLI Through a USB Serial Port or Ethernet Port

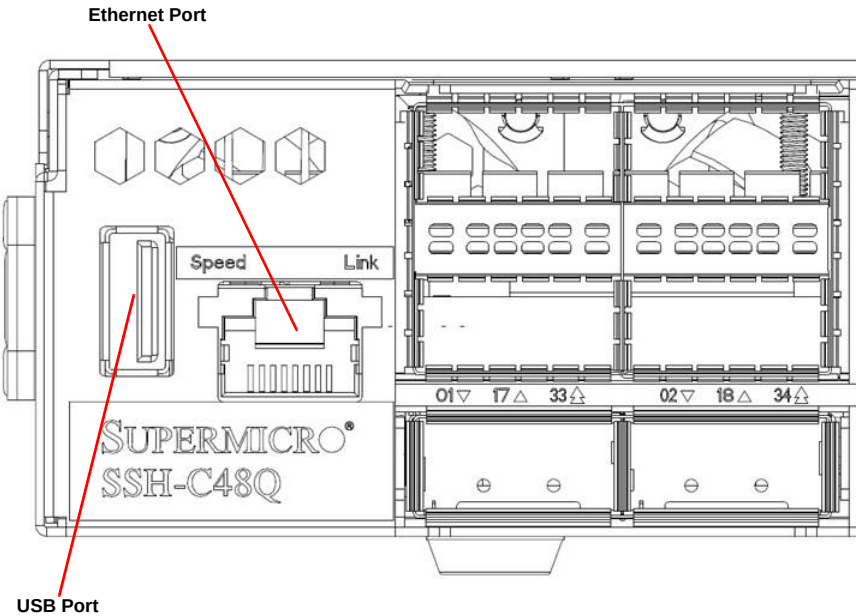
The SSH-C48Q switch includes a management agent that allows you to configure or monitor the switch using its embedded management software.

After switch powered-on, you may need to make a few basic switch configuration changes by accessing CLI before connecting to the network. The CLI can be accessed two ways:

1. Using the USB serial port (with optional management card).
2. Through Ethernet port, using Telnet or SSH.

The USB Console port (Figure 6-2) on the switch's front panel is used to connect to the switch for out-of-band console configuration. The console device can be a PC or workstation running a Putty, Tera Term or other serial console. A USB console cable is supplied with the switch for connecting to a PC's USB port.

Figure 6-2. Console Port



The following table describes the pin assignments used in the console cable.

The serial port's configuration requirements are as follows:

- Default Baud rate — 115200 bps
- Parity — None
- Stop bit — One
- Data bits — 8
- Flow control — none

Follow these steps to connect to the Console port:

Connecting to the Console Port Through a USB Connection

1. Download the driver file from http://www.silabs.com/products/mcu/pages/usbtouartbridgevcpdrivers.aspx.
2. Open the Drivers Folder and Right click on the **driver file** and select **Run As Administrator** to install the necessary driver to access the USB serial console of the switch.
3. Attach one end of the included USB type A to USB type A serial cable to a DB-9 COM port connector on a management PC.
4. Attach the other end of the serial cable to the USB port on the switch.
5. Configure the PC's COM port's required settings using putty, tera term or another serial console running on the PC.
6. When a serial port connection is established, the user will see a prompt. To change the chassis IP address type:

   ```
   setChassisIpAddr -h <ipaddress> -m <netMask>
   ```

   where `-h <ipaddress>` is the new IP address in dotted decimal format (that is, `xxx.xxx.xxx.xxx`), and `-m <netMask>` is the new subnet mask in dotted decimal format.
7. To change the switch default gateway IP address type:

   ```
   setDefaultRoute -h <ipaddress>
   ```

   where `-h <ipaddress>` is the new default gateway IP address in dotted decimal format.
8. The changes are effective immediately.

For a detailed description of connecting to the console and using the switch's command line interface (CLI), refer to the *Supermicro Switch CLI Reference Guide*.

Connecting to the Console Port Using an Ethernet Connection

1. Access the switch with one of the following commands using the default IP address:

   Telnet: telnet 192.168.100.9

   SSH: ssh 192.168.100.9

2. The system prompts for a user name. In order to change the IP address and default gateway, the user must be logged in as the administrator. At the prompt type admin and press ENTER.
3. The system prompts for a password. At the prompt type adminpass and press ENTER. The system responds with:

   ```
   Welcome to the <SWITCH> CLI. Type 'list' for the list of
   commands.
   ```

4. To change the switch IP address type:

   ```
   setChassisIpAddr -h <ipaddress> -m <netMask>
   ```

   where `-h <ipaddress>` is the new IP address in dotted decimal format (that is, `xxx.xxx.xxx.xxx`), and `-m <netMask>` is the new subnet mask in dotted decimal format.

5. To change the switch default gateway IP address type:

   ```
   setDefaultRoute -h <ipaddress>
   ```

   where `-h <ipaddress>` is the new default gateway IP address in dotted decimal format.

6. The changes are effective immediately.

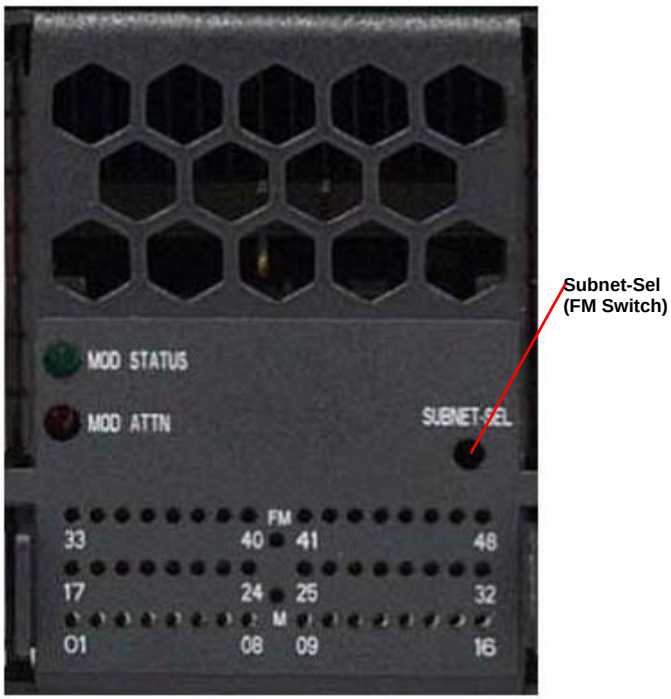
6-3 How to Reset the Switch

The Subnet-Sel Switch is used as follows:

- Pressing the button for 4 seconds does a *"Restore Factory Defaults"* and reboots the ASIC.
- Pressing the button for 2 seconds (and then releasing) puts the *"FM Control Button Persistent State"* in configuration mode.
  - The FM enabled LED will blink "n" times, where "n" is the current state value plus 1.
  - Pressing (and releasing) the button once for less than 2 seconds advances the FM control persistent state by 1 (round-robin), and then it returns to step 1 (i.e., blinking the FM enabled LED).
  - Pressing the button for 2 seconds leaves the configuration state, and saves the FM control button state persistently, restoring the FM enabled LED to the proper value.

Note: Actions take place approximately one second after releasing the button.

Figure 6-3. Location of Subnet-Sel (FM Switch)



Notes

Chapter 7
Troubleshooting

Use this chapter for troubleshooting the SSH-C48Q switch.

7-1 Diagnosing LED Indicators

Table 7-1. Troubleshooting Chart

Symptom	Action
PSU1/PSU2 LED is on Red	• Check connections between the PSU, the power cord and the wall outlet. • Contact your dealer for assistance. • Power cycle the PSU to try and clear the condition. • Replace the PSU (refer to Section 3-4).
Mod Attn LED is on Red	The system requires some attention, which could indicate one of the following conditions: • The switch temperature is at a warning level on the module. • The switch Silicon temperature is at a warning level (approximately 90 degrees C). • DC voltages on the board are slightly out of tolerance (12V Bulk, 5V, 3.3V and 1.8V are all monitored). • The module can no longer function properly. The system will take the appropriate actions to ensure that no damage is done to its components.
Link LED is Off	• Verify that the switch and attached device are powered on. • Be sure the cable is plugged into both the switch and corresponding device. • Verify that the proper cable type is used and its length does not exceed specified limits. • Check the attached device and cable connections for possible defects. Replace the defective cable if necessary.

7-2 System Self-Diagnostic Test Failure

If the Diag LED indicates a failure of the system power-on-self-test (POST), you can use a console connection to view the POST results. The POST results may indicate a failed component or help troubleshoot the problem. For more information on connecting to the console port and using the CLI, refer to the *Supermicro Switch CLI Reference Guide.*

Note a POST failure normally indicates a serious hardware fault that cannot be rectified or worked around. If you encounter a POST failure, you should contact your dealer for assistance.

7-3 Power Problems

If a power indicator does not turn on when the power cord is plugged in, you may have a problem with the power outlet, power cord, or PSU. However, if the switch powers off after running for a while, check for loose power connections, power losses or surges at the power outlet. If you still cannot isolate the problem, the PSU may be defective.

7-4 Installation

Verify that all system components have been properly installed. If one or more components appear to be malfunctioning (such as the power cord or network cabling), test them in an alternate environment where you are sure that all the other components are functioning properly.

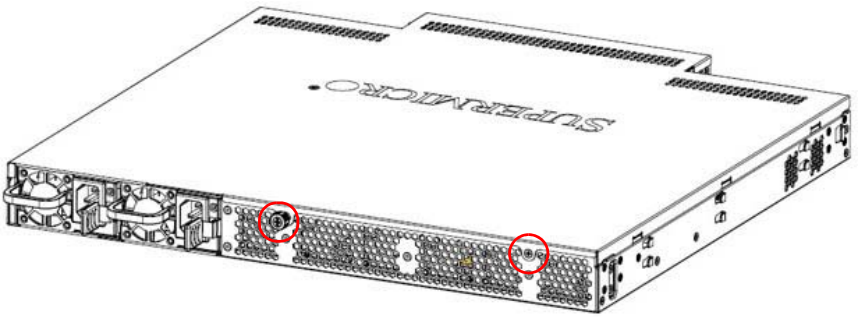
Chapter 8
Installing the Management Card

This section details the procedure to install the Q7 management card into an existing unmanaged switch.

Installing the Managment Card

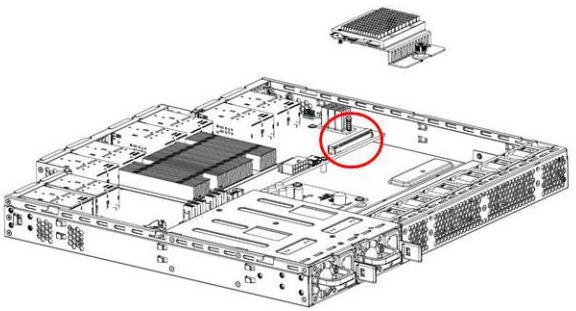
1. Unplug the power cord from the switch.
2. Remove the switch cover by loosening one thumbscrew and one Phillips-head screw from the switch cover as shown in Figure 8-1.

Figure 8-1. Screws for Removing the Cover



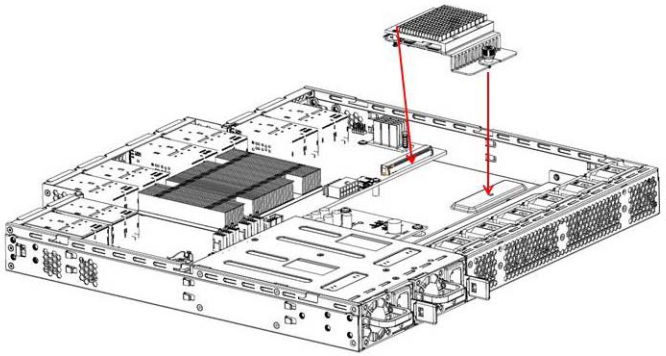
3. Locate the Management Card slot as shown in Figure 8-2.

Figure 8-2. Management Card Slot



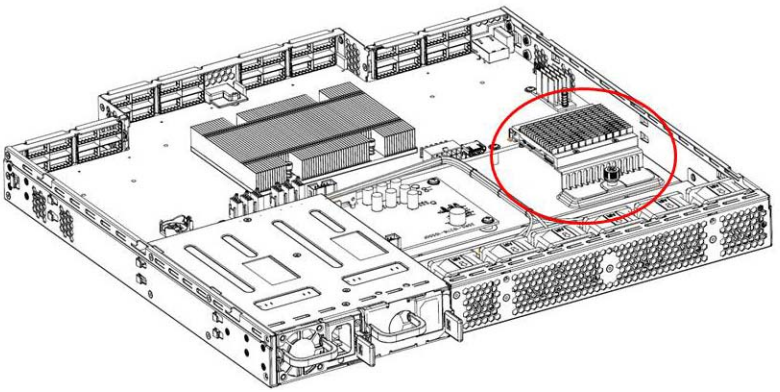
4. Holding the card at approximately a 45-degree angle, slide the connector into the card slot. Make certain to line up the notch on the module and the connector. Once the card is seated properly in the connector, secure the thumbscrew and the Phillips-head screw to the chassis as shown in Figure 8-3.

Figure 8-3. Securing the Card to the Slot



5. If steps 1-3 are done properly, your management card will look the same as shown in Figure 8-4.

Figure 8-4. Card Seated in the Slot



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