



Cisco UCS C200 Server Installation and Service Guide

Covers UCS C200 Server Generations M1 and M2

February 22, 2013

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Preface

This preface describes the audience, organization, and conventions of the *Cisco UCS C200 Server Installation and Service Guide*. It also provides information on how to obtain related documentation.

This guide covers UCS C200 Server Generations M1 and M2. Differences between the generations are noted in text.

Related Documentation

The documentation set for the Cisco Unified Computing System (UCS) C-Series rack-mount servers is described in the roadmap document at the following link:

[Cisco UCS C-Series Documentation Roadmap](#)

Audience

To use this installation guide, you must be familiar with electronic circuitry and wiring practices and preferably be a technician who is experienced with electronic and electromechanical equipment.

Organization

This guide is organized as follows:

Chapter	Title	Description
Chapter 1	Overview	Provides a brief overview of the server.
Chapter 2	Installing the Server	Describes how to install the server into a rack, how to cable and power on the server, and how to connect to the service processor and your network.
Chapter 3	Maintaining the Server	Identifies the replaceable components of the server and describes how to install or replace them.
Appendix A	Technical Specifications	Lists physical, environmental, and power specifications.
Appendix B	Cable and Power Cord Specifications	Lists specifications for the supported international power cords.
Appendix C	RAID Controller Considerations	Provides information about the RAID controller options for this server and links to LSI documentation for the controllers.
Appendix D	Installation for Cisco UCS Integration	Provides installation and upgrade procedures for installing the server into Unified Computing System (UCS) integration.

Conventions

This document uses the following conventions for notes, cautions, and safety warnings.

Notes and Cautions contain important information that you should know.



Note

Means *reader take note*. Notes contain helpful suggestions or references to material that are not covered in the publication.



Caution

Means *reader be careful*. You are capable of doing something that might result in equipment damage or loss of data.

Safety warnings appear throughout this publication in procedures that, if performed incorrectly, can cause physical injuries. A warning symbol precedes each warning statement.



Warning

IMPORTANT SAFETY INSTRUCTIONS

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. Use the statement number provided at the end of each warning to locate its translation in the translated safety warnings that accompanied this device. Statement 1071

SAVE THESE INSTRUCTIONS

Waarschuwing

BELANGRIJKE VEILIGHEIDSINSTRUCTIES

Dit waarschuwingssymbool 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 elektrische schakelingen betrokken risico's en dient u op de hoogte te zijn van de standaard praktijken om ongelukken te voorkomen. Gebruik het nummer van de verklaring onderaan de waarschuwing als u een vertaling van de waarschuwing die bij het apparaat wordt geleverd, wilt raadplegen.

BEWAAR DEZE INSTRUCTIES

Varoitus

TÄRKEITÄ TURVALLISUUSOHJEITA

Tämä varoitusmerkki merkitsee vaaraa. Tilanne voi aiheuttaa ruumiillisia vammoja. Ennen kuin käsittelet laitteistoa, huomioi sähköpiirien käsittelemiseen liittyvät riskit ja tutustu onnettomuuksien yleisiin ehkäisytapoihin. Turvallisuusvaroitusten käännökset löytyvät laitteen mukana toimitettujen käännettyjen turvallisuusvaroitusten joukosta varoitusten lopussa näkyvien lausuntonumeroiden avulla.

SÄILYTÄ NÄMÄ OHJEET

Attention 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**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.**Avvertenza IMPORTANTI ISTRUZIONI SULLA SICUREZZA**

Questo simbolo di avvertenza indica un pericolo. La situazione potrebbe causare infortuni alle persone. Prima di intervenire su qualsiasi apparecchiatura, occorre essere al corrente dei pericoli relativi ai circuiti elettrici e conoscere le procedure standard per la prevenzione di incidenti. Utilizzare il numero di istruzione presente alla fine di ciascuna avvertenza per individuare le traduzioni delle avvertenze riportate in questo documento.

CONSERVARE QUESTE ISTRUZIONI**Advarsel VIKTIGE SIKKERHETSINSTRUKSJONER**

Dette advarselssymbolet betyr fare. Du er i en situasjon som kan føre til skade på person. Før du begynner å arbeide med noe av utstyret, må du være oppmerksom på farene forbundet med elektriske kretser, og kjenne til standardprosedyrer for å forhindre ulykker. Bruk nummeret i slutten av hver advarsel for å finne oversettelsen i de oversatte sikkerhetsadvarslene som fulgte med denne enheten.

TA VARE PÅ DISSE INSTRUKSJONENE**Aviso INSTRUÇÕES IMPORTANTES DE SEGURANÇA**

Este símbolo de aviso significa perigo. Você está em uma situação que poderá ser causadora de lesões corporais. Antes de iniciar a utilização de qualquer equipamento, tenha conhecimento dos perigos envolvidos no manuseio de circuitos elétricos e familiarize-se com as práticas habituais de prevenção de acidentes. Utilize o número da instrução fornecido ao final de cada aviso para localizar sua tradução nos avisos de segurança traduzidos que acompanham este dispositivo.

GUARDE ESTAS INSTRUÇÕES

¡Advertencia! 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**Varning! VIKTIGA SÄKERHETSANVISNINGAR**

Denna varningssignal signalerar fara. Du befinner dig i en situation som kan leda till personskada. Innan du utför arbete på någon utrustning måste du vara medveten om farorna med elkretsar och känna till vanliga förfaranden för att förebygga olyckor. Använd det nummer som finns i slutet av varje varning för att hitta dess översättning i de översatta säkerhetsvarningar som medföljer denna anordning.

SPARA DESSA ANVISNINGAR**Opozorilo FONTOS BIZTONSÁGI ELOÍRÁSOK**

Ez a figyelmeztető jel veszélyre utal. Sérülésveszélyt rejtő helyzetben van. Mielőtt bármely berendezésen munkát végezte, legyen figyelemmel az elektromos áramkörök okozta kockázatokra, és ismerkedjen meg a szokásos balesetvédelmi eljárásokkal. A kiadványban szereplő figyelmeztetések fordítása a készülékhez mellékelt biztonsági figyelmeztetések között található; a fordítás az egyes figyelmeztetések végén látható szám alapján kereshető meg.

ORIZZE MEG EZEKET AZ UTASÍTÁSOKAT!**Предупреждение ВАЖНЫЕ ИНСТРУКЦИИ ПО СОБЛЮДЕНИЮ ТЕХНИКИ БЕЗОПАСНОСТИ**

Этот символ предупреждения обозначает опасность. То есть имеет место ситуация, в которой следует опасаться телесных повреждений. Перед эксплуатацией оборудования выясните, каким опасностям может подвергаться пользователь при использовании электрических цепей, и ознакомьтесь с правилами техники безопасности для предотвращения возможных несчастных случаев. Воспользуйтесь номером заявления, приведенным в конце каждого предупреждения, чтобы найти его переведенный вариант в переводе предупреждений по безопасности, прилагаемом к данному устройству.

СОХРАНИТЕ ЭТИ ИНСТРУКЦИИ**警告 重要的安全性说明**

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提供的声明号码来找到此设备的安全性警告说明的翻译文本。

请保存这些安全性说明

的标准工作程序。 安全上の重要な注意事項

「危険」の意味です。人身事故を予防するための注意事項が記述されています。装置の取り扱い作業を行うときは、電気回路の危険性に注意し、一般的な事故防止策に留意してください。警告の各国語版は、各注意事項の番号を基に、装置に付属の「Translated Safety Warnings」を参照してください。

これらの注意事項を保管しておいてください。

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Aviso INSTRUÇÕES IMPORTANTES DE SEGURANÇA

Este símbolo de aviso significa perigo. Você se encontra em uma situação em que há risco de lesões corporais. Antes de trabalhar com qualquer equipamento, esteja ciente dos riscos que envolvem os circuitos elétricos e familiarize-se com as práticas padrão de prevenção de acidentes. Use o número da declaração fornecido ao final de cada aviso para localizar sua tradução nos avisos de segurança traduzidos que acompanham o dispositivo.

GUARDE ESTAS INSTRUÇÕES

Advarsel VIGTIGE SIKKERHEDSANVISNINGER

Dette advarselssymbol betyder fare. Du befinder dig i en situation med risiko for legemeskade. Før du begynder arbejde på udstyr, skal du være opmærksom på de involverede risici, der er ved elektriske kredsløb, og du skal sætte dig ind i standardprocedurer til undgåelse af ulykker. Brug erklæringsnummeret efter hver advarsel for at finde oversættelsen i de oversatte advarsler, der fulgte med denne enhed.

GEM DISSE ANVISNINGER

تحذير

إرشادات الأمان الهامة
يوضح رمز التحذير هذا وجود خطر. وهذا يعني أنك متواجد في مكان قد ينتج عنه التعرض لإصابات. قبل بدء العمل، احذر مخاطر التعرض للصدمات الكهربائية وكن على علم بالإجراءات القياسية للحيولة دون وقوع أي حوادث. استخدم رقم البيان الموجود في آخر كل تحذير لتحديد مكان ترجمته داخل تحذيرات الأمان المترجمة التي تأتي مع الجهاز. قم بحفظ هذه الإرشادات

Upozorenje VAŽNE SIGURNOSNE NAPOMENE

Ovaj simbol upozorenja predstavlja opasnost. Nalazite se u situaciji koja može prouzročiti tjelesne ozljede. Prije rada s bilo kojim uređajem, morate razumjeti opasnosti vezane uz električne sklopove, te biti upoznati sa standardnim načinima izbjegavanja nesreća. U prevedenim sigurnosnim upozorenjima, priloženima uz uređaj, možete prema broju koji se nalazi uz pojedino upozorenje pronaći i njegov prijevod.

SAČUVAJTE OVE UPUTE**Upozornění DŮLEŽITÉ BEZPEČNOSTNÍ POKYNY**

Tento upozorňující symbol označuje nebezpečí. Jste v situaci, která by mohla způsobit nebezpečí úrazu. Před prací na jakémkoliv vybavení si uvědomte nebezpečí související s elektrickými obvody a seznamte se se standardními opatřeními pro předcházení úrazům. Podle čísla na konci každého upozornění vyhledejte jeho překlad v přeložených bezpečnostních upozorněních, která jsou přiložena k zařízení.

USCHOVEJTE TYTO POKYNY**Προειδοποίηση ΣΗΜΑΝΤΙΚΕΣ ΟΔΗΓΙΕΣ ΑΣΦΑΛΕΙΑΣ**

Αυτό το προειδοποιητικό σύμβολο σημαίνει κίνδυνο. Βρίσκεστε σε κατάσταση που μπορεί να προκαλέσει τραυματισμό. Πριν εργαστείτε σε οποιοδήποτε εξοπλισμό, να έχετε υπόψη σας τους κινδύνους που σχετίζονται με τα ηλεκτρικά κυκλώματα και να έχετε εξοικειωθεί με τις συνήθειες πρακτικές για την αποφυγή ατυχημάτων. Χρησιμοποιήστε τον αριθμό δήλωσης που παρέχεται στο τέλος κάθε προειδοποίησης, για να εντοπίσετε τη μετάφρασή της στις μεταφρασμένες προειδοποιήσεις ασφαλείας που συνοδεύουν τη συσκευή.

ΦΥΛΑΞΤΕ ΑΥΤΕΣ ΤΙΣ ΟΔΗΓΙΕΣ**אזהרה****הוראות בטיחות חשובות**

סימן אזהרה זה מסמל סכנה. אתה נמצא במצב העלול לגרום לפציעה. לפני שתעבוד עם ציוד כלשהו, עליך להיות מודע לסכנות הכרוכות במעגלים חשמליים ולהכיר את הנהלים המקובלים למניעת תאונות. השתמש במספר ההוראה המסופק בסופה של כל אזהרה כדי לאתר את התרגום באזהרות הבטיחות המתורגמות שמצורפות להתקן.

שמור הוראות אלה**Opomena VAŽNI BEZBEDNOSNI NAPATSTVIJA**

Симболот за предупредување значи опасност. Се наоѓате во ситуација што може да предизвика телесни повреди. Пред да работите со опремата, бидете свесни за ризикот што постои кај електричните кола и треба да ги познавате стандардните постапки за спречување на несреќни случаи. Искористете го бројот на изјавата што се наоѓа на крајот на секое предупредување за да го најдете неговиот период во prevedените безбедносни предупредувања што се испорачани со уредот.

ЧУВАЈТЕ ГИ ОБИЕ НАПАТСТВИЈА

Ostrzeżenie WAŻNE INSTRUKCJE DOTYCZĄCE BEZPIECZEŃSTWA

Ten symbol ostrzeżenia oznacza niebezpieczeństwo. Zachodzi sytuacja, która może powodować obrażenia ciała. Przed przystąpieniem do prac przy urządzeniach należy zapoznać się z zagrożeniami związanymi z układami elektrycznymi oraz ze standardowymi środkami zapobiegania wypadkom. Na końcu każdego ostrzeżenia podano numer, na podstawie którego można odszukać tłumaczenie tego ostrzeżenia w dołączonym do urządzenia dokumencie z tłumaczeniami ostrzeżeń.

NINIEJSZE INSTRUKCJE NALEŻY ZACHOWAĆ**Upozornenie DÔLEŽITÉ BEZPEČNOSTNÉ POKYNY**

Tento varovný symbol označuje nebezpečenstvo. Nachádzate sa v situácii s nebezpečenstvom úrazu. Pred prácou na akomkoľvek vybavení si uvedomte nebezpečenstvo súvisiace s elektrickými obvodmi a oboznámte sa so štandardnými opatreniami na predchádzanie úrazom. Podľa čísla na konci každého upozornenia vyhľadajte jeho preklad v preložených bezpečnostných upozorneniach, ktoré sú priložené k zariadeniu.

USCHOVAJTE SI TENTO NÁVOD**警告****重要安全性指示**

此警告符號代表危險，表示可能造成人身傷害。使用任何設備前，請留心電路相關危險，並熟悉避免意外的標準作法。您可以使用每項警告後的聲明編號，查詢本裝置隨附之安全性警告譯文中的翻譯。請妥善保留此指示

Obtaining Documentation and Submitting a Service Request

For information on obtaining documentation, submitting a service request, and gathering additional information, see the monthly *What's New in Cisco Product Documentation*, which also lists all new and revised Cisco technical documentation, at:

<http://www.cisco.com/en/US/docs/general/whatsnew/whatsnew.html>

Subscribe to the *What's New in Cisco Product Documentation* as a Really Simple Syndication (RSS) feed and set content to be delivered directly to your desktop using a reader application. The RSS feeds are a free service and Cisco currently supports RSS Version 2.0.



CHAPTER 1

Overview

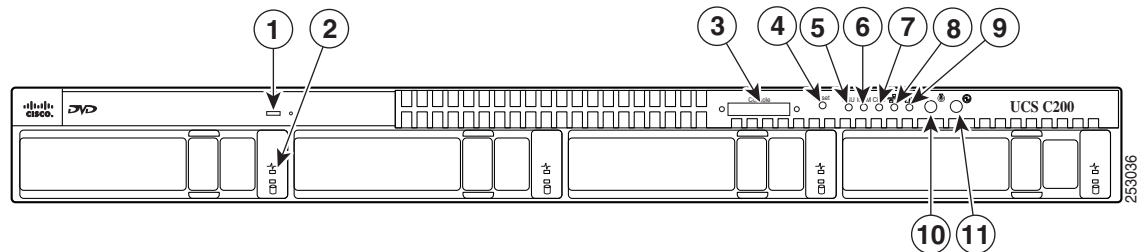
The Cisco UCS C200 Server, which is a part of the Cisco UCS C-Series Rack-Mount server family, is designed to operate in a wide range of data center environments, including those environments that use the Cisco Unified Computing System, Cisco Nexus family products, and discrete Ethernet and Fibre Channel switches from Cisco and third parties.

The Cisco UCS C200 server is a high-density, two-socket, 1RU rack-mount server designed to balance simplicity, performance, and density. Powered with two quad-core Intel Xeon 5500 series processors, the server supports production-level network infrastructures, web services, virtualization, data centers, and small-office and remote-office applications.

This server can be ordered with different front panel configurations, depending on whether the hard drives are the 3.5-inch large form factor or the 2.5-inch small form factor:

- [Figure 1-1](#) shows the external features of the Large Form Factor (LFF) front panel.
- [Figure 1-2](#) shows the external features of the Small Form Factor (SFF) front panel. The optional DVD module that can be configured in place of the front panel control module is also shown.

Figure 1-1 Front Panel Features, Large Form Factor



1	DVD drive	7	CPU fault LED
2	Hard drive (up to four)	8	Network activity LED
3	KVM console connector	9	System fault LED
4	Reset button ¹	10	Locator button/LED
5	Power supply fault LED	11	Power button/Power status LED
6	Memory fault LED		

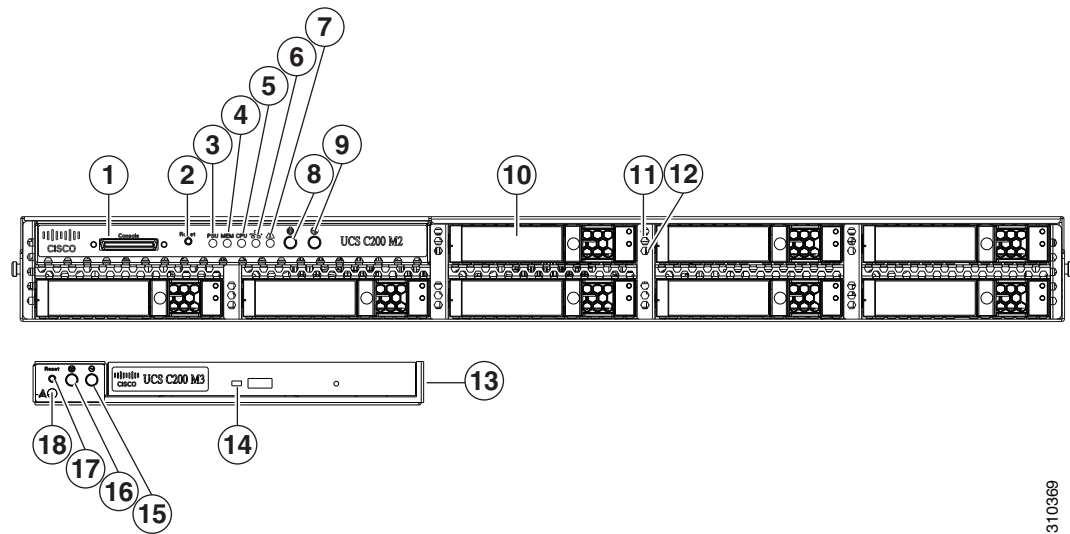
1. See the following caution.



Caution

Do not use the **Reset** button. This button is for development debugging only. This button will reset memory and CPU settings to the defaults.

Figure 1-2 Front Panel Features, Small Form Factor



310369

1	KVM console connector	10	Hard drives (up to 8)
2	Reset button ¹	11	Hard drive fault LED
3	Power supply fault LED	12	Hard drive activity LED
4	Memory fault LED	13	Optional DVD module
5	CPU fault LED	14	DVD activity LED
6	Network activity LED	15	Power button/Power status LED
7	System fault LED	16	Locator button/LED
8	Locator button/LED	17	Reset button ²
9	Power button/Power status LED	18	System fault LED

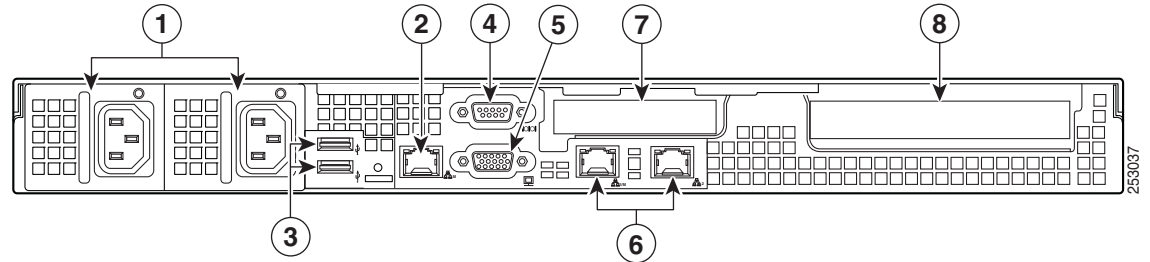
1. See the following caution.
2. See the following caution.

**Caution**

Do not use the **Reset** button. This button is for development debugging only. This button will reset memory and CPU settings to the defaults.

Figure 1-3 shows the external features of the rear panel. A Generation M2 server is shown (the USB ports and the 10/100 Ethernet management port are in slightly different positions for Generation M1).

Figure 1-3 Rear Panel Features



1	Power supply (up to two)	5	Video connector (DB15 VGA)
2	10/100 Ethernet management port (RJ-45)	6	10/100/1000 Gigabit Ethernet ports (two)
3	USB 2.0 connectors (two)	7	Low-profile PCIe card slot
4	Serial connector (DB9)	8	Standard-profile PCIe card slot

The Cisco UCS C200 server has the following components and features. Differences between the Large Form Factor (LFF) version of the server (PID R200-1120402W) and the Small Form Factor (SFF) version of the server (PID UCS-BSE-SFF-C200) are noted.

Table 1-1 Hardware Features of the Server




Feature or Component	Cisco UCS C200 Server
Enclosure	Single rack unit (1RU) chassis.
Processors	Up to two quad-core Intel Xeon processors.
Memory	12 DIMM ¹ slots supporting up to 96 GB of industry-standard DDR3 ² main memory.
Storage	<p>The number of drives depends on which configurable front panel you have:</p> <ul style="list-style-type: none"> • LFF—Up to 4 internal 3.5-inch SAS³ or SATA⁴ drives. • SFF—Up to 8 internal 2.5-inch SAS or SATA drives. <p>Server Generation M2 only—There is also one internal USB port on the motherboard that you can use with a USB thumb drive (see Figure 3-7).</p>
Network and management I/O	<p>The server provides these rear-panel connectors:</p> <ul style="list-style-type: none"> • Two 10/100/1000 Gigabit Ethernet ports (RJ-45 connectors). These integrated Gigabit ports support the Wake on LAN (WoL) and TCP/IP Offload Engine (TOE) standards. • One 10/100 Ethernet port (RJ-45 connector). • One DB9 serial connector. • One DB15 VGA⁵ connector. • Two USB⁶ 2.0 connectors. <p>The server also has one front-panel console connector (with supplied KVM⁷ cable, provides DB15 video, DB9 serial, and two USB 2.0 connectors).</p> <p> Note The Cisco UCS C200 SFF server does not include a front-panel KVM connector if ordered with the optional DVD module.</p>
Removable media devices	<p>One internal DVD drive:</p> <ul style="list-style-type: none"> • LFF—The DVD drive is not field-replaceable. • SFF—The <i>optional</i> front panel DVD module is field-replaceable. <p>The drive supports the following media types: CD-R, CD-ROM, CD-RW, DVD+R, DVD+RW, DVD-R, DVD-ROM, DVD-RW, +R DL</p>
Power	Up to two power supplies, each with a maximum output of 650W (redundant power supply is optional).
Cooling	Five internal fans that force front-to-rear cooling; also one fan in each power supply.
PCIe I/O	<p>Up to two PCIe⁸ expansion cards, plugged into horizontal riser card sockets:</p> <ul style="list-style-type: none"> • One standard-profile, half-length, x16-lane, x16 connector (on riser card). • One low-profile, half-length, x8-lane, x8 connector (on riser card).

Table 1-1 Hardware Features of the Server (continued)

Feature or Component	Cisco UCS C200 Server
Disk Management	<p>Factory-configured RAID⁹ support options, which differ for the LFF and SFF versions of the server.</p> <ul style="list-style-type: none"> • LFF: <ul style="list-style-type: none"> – RAID 0 and 1 support for up to 4 SATA drives with the integrated SATA controller. <hr/> <p> Note The integrated ICH10R RAID controller is not compatible for use with VMWare ESX/ESXi Server software in any generation or version of the Cisco UCS C200 server.</p> <hr/> <ul style="list-style-type: none"> – RAID 0, 1, and 1E support for up to 4 SAS or SATA drives with the optional LSI 1064-based controller mezzanine card. – RAID 0, 1, 5, 6, 00, 10, 50 and 60 support for up to 4 SAS or SATA drives with the optional LSI 9260-8i MegaRAID controller card. • SFF: <ul style="list-style-type: none"> – RAID 0 and 1 support for up to 4 SATA drives with the integrated SATA controller. <hr/> <p> Note The integrated ICH10R RAID controller is not compatible for use with VMWare ESX/ESXi Server software in any generation or version of the Cisco UCS C200 server.</p> <hr/> <ul style="list-style-type: none"> – RAID 0, 1, and 1E support for up to 4 SAS or SATA drives with the optional LSI 1068-based controller mezzanine card. – RAID 0, 1, 5, 6, 00, 10, 50 and 60 support for up to 8 SAS or SATA drives with the optional LSI 9260-8i MegaRAID controller card. – RAID 0, 1, 5, 6, 00, 10, 50 and 60 support for up to 4 SAS or SATA drives with the optional LSI 9280-4i4e MegaRAID controller card. <p>See RAID Controller Considerations, page C-1 for more information about RAID in this server.</p>
Video	<p>The server CIMC chip includes a Matrox G200 core. The Matrox G200 core shares the same memory as the rest of the CIMC. The first 8 MB of memory are allocated to the video core, followed by another 5 MB allocated to the compression engine for difference buffers.</p>

1. DIMM = dual inline memory module
2. DDR = double data rate (transfer mode)
3. SAS = serial attached SCSI
4. SATA = serial advanced technology attachment
5. VGA = video graphics array
6. USB = universal serial bus
7. KVM = keyboard, video, mouse
8. PCIe = peripheral component interconnect express

9. RAID = redundant array of independent disks

See [Appendix A, “Technical Specifications”](#) for more physical, environmental, and power details.



CHAPTER 2

Installing the Server

This chapter describes how to install the server and includes the following sections:

- [Unpacking and Inspecting the Server, page 2-2](#)
- [Preparing for Installation, page 2-3](#)
- [Installing the Server Into a Rack, page 2-5](#)
- [Initial Server Setup, page 2-9](#)
- [System BIOS and CIMC Firmware, page 2-13](#)



Note

Before you install, operate, or service a server, review the [Regulatory Compliance and Safety Information for Cisco UCS C-Series Servers](#) for important safety information.



Warning

IMPORTANT SAFETY INSTRUCTIONS

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. Use the statement number provided at the end of each warning to locate its translation in the translated safety warnings that accompanied this device.
Statement 1071



Warning

Only trained and qualified personnel must be allowed to install, replace, or service this equipment.
Statement 1030

Unpacking and Inspecting the Server



Tip Keep the shipping container in case the server requires shipping in the future.

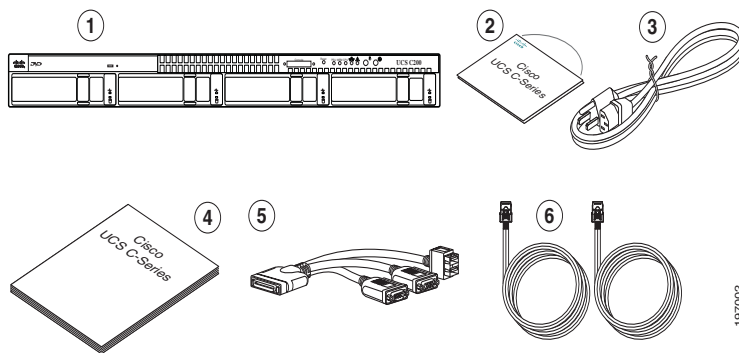


Note The chassis is thoroughly inspected before shipment. If any damage occurred during transportation or any items are missing, contact your customer service representative immediately.

To inspect the shipment, follow these steps:

- Step 1** Remove the server from its cardboard container—save all packaging material.
- Step 2** Compare the shipment to the equipment list provided by your customer service representative and [Figure 2-1](#). Verify that you have all items.
- Step 3** Check for damage and report any discrepancies or damage to your customer service representative. Have the following information ready:
 - Invoice number of shipper (see the packing slip)
 - Model and serial number of the damaged unit
 - Description of damage
 - Effect of damage on the installation

Figure 2-1 Shipping Box Contents



1	Server	4	Documentation
2	Drivers and Utilities disc	5	KVM cable
3	Power cord (up to two)	6	C200 SFF server only: Two SAS cables (R200-SASCBL)

Preparing for Installation

This section includes the following topics:

- [Installation Guidelines](#), page 2-3
- [Rack Requirements](#), page 2-4
- [Required Equipment](#), page 2-4

Installation Guidelines



Warning

To prevent the system from overheating, do not operate it in an area that exceeds the maximum recommended ambient temperature of: 35° C (95° F).

Statement 1047



Warning

The plug-socket combination must be accessible at all times, because it serves as the main disconnecting device.

Statement 1019



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, 15 A.

Statement 1005



Warning

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

Statement 1074

When installing the server, follow these guidelines:

- Plan your site configuration and prepare the site before installing the server. See the [Cisco UCS Site Preparation Guide](#) for the recommended site planning tasks.
- Ensure that there is adequate space around the server to allow for servicing and for adequate airflow. The airflow in this server is from front to back.
- Ensure that the air-conditioning meets the thermal requirements listed in [Appendix A, “Technical Specifications.”](#)
- Ensure that the cabinet or rack meets the requirements listed in the [“Rack Requirements”](#) section on [page 2-4](#).
- Ensure that the site power meets the power requirements listed in [Appendix A, “Technical Specifications.”](#) If available, you can use an uninterruptible power supply (UPS) to protect against power failures.



Caution

Avoid UPS types that use ferroresonant technology. These UPS types can become unstable with systems such as the Cisco UCS, which can have substantial current draw fluctuations from fluctuating data traffic patterns.

Rack Requirements

This section provides the requirements for the standard open racks, assuming an external ambient air temperature range of 32 to 95°F (0 to 35°C).

The rack must be of the following type:

- Standard 19-inch (48.3-cm) wide, four-post EIA rack, with mounting posts that conform to English universal hole spacing per section 1 of ANSI/EIA-310-D-1992.
- The rack post holes can be square or round when you use the supplied slide rails.
- The minimum vertical rack space per server must be one rack unit (RU), equal to 1.75 inches (4.45 cm).
- The distance between the front and rear rack posts must be as follows to fit the Cisco slide rails:
 - For the older rails (R200-1032RAIL), 27 to 37 inches (68.6 to 94.0 cm)
 - For the new style rails (R2XX-G31032RAIL), 23.5 to 36 inches (59.7 to 91.4 cm)



Tip

The Cisco R-Series racks and RP-Series PDUs have been designed for optimum performance with Cisco products and are available from Cisco.

Required Equipment

The slide rails supplied by Cisco Systems do not require any tools for installation, but you might want to use a tape measure and level to help level the slide rails during installation.

Slide Rail Adjustment Range

The slide rails for this server have an adjustment range of 24 to 36 inches (610 to 914 mm).

Installing the Server Into a Rack

The qualified and supported part numbers for this component are subject to change over time. For the most up-to-date list of replaceable components, see the following URL and then scroll to *Technical Specifications*:

http://www.cisco.com/en/US/products/ps10493/products_data_sheets_list.html

This section describes how to install the server into a rack.



Warning

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

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

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

If the rack is provided with stabilizing devices, install the stabilizers before mounting or servicing the unit in the rack.
Statement 1006

To install the slide rails and the server into a rack, follow these steps:

Step 1

Install the slide rails into the rack:



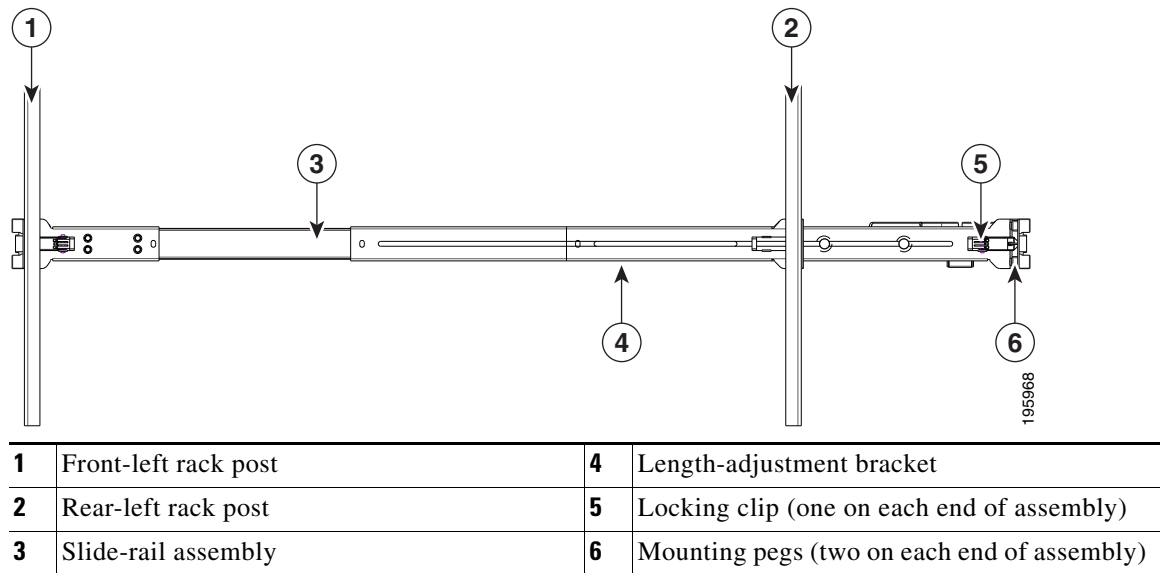
Tip

Use two people to help keep the slide rails and server level during installation. You can use a tape measure and level or count the holes in the rack posts to ensure that the slide rails and server are level.

- a. Align the slide-rail assembly inside the rack posts with the length-adjustment bracket (item 4) toward the rear of the rack (see [Figure 2-2](#)).
- b. Compress the length-adjustment bracket until the mounting pegs (item 6) and locking clips (item 5) on the slide-rail assembly engage the desired rack holes on the front and rear rack posts.

If your rack has #10-32 rack-post holes, align the mounting pegs with the holes and then compress the spring-loaded pegs to expose the #10-32 inner peg.

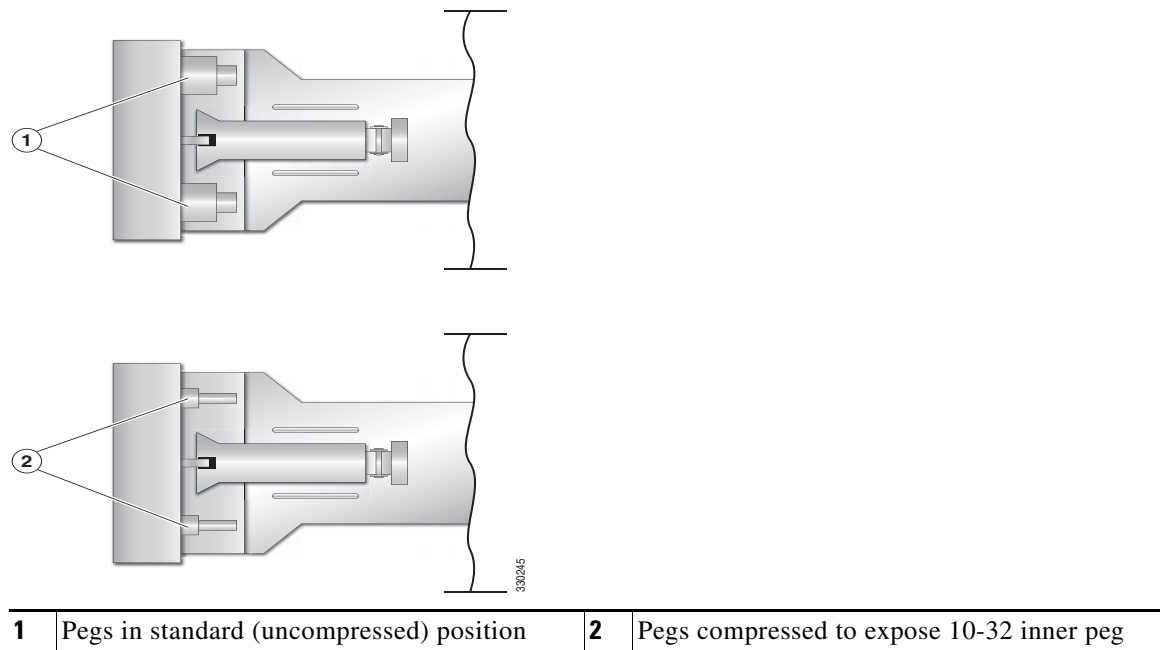
Figure 2-2 Attaching a Slide-Rail Assembly



Note

The mounting pegs that protrude through the rack-post holes are designed to fit round or square #12-24 holes, or #10-32 holes when the mounting peg is compressed (see [Figure 2-3](#)). If your rack has #10-32 rack-post holes, align the mounting pegs with the holes and then compress the spring-loaded pegs to expose the #10-32 inner peg.

Figure 2-3 Spring-Loaded Mounting Pegs



- c. Pull the inner slide rails on each assembly out toward the rack front until they hit the internal stops and lock in place.

- d. Attach the second slide-rail assembly to the opposite side of the rack. Ensure that the two slide-rail assemblies are level and at the same height with each other.
- e. Pull the inner slide rails on each assembly out toward the rack front until they hit the internal stops and lock in place.



Tip

You can optionally use the #2 Phillips screws that come with the slide rails to increase stability after installation. These screws can be installed on the front attachment bracket on each assembly, but are not required.

Step 2

Attach mounting brackets to the server:

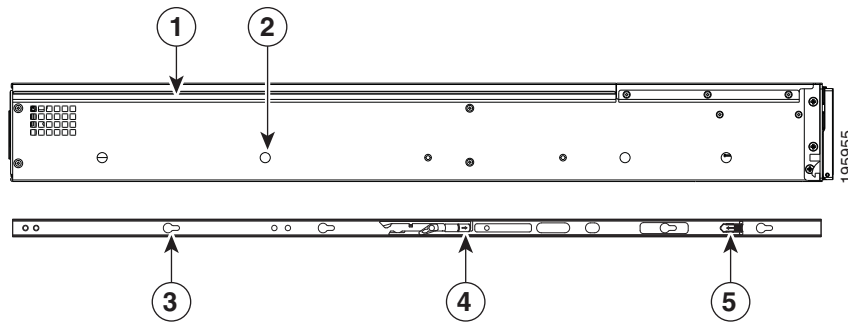
- a. Set a mounting bracket (item 3) on the side of the server, aligning its keyed holes over the pegs on the server (item 2). The plastic installation release clip (item 5) on the bracket should be toward the server front. See [Figure 2-4](#).
- b. Push the mounting bracket toward the server rear until the locking clip clicks over the server peg.
- c. Attach the remaining mounting bracket to the opposite side of the server.



Tip

You can optionally use the #1 Phillips screws that come with the slide rails to increase stability after installation. You can install two of these screws on each side of the server to more permanently attach the mounting brackets to each side of the server, but they are not required.

Figure 2-4 Attaching Mounting Brackets to the Server



1	Rear of server	4	Removal release clip
2	Mounting peg (four)	5	Installation release clip
3	Mounting bracket		

Step 3

Insert the server into the slide rails:

- a. Align the mounting brackets that are attached to the server sides with the front of the empty slide rails.
- b. Push the server into the slide rails until it stops at the internal stops.
- c. Push the plastic installation release clip on each mounting bracket toward the server rear (see item 4 in [Figure 2-4](#)), and then continue pushing the server into the rack until its front flanges touch the rack posts.

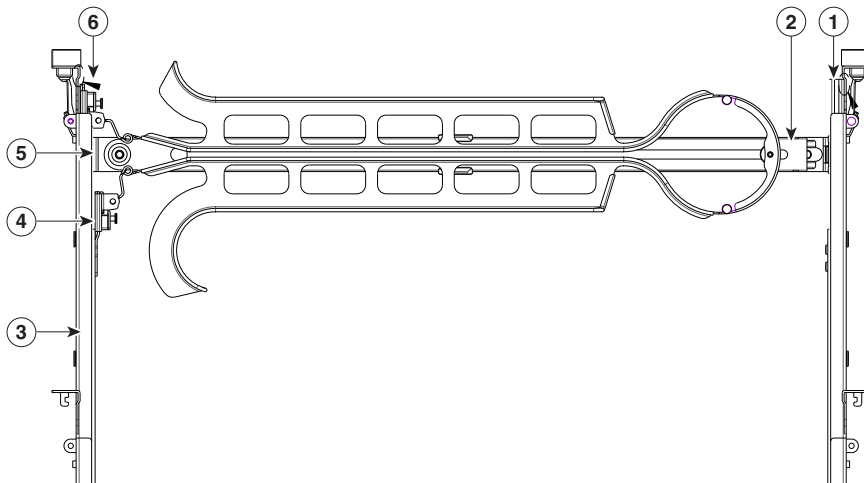
Step 4 Attach the (optional) cable management arm (CMA) to the rear of the slide rails:



Note The orientation in these instructions refers to a view from the front of the server.

- a. Slide the plastic clip on the right end of the CMA length-adjustment slider (item 2) into the rear of the right slide rail (item 1) until it clips onto the plastic retaining flange inside the slide rail. See [Figure 2-5](#).
- b. Expand the CMA length-adjustment slider (item 2) until its left end aligns with the rear of the left slide-rail assembly (item 3).
- c. Slide the innermost CMA attachment clip (item 4) into the rear of the left slide rail (item 3) and clip it onto the CMA flange that is on the mounting bracket that is attached to the server.
- d. Attach the two-hole slotted bracket (item 5) that is on the left end of the CMA length-adjustment slider to the left slide rail. Fit the two-hole slotted bracket over the two pegs inside the slide rail.
- e. Attach the outermost CMA attachment clip (item 6) onto the CMA flange that is on the left slide rail.

Figure 2-5 Attaching the Cable Management Arm



1	Rear of right slide rail (plastic retaining flange is inside the rail)	4	Innermost CMA attachment clip
2	CMA length-adjustment slider	5	Two-hole slotted bracket on end of CMA length-adjustment slider
3	Rear of left slide rail assembly	6	Outermost CMA attachment clip

Step 5 Continue with the [“Connecting and Powering On the Server \(Standalone Mode\)”](#) section on page 2-9.

Initial Server Setup

This section contains the following topics:

- [Connecting and Powering On the Server \(Standalone Mode\)](#), page 2-9
- [NIC Modes and NIC Redundancy Settings](#), page 2-12

Connecting and Powering On the Server (Standalone Mode)

**Note**

This section describes how to power on the server, assign an IP address, and connect to server management when using the server *in standalone mode*. To use the server in UCS integration, specific cabling and settings are required. See [Installation for Cisco UCS Integration](#), page D-1.

**Note**

The server is shipped with a default NIC mode called *Shared LOM*, default NIC redundancy is active-active, and DHCP is enabled. Shared LOM mode enables the two 1-Gb Ethernet ports to access the Cisco Integrated Management Interface (CIMC). If you want to use the 10/100 management ports or a Cisco network adapter card port to access the CIMC, you must first connect to the server and change the NIC mode as described in [Step 3](#) of the following procedure. In that step, you can also change the NIC redundancy and set static IP settings.

Use the following procedure to perform initial setup of the server.

Step 1

Attach a power cord to each power supply in your server, and then attach the power cord to a grounded AC power outlet. See the “[Power Specifications](#)” section on [page A-2](#) for power specifications.

Wait for approximately two minutes to let the server boot in standby power during the first bootup.

You can verify power status by looking at the Power Status LED on the front panel (see [Figure 1-1 on page 1-1](#) or [Figure 1-2 on page 1-2](#)):

- Off—The server is not receiving power. Check the power cord connections and the power source of the facility.
- Blinking green—The server is in standby power mode. Power is supplied only to the service processor and some motherboard functions.
- Solid green—The server is in main power mode. Power is supplied to all server components.

**Note**

During bootup, the server beeps once for each USB device that is attached to the server. Even if there are no external USB devices attached, there is a short beep for each virtual USB device such as a virtual floppy drive, CD/DVD drive, keyboard, or mouse. A beep is also emitted if a USB device is hot-plugged or hot-unplugged during BIOS power-on self test (POST), or while you are accessing the BIOS Setup utility or the EFI shell.

- Step 2** Use the supplied KVM cable to connect a keyboard and VGA monitor to the console connector on the front panel (see [Figure 1-1 on page 1-1](#) or [Figure 1-2 on page 1-2](#)).

**Note**

Alternatively, you can use the VGA and USB ports on the rear panel. However, you cannot use the front panel console connector VGA and the rear panel VGA at the same time. If you are connected to one VGA connector and you then connect a video device to the other connector, the first VGA connector is disabled. You can then reactivate the first VGA connector only by rebooting the server.

- Step 3** Set NIC mode, NIC redundancy, and choose whether to enable DHCP or set static network settings:
- Press the **Power** button to boot the server. Watch for the prompt to press F8.
 - During bootup, press **F8** when prompted to open the BIOS CIMC Configuration Utility.

```

CIMC Configuration Utility  Version 1.5  Cisco Systems, Inc.
*****
NIC Properties
NIC mode                               NIC redundancy
Dedicated:      [X]                    None:           [X]
Shared LOM:     [ ]                    Active-standby:[ ]
Cisco Card:     [ ]                    Active-active:  [ ]
IPV4 (Basic)   Factory Defaults
DHCP enabled:   [ ]                    CIMC Factory Default:[ ]
CIMC IP:        10.193.66.111          Default User (Basic)
Subnetmask:     255.255.248.0          Default password:
Gateway:        10.193.64.1           Reenter password:

ULAN (Advanced)
ULAN enabled:   [ ]
ULAN ID:        1
Priority:        0

*****
<Up/Down arrow> Select items    <F10> Save    <Space bar> Enable/Disable
<F5> Refresh                    <ESC> Exit

```

- Set the NIC mode to your choice for which ports you want to use to access the CIMC for server management (see [Figure 1-3 on page 1-3](#) for identification of the ports):
 - Dedicated—The 10/100 management port is used to access the CIMC. You have to select a NIC redundancy and IP setting.
 - Shared LOM (default)—The two 1Gb Ethernet ports are used to access the CIMC. This is the factory default setting, along with Active-active NIC redundancy and DHCP enabled.
 - Cisco Card—The ports on an installed Cisco network adapter card are used to access the CIMC. You have to select a NIC redundancy and IP setting.

**Note**

The Cisco Card NIC mode is currently supported only with a Cisco UCS P81E Virtual Interface Card (N2XX-ACPCI01) that is installed in PCIe slot 6 (see [Figure 3-22 on page 3-36](#)). See also [Special Considerations for the Cisco UCS P81E Virtual Interface Card \(N2XX-ACPCI01\)](#), [page 3-37](#).

- d. Use this utility to change the NIC redundancy to your preference. This server has three possible NIC redundancy settings:
 - None—The Ethernet ports operate independently and do not fail over if there is a problem.
 - Active-standby—If an active Ethernet port fails, traffic fails over to a standby port.
 - Active-active—All Ethernet ports are utilized simultaneously.
- e. Choose whether to enable DHCP for dynamic network settings, or enter static network settings.



Note Before you enable DHCP, your DHCP server must be preconfigured with the range of MAC addresses for this server. The MAC address is printed on a label on the rear of the server. This server has a range of six MAC addresses assigned to the CIMC. The MAC address printed on the label is the beginning of the range of six contiguous MAC addresses.

- f. Optional: Use this utility to make VLAN settings, and to set a default CIMC user password.



Note Changes to the settings take effect after approximately 45 seconds. Refresh with **F5** and wait until the new settings appear before you reboot the server in the next step.

- g. Press **F10** to save your settings and reboot the server.



Note If you chose to enable DHCP, the dynamically assigned IP and MAC addresses are displayed on the console screen during bootup.

Step 4 Connect to the CIMC for server management. Connect Ethernet cables from your LAN to the server by using the ports that you selected by your NIC Mode setting in [Step 3](#). The Active-active and Active-passive NIC redundancy settings require you to connect to two ports.

Step 5 Use a browser and the IP address of the CIMC to connect to the CIMC Setup Utility. The IP address is based upon the settings that you made in [Step 3](#) (either a static address or the address assigned by your DHCP server).



Note The default user name for the server is *admin*. The default password is *password*.

Step 6 To manage the server, see the [Cisco UCS C-Series Rack-Mount Server Configuration Guide](#) or the [Cisco UCS C-Series Rack-Mount Server CLI Configuration Guide](#) for instructions on using those interfaces. The links to these documents are in the C-Series documentation roadmap:

<http://www.cisco.com/go/unifiedcomputing/c-series-doc>

To install or replace hardware components, see the “[Maintaining the Server](#)” section on page 3-1.

NIC Modes and NIC Redundancy Settings

This server has the following NIC mode settings that you can choose from:

- **Dedicated**—The 10/100 dedicated management port is used to access the CIMC. You have to select a NIC redundancy and IP setting.
- **Shared LOM (default)**—The two 1Gb Ethernet ports are used to access the CIMC. This is the factory default setting, along with Active-active NIC redundancy and DHCP enabled.
- **Cisco Card**—The ports on an installed Cisco network adapter card are used to access the CIMC. You have to select a NIC redundancy and IP setting.



Note The Cisco Card NIC mode is currently supported only with a Cisco UCS P81E Virtual Interface Card (N2XX-ACPCI01) that is installed in PCIe slot 6 (see [Figure 3-22 on page 3-36](#)). See also [Special Considerations for the Cisco UCS P81E Virtual Interface Card \(N2XX-ACPCI01\)](#), [page 3-37](#).

This server has the following NIC redundancy settings that you can choose from:

- **None**—The Ethernet ports operate independently and do not fail over if there is a problem.
- **Active-standby**—If an active Ethernet port fails, traffic fails over to a standby port.
- **Active-active**—All Ethernet ports are utilized simultaneously.

System BIOS and CIMC Firmware

This section contains information about the system BIOS and it includes the following sections:

- [Updating the BIOS and CIMC Firmware, page 2-13](#)
- [Accessing the System BIOS, page 2-14](#)

Updating the BIOS and CIMC Firmware



Caution

When you upgrade the BIOS firmware, you must also upgrade the CIMC firmware to the same version or the server will not boot. Do not power down the server until the BIOS and CIMC firmware are matching or the server will not boot.

Cisco provides the Cisco Host Upgrade Utility to assist with simultaneously upgrading the BIOS, CIMC, and other firmware to compatible levels.

The server uses firmware obtained from and certified by Cisco. Cisco provides release notes with each firmware image. There are several methods for updating the firmware:

- **Recommended method for systems running firmware level 1.2 or later:** Use the Cisco Host Upgrade Utility to simultaneously upgrade the CIMC, BIOS, LOM, LSI storage controller, and Cisco UCS P81E VIC firmware to compatible levels.

See the [Cisco Host Upgrade Utility Quick Reference Guide](#) for your firmware level at the documentation roadmap link below.



Note

Your system firmware must be at minimum level 1.2 to use the Cisco Host Upgrade Utility. If your firmware is prior to level 1.2, you must use the methods below to update the BIOS and CIMC firmware individually.

- You can upgrade the BIOS using the EFI interface, or upgrade from a Windows or Linux platform. See the [Cisco UCS C-Series Rack-Mount Server BIOS Upgrade Guide](#).
- You can upgrade the CIMC firmware by using the CIMC GUI interface. See the [Cisco UCS C-Series Rack-Mount Server Configuration Guide](#).
- You can upgrade the CIMC firmware by using the CIMC CLI interface. See the [Cisco UCS C-Series Rack-Mount Server CLI Configuration Guide](#).

For links to the documents listed above, see the documentation roadmap at the following URL:

<http://www.cisco.com/go/unifiedcomputing/c-series-doc>

Accessing the System BIOS

You can change the BIOS settings for your server by using the procedure in this section. Detailed instructions are also printed on the BIOS screens.

Step 1 Enter the BIOS setup utility by pressing the **F2** key when prompted during bootup.



Note The version and build of the current BIOS are displayed on the Main page of the utility.

Step 2 Use the arrow keys to select the BIOS menu page.

Step 3 Highlight the field to be modified by using the arrow keys.

Step 4 Press **Enter** to select the field that you want to change, and then modify the value in the field.

Step 5 Press the right arrow key until the Exit menu screen is displayed.

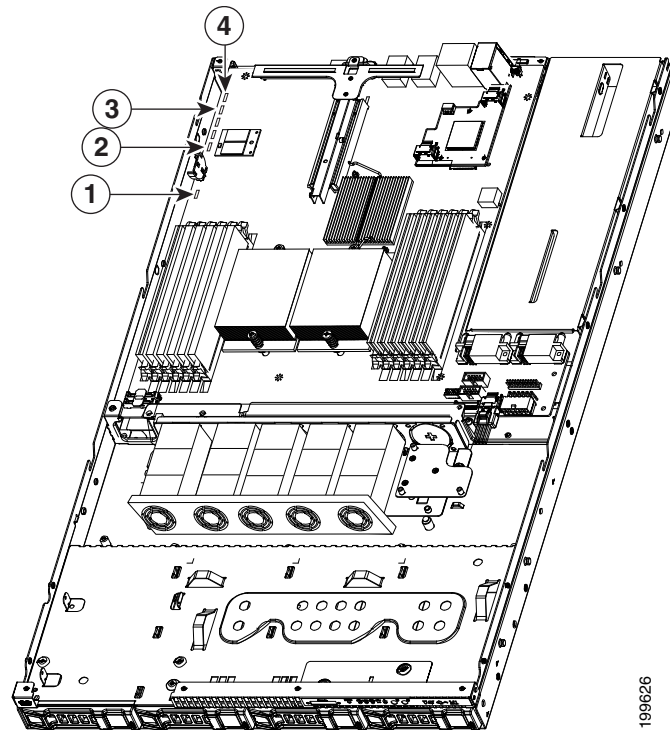
Step 6 Follow the instructions on the Exit menu screen to save your changes and exit the setup utility (or Press **F10**). You can exit without saving changes by pressing **Esc**.

Motherboard Jumpers

These jumpers are adjacent to the CMOS battery (see [Figure 2-6](#)). This section contains the following topics:

- [Using the BIOS Recovery Jumper J1E5 to Recover Corrupt BIOS, page 2-16](#)
- [Clearing the CIMC Admin Password Using Jumper J45, page 2-17](#)
- [Using the Clear CMOS Jumper J1E6, page 2-18](#)
- [Clearing the BIOS Admin Password Using Jumper J1E4, page 2-19](#)

Figure 2-6 Service Jumper Locations



1	Jumper J1E6 (clear CMOS)	3	Jumper J45 (clear CIMC password)
2	Jumper J1E5 (BIOS recovery)	4	Jumper J1E4 (clear BIOS password)

Using the BIOS Recovery Jumper J1E5 to Recover Corrupt BIOS

This jumper is adjacent to the CMOS battery (see [Figure 2-6](#)). You can use this jumper to force the server to flash a new BIOS, in the case of a system hang. For example, if the system hangs after a BIOS update, use this procedure to force the server to look for the new firmware.

-
- Step 1** Download the BIOS update package and extract it to a temporary location.
 - Step 2** Copy the contents of the extracted UEFI folder to the root directory of a USB thumb drive.
 - Step 3** Power off the server as described in the “[Shutting Down and Powering Off the Server](#)” section on [page 3-7](#).
 - Step 4** Disconnect all power cords from the power supplies.
 - Step 5** Slide the server out the front of the rack far enough so that you can remove the top cover. You might have to detach cables from the rear panel to provide clearance.



Caution If you cannot safely view and access the component, remove the server from the rack.

- Step 6** Remove the top cover as described in the “[Removing and Replacing the Server Top Cover](#)” section on [page 3-9](#).
- Step 7** Move the shorting jumper to pins 2 and 3 of the J1E5 header (see [Figure 2-6 on page 2-15](#)).
- Step 8** Reinstall the top cover and reconnect AC power cords to the server. The server powers up to standby power mode, indicated when the Power LED on the front panel is amber.
- Step 9** Insert the USB thumb drive into a USB port on the server.
- Step 10** Return the server to main power mode by pressing the **Power** button on the front panel. The server is in main power mode when the Power LED is green.



Note You must allow the entire server to reboot to main power mode to complete the recovery. This is because the state of the J1E5 jumper cannot be determined without the host CPU running. The server automatically boots into the UEFI shell and updates the BIOS from the USB thumb drive.

- Step 11** Wait for server to complete the BIOS update, then remove the USB thumb drive from the server.
- Step 12** Press the **Power** button to shut down the server to standby power mode, and then remove AC power cords from the server to remove all power.
- Step 13** Remove the top cover from the server.
- Step 14** Move the shorting jumper from header pins 2 and 3, back to its default position on pins 1 and 2.



Note If you do not move the jumper, the server forces a recovery of the new BIOS every time that you power cycle the server.

- Step 15** Replace the top cover, replace the server in the rack, replace power cords and any other cables, then power on the server by pressing the **Power** button.
-

Clearing the CIMC Admin Password Using Jumper J45

This procedure describes how to clear the CIMC admin password back to the default in case the user-selected password is lost or forgotten.

-
- Step 1** Power off the server as described in the “[Shutting Down and Powering Off the Server](#)” section on [page 3-7](#).
- Step 2** Disconnect all power cords from the power supplies.
- Step 3** Slide the server out the front of the rack far enough so that you can remove the top cover. You might have to detach cables from the rear panel to provide clearance.



Caution If you cannot safely view and access the component, remove the server from the rack.

- Step 4** Remove the top cover as described in the “[Removing and Replacing the Server Top Cover](#)” section on [page 3-9](#).
- Step 5** Move the shorting jumper to pins 2 and 3 of the J45 header (see [Figure 2-6 on page 2-15](#)).
- Step 6** Reinstall the top cover and reconnect AC power cords to the server. The server powers up to standby power mode, indicated when the Power LED on the front panel is amber.
- Step 7** Return the server to main power mode by pressing the **Power** button on the front panel. The server is in main power mode when the Power LED is green.



Note You must allow the entire server to reboot to main power mode to complete the password reset. This is because the state of the J45 jumper cannot be determined without the host CPU running. The password is then cleared.

- Step 8** Press the **Power** button to shut down the server to standby power mode, and then remove AC power cords from the server to remove all power.
- Step 9** Remove the top cover from the server.
- Step 10** Remove the shorting jumper from the header pins.



Note If you do not remove the jumper, the password is cleared every time that you power-cycle the server.

- Step 11** Replace the top cover, replace the server in the rack, replace power cords and any other cables, then power on the server by pressing the **Power** button.
-

Using the Clear CMOS Jumper J1E6

You can use this jumper to clear the server's CMOS settings in the case of a system hang. For example, if the server hangs because of incorrect settings and does not boot, use this jumper to invalidate the settings and reboot with defaults.

-
- Step 1** Power off the server as described in the “[Shutting Down and Powering Off the Server](#)” section on [page 3-7](#).
- Step 2** Disconnect all power cords from the power supplies.
- Step 3** Slide the server out the front of the rack far enough so that you can remove the top cover. You might have to detach cables from the rear panel to provide clearance.



Caution If you cannot safely view and access the component, remove the server from the rack.

- Step 4** Remove the top cover as described in the “[Removing and Replacing the Server Top Cover](#)” section on [page 3-9](#).
- Step 5** Move the shorting jumper to pins 2 and 3 of the J1E6 header (see [Figure 2-6 on page 2-15](#)).
- Step 6** Reinstall the top cover and reconnect AC power cords to the server. The server powers up to standby power mode, indicated when the Power LED on the front panel is amber.
- Step 7** Return the server to main power mode by pressing the **Power** button on the front panel. The server is in main power mode when the Power LED is green.



Note You must allow the entire server, not just the service processor, to reboot to main power mode to complete the reset. This is because the state of the J1E6 jumper cannot be determined without the host CPU running.

- Step 8** Press the **Power** button to shut down the server to standby power mode, and then remove AC power cords from the server to remove all power.
- Step 9** Remove the top cover from the server.
- Step 10** Remove the shorting jumper from the J1E6 header pins.



Note If you do not remove the J1E6 jumper, the CMOS settings are reset to the default every time that you power-cycle the server.

- Step 11** Replace the top cover, replace the server in the rack, replace power cords and any other cables, then power on the server by pressing the **Power** button.
-

Clearing the BIOS Admin Password Using Jumper J1E4

This procedure describes how to clear the BIOS admin password for the BIOS back to the default in case the user-selected password is lost or forgotten.

-
- Step 1** Power off the server as described in the “[Shutting Down and Powering Off the Server](#)” section on [page 3-7](#).
- Step 2** Disconnect all power cords from the power supplies.
- Step 3** Slide the server out the front of the rack far enough so that you can remove the top cover. You might have to detach cables from the rear panel to provide clearance.



Caution If you cannot safely view and access the component, remove the server from the rack.

- Step 4** Remove the top cover as described in the “[Removing and Replacing the Server Top Cover](#)” section on [page 3-9](#).
- Step 5** Move the shorting jumper to pins 2 and 3 of the J1E4 header (see [Figure 2-6 on page 2-15](#)).
- Step 6** Reinstall the top cover and reconnect AC power cords to the server. The server powers up to standby power mode, indicated when the Power LED on the front panel is amber.
- Step 7** Return the server to main power mode by pressing the **Power** button on the front panel. The server is in main power mode when the Power LED is green.



Note You must allow the entire server to reboot to main power mode to complete the password reset. This is because the state of the jumper cannot be determined without the host CPU running. The password is then cleared.

- Step 8** Press the **Power** button to shut down the server to standby power mode, and then remove AC power cords from the server to remove all power.
- Step 9** Remove the top cover from the server.
- Step 10** Remove the shorting jumper from the header pins.



Note If you do not remove the jumper, the password is cleared every time that you power-cycle the server.

- Step 11** Replace top cover, replace the server in the rack, replace power cords and any other cables, then power on the server by pressing the **Power** button.
-



CHAPTER 3

Maintaining the Server

This chapter describes how to diagnose hardware problems with status LEDs and how to install or replace hardware components, and includes the following sections:

- [Server Monitoring and Management Tools, page 3-1](#)
- [Status LEDs, page 3-2](#)
- [Preparing for Component Installation, page 3-7](#)
- [Installing or Replacing Components, page 3-13](#)

Server Monitoring and Management Tools

Cisco Integrated Management Interface (CIMC)

You can monitor the server inventory, health, and system event logs by using the built-in Cisco Integrated Management Controller (CIMC) GUI or CLI interfaces. See the user documentation for your firmware release at the following URL:

http://www.cisco.com/en/US/products/ps10739/products_installation_and_configuration_guides_list.html

Server Configuration Utility

Cisco has also developed the Cisco Server Configuration Utility for C-Series servers, which can aid and simplify the following tasks:

- Monitoring server inventory and health
- Diagnosing common server problems with diagnostic tools and logs
- Setting the BIOS booting order
- Configuring some RAID configurations
- Installing operating systems

This utility is shipped with new servers on CD. You can also download the ISO from Cisco.com. See the user documentation for this utility at the following URL:

http://www.cisco.com/en/US/docs/unified_computing/ucs/sw/ucsscu/user/guide/20/SCUUG20.html

Status LEDs

This section describes the locations and interpretations of LEDs on the server that can provide status and troubleshooting information. This section includes the following topics:

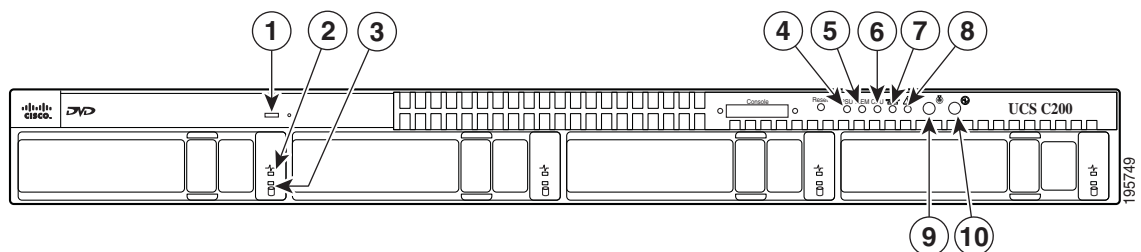
- [Front Panel LEDs, page 3-2](#)
- [Rear Panel LEDs, page 3-4](#)

Front Panel LEDs

The front panel LEDs and their locations differ, depending on whether you have the Large Form Factor (LFF) or the Small Form Factor (SFF) version of the server.

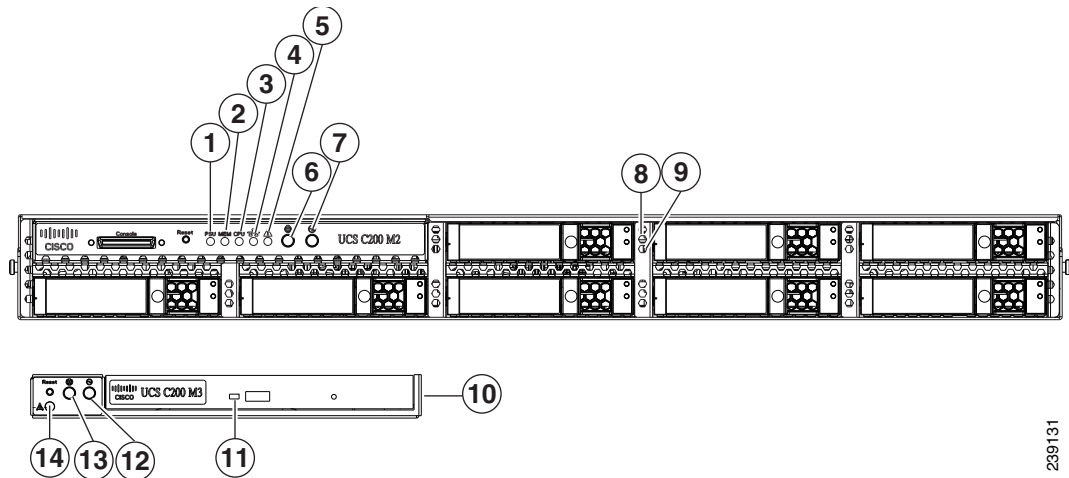
- [Figure 3-1](#) shows the names and locations of the LFF front panel LEDs.
- [Figure 3-2 on page 3-3](#) shows the names and locations of the SFF front panel LEDs. The optional DVD module that can be substituted for the default front control panel module is also shown.
- [Table 3-1 on page 3-3](#) describes the possible states and the interpretations of the LEDs, which are the same for the LFF and the SFF versions of the server.

Figure 3-1 Front Panel LEDs (Large Form Factor)



1	DVD activity LED	6	CPU fault LED
2	Hard drive fault LED	7	Network activity LED
3	Hard drive activity LED	8	System fault LED
4	Power supply fault LED	9	Locator LED/Locator button
5	Memory fault LED	10	Power status LED/Power button

Figure 3-2 Front Panel LEDs (Small Form Factor)



239131

1	Power supply fault LED	8	Hard drive fault LED
2	Memory fault LEDs	9	Hard drive activity LED
3	CPU fault LED	10	Optional DVD module
4	Network activity LED	11	DVD activity LED
5	System fault LED	12	Power status LED/Power button
6	Locator LED/Locator button	13	Locator LED/Locator button
7	Power status LED/Power button	14	System fault LED

Table 3-1 describes the possible states and interpretations for the LEDs that are shown in Figure 3-1.

Table 3-1 Front Panel LEDs

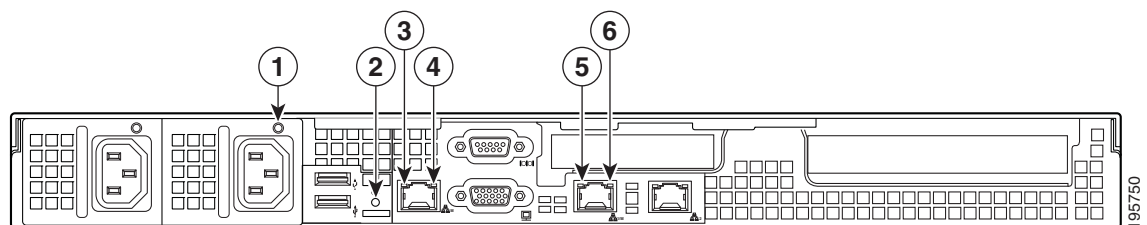
LED Name	State
DVD activity	<ul style="list-style-type: none"> Off—The DVD drive is not in use. Green, blinking—The DVD drive is reading or writing data.
Hard drive fault	<ul style="list-style-type: none"> Off—The hard drive is operating properly. Amber—This hard drive has failed.
Hard drive activity	<ul style="list-style-type: none"> Off—There is no hard drive in the hard drive sled. Green—The hard drive is ready. Green, blinking—The hard drive is reading or writing data.
Power supply fault	<ul style="list-style-type: none"> Off—All power supplies are operating properly. Amber—At least one power supply has failed.
Memory fault	<ul style="list-style-type: none"> Off—All DIMMs are operating properly. Amber—At least one memory bank has a failed DIMM.

Table 3-1 Front Panel LEDs (continued)

LED Name	State
CPU fault	<ul style="list-style-type: none"> Off—All CPUs are operating properly. Amber—At least one CPU has failed.
Network activity	<ul style="list-style-type: none"> Off—The server is powered off or in standby power mode. Green, blinking—The server is communicating with the network in main power mode. The blink rate is faster as network activity increases.
System fault	<ul style="list-style-type: none"> Green—The server is operating properly. Amber, blinking—An event that requires a service action has been detected. Investigate other LEDs and check logs to isolate the problem.
Locator	<ul style="list-style-type: none"> Off—The Locator LED is not in use. Blue, flashing—The Locator LED/button was pressed and the Locator LED flashes on the front and rear panels to help you find the server in a rack.
Power status	<ul style="list-style-type: none"> Off—No AC power is present. Green, blinking—The server is in standby power mode. Green—The server is in main power mode. <p>See the “Connecting and Powering On the Server (Standalone Mode)” section on page 2-9 for definitions of these power modes.</p>

Rear Panel LEDs

Figure 3-3 shows the names and locations of the rear panel LEDs. A Generation M2 server is shown (the USB ports and the 10/100 Ethernet management port are in slightly different positions for Generation M1). See Table 3-2 on page 3-5 for the interpretations of the LED states.

Figure 3-3 Rear Panel LEDs

1	Power supply status LED	4	10/100 Ethernet link status LED
2	Rear Locator LED	5	10/100/1000 Gigabit Ethernet speed LED
3	10/100 Ethernet speed LED	6	10/100/1000 Gigabit Ethernet link status LED

Table 3-2 describes the possible states and interpretations for the LEDs that are shown in Figure 3-3.

Table 3-2 Rear Panel LEDs

LED Name	State
Power supply status	<ul style="list-style-type: none"> • Off—No AC power is present in any power supplies. • Green—This power supply is operating properly in main power mode. • Green, blinking—This power supply is operating properly in standby power mode. • Amber, flashing—There is no AC power present in this power supply. • Amber and Green, blinking—This power supply has reached a Warning over-temperature condition: 176 °F (80 °C). The power supply auto-recovers from this condition when the temperature is within specification again: 167 °F (75 °C) • Amber—This power supply has failed. This could be because the power supply has reached a Critical Shutdown over-temperature condition: 194 °F (90 °C). The power supply auto-recovers from this condition when the temperature is within specification again: 167 °F (75 °C). <p>See the “Connecting and Powering On the Server (Standalone Mode)” section on page 2-9 for definitions of these power modes.</p>
Locator	<ul style="list-style-type: none"> • Off—The Locator LED is not in use. • Blue, flashing—The Locator LED button on the front panel was pressed and the Locator LED flashes on the front and rear panels to help you find the server in a rack.




Note

The 10/100 Ethernet link status LED and the speed LED must be read in combination for the following interpretations.

10/100 Ethernet speed (left)	<ul style="list-style-type: none"> • Link status off + speed off—No link is present on this port.
10/100 Ethernet link status (right)	<ul style="list-style-type: none"> • Link status off + speed solid green—A half-duplex, 10-Mbps link is present. • Link status amber + speed solid green—A half-duplex, 100-Mbps link is present. • Link status off + speed blinking green—A full-duplex, 10-Mbps link is present. • Link status amber + speed blinking green—A full-duplex, 100-Mbps link is present.

Table 3-2 Rear Panel LEDs (continued)

LED Name	State
 <p>Note</p>	<p>The 10/100/1000 Gigabit Ethernet link status LED and the speed LED must be read in combination for the following interpretations.</p>
<p>10/100/1000 Gigabit Ethernet speed (left) 10/100/1000 Gigabit Ethernet link status (right)</p>	<ul style="list-style-type: none"> • Link status off + speed off—No link is present on this port. • Link status off + speed solid green—A half-duplex, 10-Mbps link is present. • Link status green + speed solid green—A half-duplex, 100-Mbps link is present. • Link status amber + speed solid green—A half-duplex, 1000-Mbps link is present. • Link status off + speed blinking green—A full-duplex, 10-Mbps link is present. • Link status green + speed blinking green—A full-duplex, 100-Mbps link is present. • Link status amber + speed blinking green—A full-duplex, 1000-Mbps link is present.

Preparing for Component Installation

This section describes how to prepare the server for component installation and includes the following topics:

- [Required Equipment, page 3-7](#)
- [Shutting Down and Powering Off the Server, page 3-7](#)
- [Removing and Replacing the Server in a Rack, page 3-8](#)
- [Removing and Replacing the Server Top Cover, page 3-9](#)
- [Removing and Replacing the Server Front Cover \(Small Form Factor Only\), page 3-10](#)
- [Replaceable Component Locations, page 3-11](#)



Warning

Only trained and qualified personnel must be allowed to install, replace, or service this equipment. Statement 1030



Warning

This unit might have more than one power cord. To reduce the risk of electric shock, disconnect the two power supply cords before servicing the unit. Statement 14

Required Equipment

The following items are used to perform the procedures in this chapter:

- Number 2 Phillips-head screwdriver
- Needle-nose pliers
- Electrostatic discharge (ESD) strap or other grounding equipment such as a grounded mat.

Shutting Down and Powering Off the Server



Tip

If you have ordered a server with power supply redundancy (at least two power supplies), you do not have to power off the server to replace a power supply because they are redundant and hot-pluggable. The server hard drives are also hot-pluggable.

The server can run in two power modes:

- **Main power mode**—Power is supplied to all server components and any operating system on your hard drives can run.
- **Standby power mode**—Power is supplied only to the service processor and the cooling fans and it is safe to power off the server from this mode.

You can invoke a graceful shutdown or an emergency shutdown (hard shutdown) by using either of the following methods:

- Use the CIMC management interface. See either the *Cisco UCS C-Series Rack-Mount Server Configuration Guide* or the *Cisco UCS C-Series Rack-Mount Server CLI Configuration Guide*.
- Use the **Power** button on the server front panel. To use the **Power** button, follow these steps:

- Step 1** Check the color of the Power Status LED (see the “Front Panel LEDs” section on page 3-2).
- Green indicates that the server is in main power mode and must be shut down before it can be safely powered off. Go to [Step 2](#).
 - Amber indicates that the server is already in standby mode and can be safely powered off. Go to [Step 3](#).

Step 2 Invoke either a graceful shutdown or a hard shutdown:



Caution

To avoid data loss or damage to your operating system, you should always invoke a graceful shutdown of the operating system.

- Graceful shutdown—Press and release the **Power** button. The operating system will perform a graceful shutdown and the server goes to standby mode, which is indicated by an amber Power Status LED.
- Emergency shutdown—Press and hold the **Power** button for 4 seconds to force the main power off and immediately enter standby mode.

Step 3 Disconnect the power cords from the power supplies in your server to completely power off the server.

Removing and Replacing the Server in a Rack

To remove or replace the server in a rack, follow these steps:



Tip

You do not have to remove the server from the rack if you can slide it forward enough to remove the top cover and safely view and access the internal components. Always disconnect all power cords before removing the top cover.

Step 1 Remove a server from a rack:

- Disconnect all cables from the server. You can leave the cables routed through the CMA.
- Loosen the two captive thumbscrews that secure the front of the server to each rack post.
- Pull the server out of the front of the rack until the slide rails stop against the internal lock.
- Press the removal release clip on each slide rail (see [Figure 2-4 on page 2-7](#)), and then continue pulling the server out evenly until it clears the slide rails.

Step 2 Replace a server in a rack:

- Align the mounting brackets that are attached to the server sides with the front of the empty slide rails.
- Push the server into the slide rails until they stop against the internal stops.
- Press the installation release clip on each slide rail (see [Figure 2-4 on page 2-7](#)), and then continue pushing the server in evenly until its front flanges touch the rack posts.
- Tighten the thumbscrews on each flange to secure the server to the rack posts.

Removing and Replacing the Server Top Cover

To remove or replace the server top cover, follow these steps:

 **Warning**

This unit might have more than one power cord. To reduce the risk of electric shock, disconnect the two power supply cords before servicing the unit. Statement 14

 **Tip**

You do not have to remove the cover to replace hard drives or power supplies.

Step 1 Remove the top cover:

- a. Use a Number 2 Phillips head screwdriver to remove the two screws that secure the top cover (Generation M1 only).



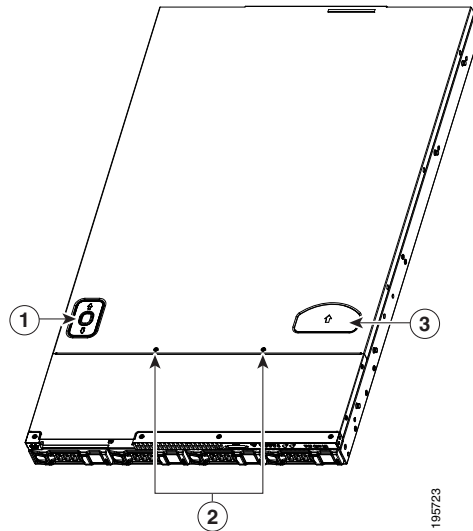
Note The UCS C200 Generation M2 server does not have cover screws.

- b. Press down on the release button and use the nonslip pad to push the cover toward the rear about one inch, until you feel it stop sliding.
- c. Lift the cover from the server and set it aside.

Step 2 Replace the top cover:

- a. Set the cover in place about one inch back from the fully closed position. Use the three alignment pegs on each inside edge of the cover to align with the alignment notches on the chassis.
- b. Push the cover toward the server front until the release button clicks.
- c. Replace the two screws that secure the cover in place (Generation M1 only).

Figure 3-4 Removing the Top Cover of the Server



1	Release button	3	Nonslip pad
2	Securing screws (Generation M1 only)		

Removing and Replacing the Server Front Cover (Small Form Factor Only)



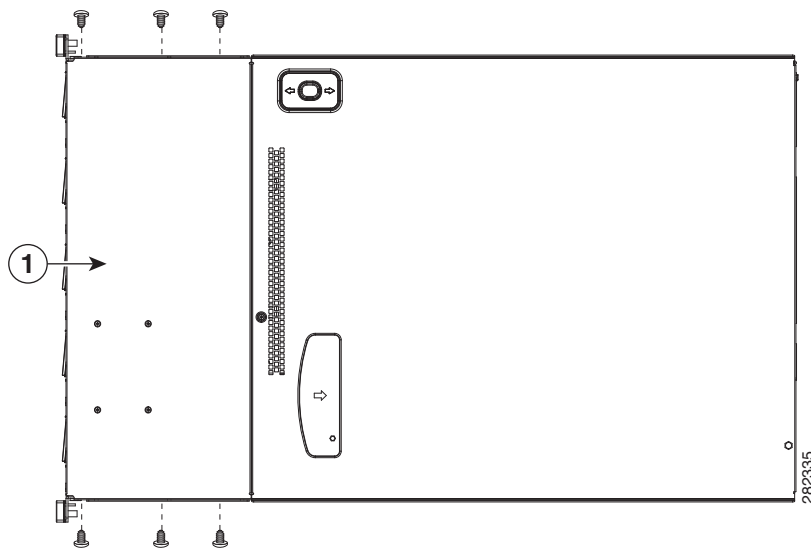
Note

It is not necessary to remove the front cover unless instructed to do so in a replacement procedure.

To remove or replace the front cover of the SFF version of the server (PID UCSC-BSE-SFF-C200), follow these steps:

- Step 1** Remove a front cover:
- a. Remove the server top cover, as described in [Removing and Replacing the Server Top Cover, page 3-9](#).
 - b. Use a Number 2 Phillips-head screwdriver to remove the 10 screws that secure the front cover. There are four screws on the upper surface and three screws on each side of the front cover (see [Figure 3-5](#)).
 - c. Lift the front cover straight up off of the chassis.
- Step 2** Replace a front cover:
- a. Set the front cover back in place, aligning the screw holes in the cover with those in the chassis.
 - b. Replace the 10 securing screws.
 - c. Replace the top cover as described in [Removing and Replacing the Server Top Cover, page 3-9](#).

Figure 3-5 Removing the Front Cover of the Server



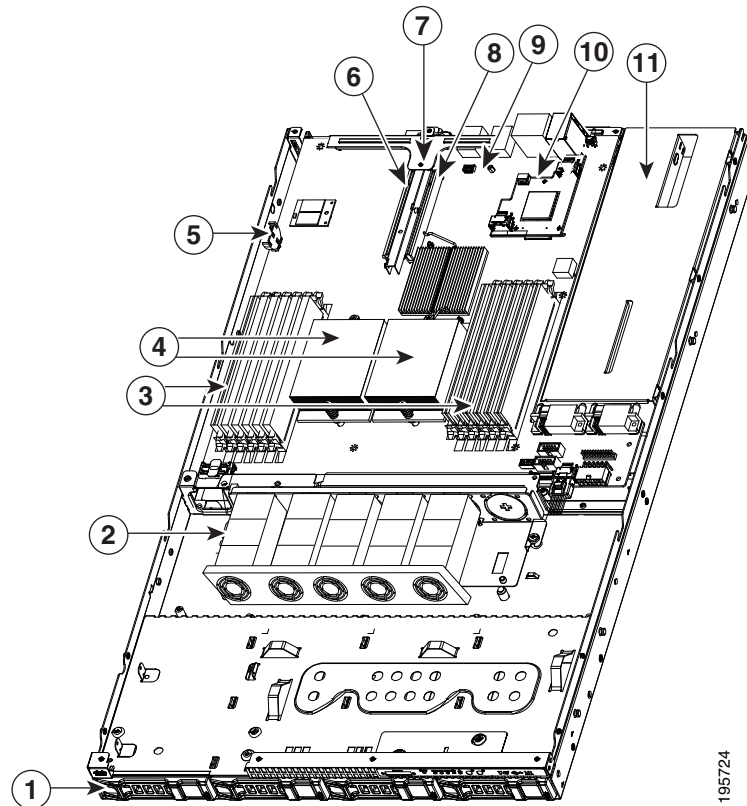
1	Front cover, with 4 screws on the upper surface and 3 screws on each side	
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Replaceable Component Locations

This section shows the locations of the components that are discussed in this chapter. The view shown is from the top down, with the top cover, internal cable cover, and internal air baffles removed.

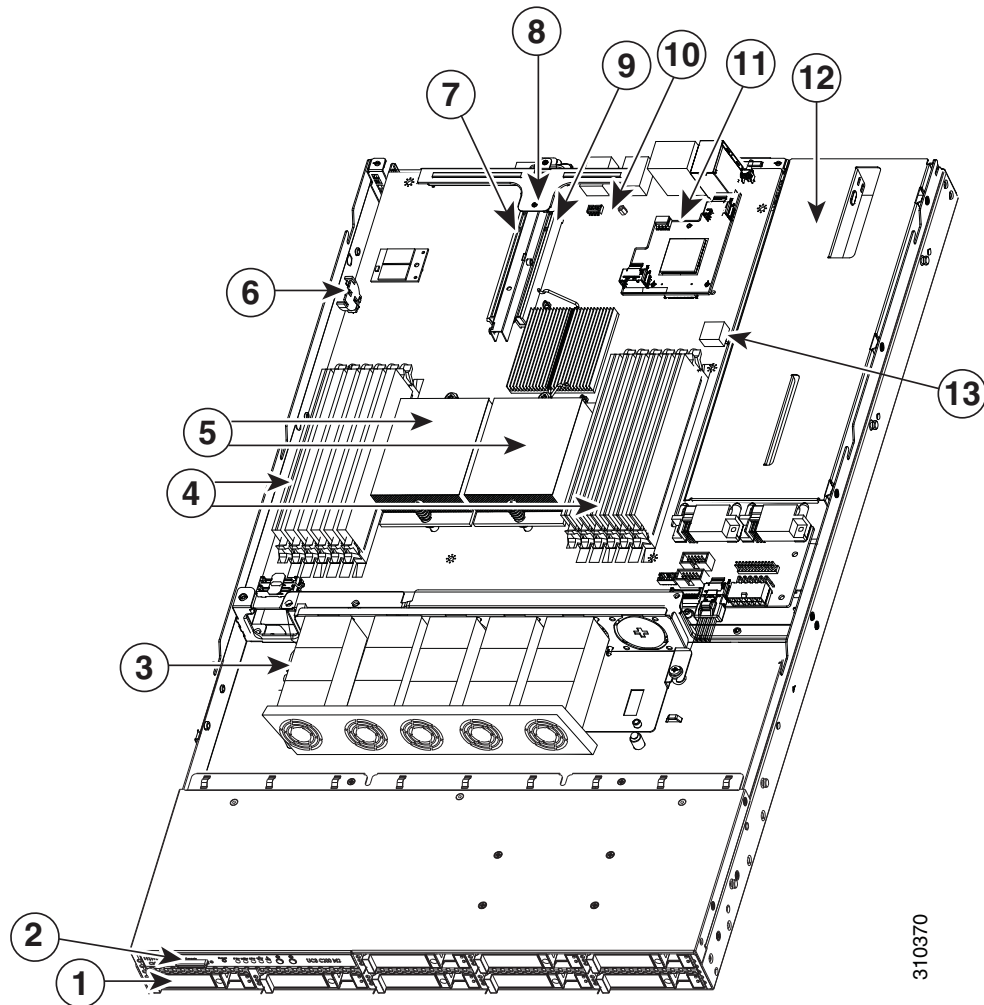
- [Figure 3-6](#) shows the Large Form Factor (LFF) version of the server.
- [Figure 3-7 on page 3-12](#) shows the Small Form Factor (SFF) version of the server.

Figure 3-6 Replaceable Component Locations, Large Form Factor (Top View)



1	Hard drives (up to four, accessible through front bays)	7	Riser card assembly
2	Fan tray	8	PCIe card connector on riser card (with low-profile slot)
3	DIMM slots (up to 12)	9	Socket for trusted platform module (TPM)
4	CPUs and heatsinks (up to two)	10	Socket for mezzanine card
5	Motherboard CMOS battery	11	Power supplies (up to two, accessible through rear bays)
6	PCIe card connector on riser card (with standard-profile slot)		

Figure 3-7 Replaceable Component Locations, Small Form Factor (Top View)



1	Hard drives (up to eight, accessible through front bays)	7	PCIe card connector on riser card (with standard-profile slot)
2	Front panel control module or optional DVD module	8	Riser card assembly
3	Fan tray	9	PCIe card connector on riser card (with low-profile slot)
4	DIMM slots (up to 12)	10	Socket for trusted platform module (TPM)
5	CPUs and heatsinks (up to two)	11	Socket for mezzanine card
6	Motherboard CMOS battery	12	Power supplies (up to two, accessible through rear bays)
		13	Internal USB port on motherboard (active in server Generation M2 only)

Installing or Replacing Components



Warning

This unit might have more than one power cord. To reduce the risk of electric shock, disconnect the two power supply cords before servicing the unit.

Statement 14



Warning

Blank faceplates and cover panels serve three important functions: they prevent exposure to hazardous voltages and currents inside the chassis; they contain electromagnetic interference (EMI) that might disrupt other equipment; and they direct the flow of cooling air through the chassis. Do not operate the system unless all cards, faceplates, front covers, and rear covers are in place.

Statement 1029



Warning

Class 1 laser product.

Statement 1008



Caution

When handling server components, wear an ESD strap to avoid damage.



Tip

You can press the Locator button on the front panel to turn on a flashing Locator LED on the server front and rear panels. This button helps you to locate the specific server that you are servicing when you go to the rear of the rack. See the [“Status LEDs” section on page 3-2](#) for locations of the LEDs.

This section describes how to remove and replace server components. This section includes the following topics:

- [Replacing a Front Panel Control Module or DVD Module \(Small Form Factor Only\), page 3-14](#)
- [Installing Hard Drives or Solid State Drives, page 3-17](#)
- [Installing Power Supplies, page 3-20](#)
- [Installing a Fan Tray, page 3-21](#)
- [Installing DIMMs, page 3-23](#)
- [Installing CPUs and Heatsinks, page 3-28](#)
- [Installing a Motherboard CMOS Battery, page 3-30](#)
- [Installing a Trusted Platform Module, page 3-31](#)
- [Replacing a PCIe Riser Card Assembly, page 3-33](#)
- [Replacing a PCIe Card, page 3-34](#)
- [Replacing an LSI MegaRAID Battery Backup Unit, page 3-40](#)
- [Installing a Mezzanine Card, page 3-45](#)

Replacing a Front Panel Control Module or DVD Module (Small Form Factor Only)

The Small Form Factor version of the server (PID UCSC-BSE-SFF-C200) can contain a replaceable front panel control module or an optional DVD module in its place. This section describes how to replace a front panel control module or a DVD module.

The qualified and supported part numbers for this component are subject to change over time. For the most up-to-date list of replaceable components, see the following URL and then scroll to *Technical Specifications*:

http://www.cisco.com/en/US/products/ps10493/products_data_sheets_list.html

To replace or install a front panel control module or DVD module, follow these steps:

-
- Step 1** Remove a module (see [Figure 3-8](#)):
- Power off the server as described in the “[Shutting Down and Powering Off the Server](#)” section on [page 3-7](#).
 - Disconnect all power cords from the power supplies.
 - Slide the server out the front of the rack far enough so that you can remove the top cover and front cover. You might have to detach cables from the rear panel to provide clearance.



Caution If you cannot safely view and access the component, remove the server from the rack.

- Remove the top cover as described in the “[Removing and Replacing the Server Top Cover](#)” section on [page 3-9](#).
- Remove the front cover as described in the “[Removing and Replacing the Server Front Cover \(Small Form Factor Only\)](#)” section on [page 10](#).
- Disconnect the two cable harnesses from the connectors on the module.
- Remove the single retaining screw that secures the module to the chassis.
- Slide the module toward the server front about 0.25-inches (6 mm) until the three keyed holes in the bottom of the module free from the three pegs on the chassis.
- Lift the module straight up and out of the chassis.

- Step 2** Replace a module (see [Figure 3-8](#) and [Figure 3-9](#)):
- Set the new module in the chassis, aligning the three keyed holes in the bottom of the module with the three pegs on the chassis.
 - Slide the module toward the chassis rear about 0.25-inches (6 mm), until the three keyed holes lock onto the three chassis pegs.
 - Install the single retaining screw that secures the module to the chassis.
 - Reconnect the two cable harnesses to the connectors on the module.



Note The cabling connections and routing differ for the two types of modules. If you are replacing one type of module with another, you must replace the cables and their connection to the motherboard. See [Figure 3-9](#).

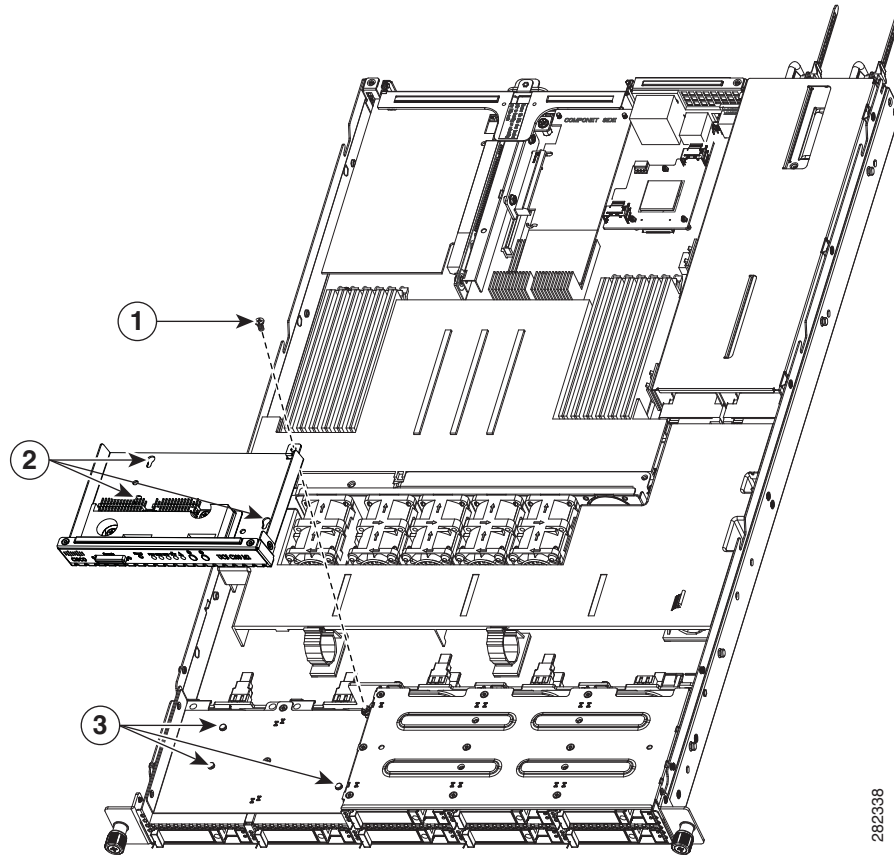
- Replace the front cover as described in the “[Removing and Replacing the Server Front Cover \(Small Form Factor Only\)](#)” section on [page 10](#).



Note The rear edge of the front cover should go under the black plastic cable cover.

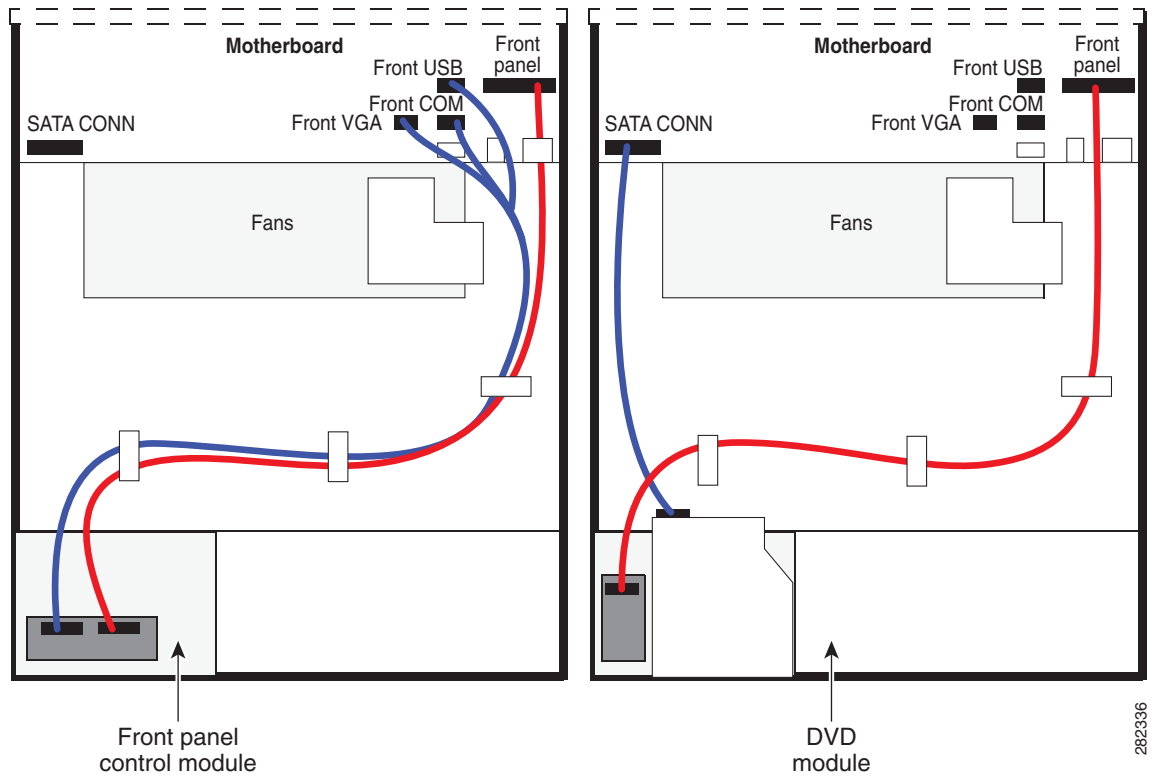
- f. Replace the top cover as described in the “[Removing and Replacing the Server Top Cover](#)” section on page 3-9.
- g. Replace the server in the rack, replace power cords and any other cables, and then power on the server by pressing the **Power** button.

Figure 3-8 Removing and Replacing a Front Panel Control Module or DVD Module



1	Securing screw	3	Securing pegs on chassis (three)
2	Keyed holes on module (three)		

Figure 3-9 Alternate Front Panel Module Cable Routing



1	Securing screw (one on each end)	3	Fan tray connector
2	Fan tray with battery unit bracket		

Installing Hard Drives or Solid State Drives

The qualified and supported part numbers for this component are subject to change over time. For the most up-to-date list of replaceable components, see the following URL and then scroll to *Technical Specifications*:
http://www.cisco.com/en/US/products/ps10493/products_data_sheets_list.html

**Tip**

You do not have to shut down or power off the server to replace hard drives because they are hot pluggable.

**Note**

You can mix hard drives and solid state drives (SSDs) in the same server. However, You cannot configure a logical volume (virtual drive) that contains a mix of hard drives and SSDs. That is, when you create a logical volume, it must contain all hard drives or all SSDs.

**Note**

If you need to make changes to your RAID configuration after installing a hard drive, use the LSI configuration utility for your mass storage device. See [RAID Controller Considerations, page C-1](#) for more information.

**Note**

Cisco recommends following the industry-standard practice of using drives of the same capacity when configuring RAID volumes. If you use drives of different capacities, the usable portion of the smallest drive will be used on all drives of the RAID volume.

**Note**

The 500 GB SATA drive (A03-D500GC3) and the 1 TB SATA drive (A03-D1TBSATA) that are sold with the UCS C200 M2 SFF server are supported at full 6G speeds.

To replace or install a hot-pluggable hard drive, follow these steps:

Step 1

Remove the hard drive that you are replacing or remove a blank panel from an empty bay (see [Figure 3-11](#) or [Figure 3-13](#)):

- a. Press the release button to expose the ejector lever.
- b. Pull the ejector lever toward you, and then pull the hard drive sled from the drive bay.
- c. If you are replacing an existing hard drive, remove the hard drive from the sled by removing the four securing screws:
 - If you have the LFF version of the server with 3.5-in drives, the four screws are on the bottom of the sled.
 - If you have the SFF version of the server with 2.5-in drives, there are two screws on each side of the sled.

Step 2

Install a new hard drive (see [Figure 3-11](#) or [Figure 3-13](#)):

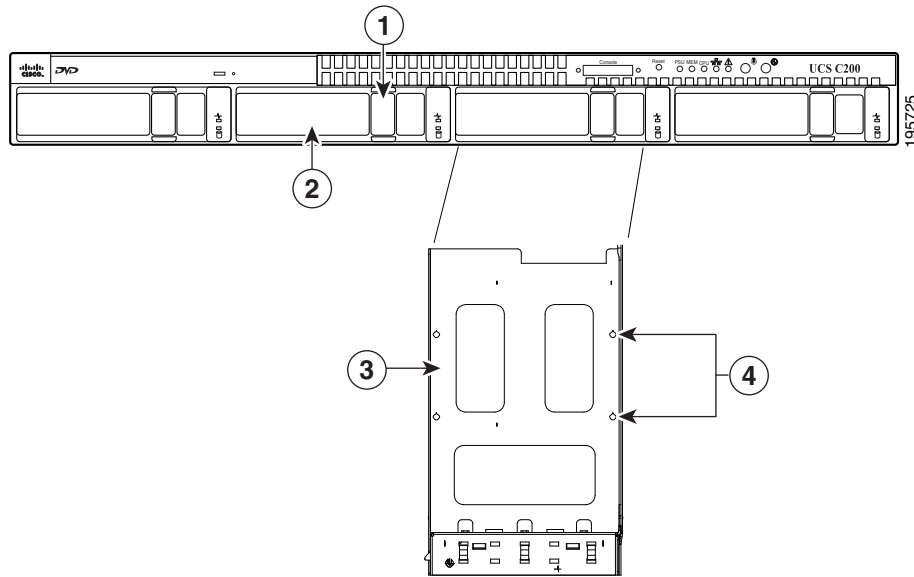
- a. Place the hard drive in the sled with the connectors facing the rear.
- b. Install the four securing screws on the sled.

- If you have the LFF version of the server with 3.5-in drives, the four screws install on the bottom of the sled.
 - If you have the SFF version of the server with 2.5-in drives, two screws install on each side of the sled.
- c. With the ejector lever still open, push the sled into the drive bay until you feel the drive stop against the backplane.
 - d. Press the ejector lever flat until the lock clicks into place.

Figure 3-10 Drive Numbering and Physical Orientation, Facing Server Front (Large Form Factor)

HDD_01	HDD_02	HDD_03	HDD_04
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Figure 3-11 Removing and Replacing Hard Drives (Large Form Factor)

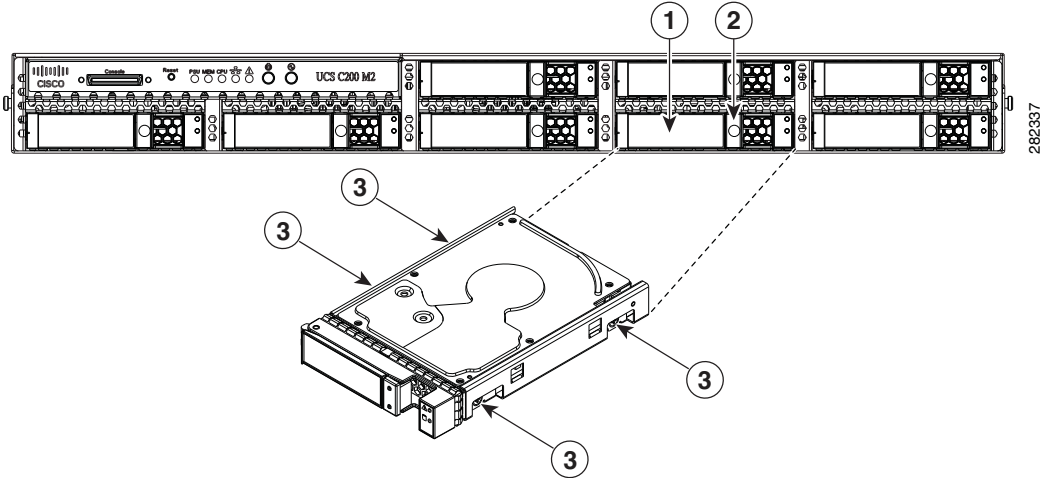


1	Release button	3	Hard drive sled, bottom view
2	Ejector lever	4	Securing screws (four)

Figure 3-12 Drive Numbering and Physical Orientation, Facing Server Front (Small Form Factor)

		HDD_01	HDD_02	HDD_03
HDD_04	HDD_05	HDD_06	HDD_07	HDD_08

Figure 3-13 Removing and Replacing Hard Drives (Small Form Factor)



1	Ejector lever	3	Securing screws (four)
2	Release button		

Installing Power Supplies

The qualified and supported part numbers for this component are subject to change over time. For the most up-to-date list of replaceable components, see the following URL and then scroll to *Technical Specifications*:

http://www.cisco.com/en/US/products/ps10493/products_data_sheets_list.html

To replace or install a power supply, follow these steps:

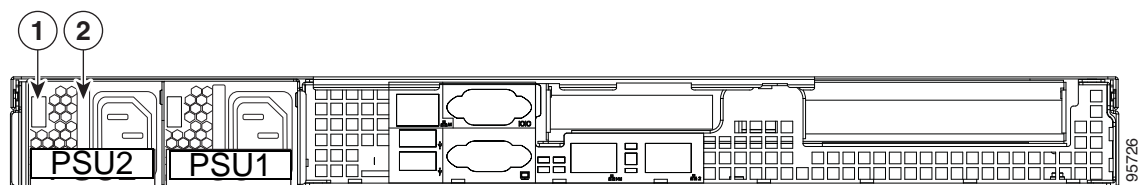


Note

If you have ordered a server with power supply redundancy (at least two power supplies), you do not have to power off the server to replace a power supply because they are hot pluggable.

- Step 1** Remove a power supply or a blanking panel from an empty bay:
- a. Do one of the following actions:
 - If your server has only one power supply, shut down and power off the server as described in the “[Shutting Down and Powering Off the Server](#)” section on page 3-7.
 - If your server has two power supplies, the power supplies are hot pluggable so you do not have to shut down the server.
 - b. Remove the power cord from the power supply that you are replacing.
 - c. Push the release lever toward the center of the power supply or blanking panel and pull on the handle to disengage the supply from the backplane (see [Figure 3-14](#)).
 - d. Remove the power supply from the bay.
- Step 2** Install a new power supply:
- a. Insert the new power supply into the bay and push it inward until the release lever clicks and locks.
 - b. Replace the power cord to the new power supply.
 - c. Press the **Power** button to return the server to main power mode.

Figure 3-14 Removing and Replacing a Power Supply



1	Release lever	2	Power supply handle
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Installing a Fan Tray

The qualified and supported part numbers for this component are subject to change over time. For the most up-to-date list of replaceable components, see the following URL and then scroll to *Technical Specifications*:

http://www.cisco.com/en/US/products/ps10493/products_data_sheets_list.html

To replace a fan tray, follow these steps:

Step 1 Remove a fan tray:

- a. Power off the server as described in the “[Shutting Down and Powering Off the Server](#)” section on [page 3-7](#).
- b. Disconnect all power cords from the power supplies.
- c. Slide the server out the front of the rack far enough so that you can remove the top cover. You might have to detach cables from the rear panel to provide clearance.



Caution If you cannot safely view and access the component, remove the server from the rack.

- d. Remove the top cover as described in the “[Removing and Replacing the Server Top Cover](#)” section on [page 3-9](#).
- e. Remove the cable cover that sits over the fan tray and set it aside.



Note If your server has an optional LSI battery-backup unit (BBU) mounted to the fan tray, you must remove the BBU. Remove the three screws that secure the BBU to the bracket on the fan tray and set the BBU aside. See the “[Replacing an LSI MegaRAID Battery Backup Unit](#)” section on [page 3-40](#) for more information.

- f. Remove the three screws that hold the battery unit bracket to the fan tray and then remove the battery unit bracket to provide clearance to the cable harness (see [Figure 3-15](#)).
- g. Remove the cable harness from the fan tray connector.
- h. Remove the two screws that secure the fan tray to the chassis posts and lift the tray out of the chassis.

Step 2 Install a fan tray:

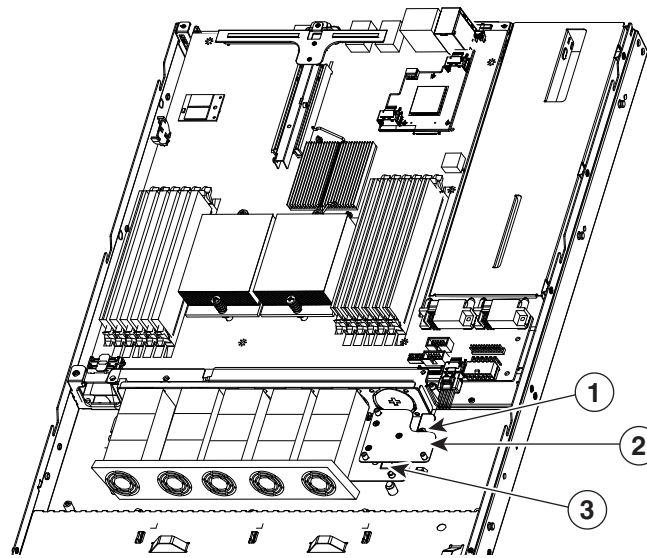
- a. Place the new fan tray into the chassis, aligning the two bracket holes on the fan tray with the chassis posts.
- b. Replace the two screws that secure the tray to the chassis posts.
- c. Replace the cable harness to fan tray connector.
- d. Replace the battery unit bracket and the three screws that secure it to the fan tray.



Note If you removed an optional LSI BBU from the fan tray, replace it and the three screws that secure it to the fan tray.

- e. Replace the cable cover and the top cover.
- f. Replace the server in the rack, replace power cords and any other cables, and then power on the server by pressing the **Power** button.

Figure 3-15 Removing and Replacing a Fan Tray



1	Securing screw (one on each end)	3	Fan tray connector
2	Fan tray with battery unit bracket		

Installing DIMMs

This section includes the following sections:

- [Memory Performance Guidelines and Population Rules, page 3-23](#)
- [DIMM Installation Procedure, page 3-26](#)

**Note**

To ensure the best server performance, it is important that you are familiar with memory performance guidelines and population rules before you install or replace memory modules.

Memory Performance Guidelines and Population Rules

This section describes the type of memory that the server requires and its effect on performance. The following topics are covered:

- [Supported DIMMs, page 3-23](#)
- [Banks and Channels, page 3-23](#)
- [Memory Population Rules, page 3-24](#)
- [Memory Mirroring and RAS, page 3-25](#)

Supported DIMMs

The qualified and supported part numbers for this component are subject to change over time. For the most up-to-date list of replaceable components, see the following URL and then scroll to *Technical Specifications*:
http://www.cisco.com/en/US/products/ps10493/products_data_sheets_list.html

**Note**

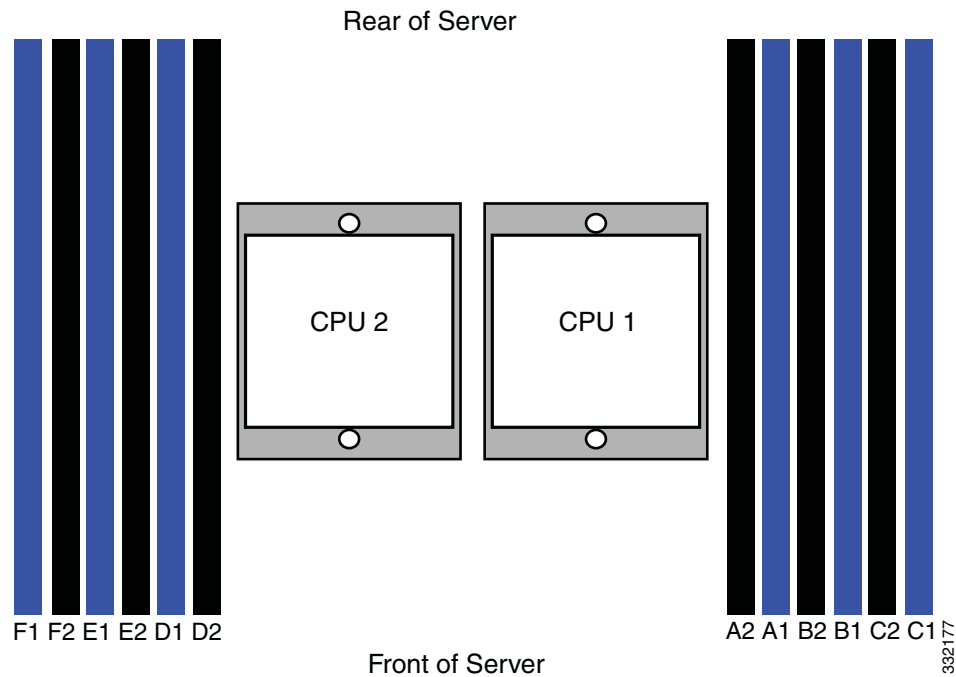
Non-ECC UDIMMs do not support temperature sensors.

Banks and Channels

Each memory channel is identified by a letter—channels A, B, and C for CPU1, and channels D, E, and F for CPU2. See [Figure 3-16](#).

Each memory bank is identified by a number, either 1 or 2. For example DIMM slots A1, B1, and C1 belong to Bank–1, while A2, B2, C2 belong to Bank–2. Note that each slot within Bank 1 is blue, while each slot within Bank 2 is black. See [Figure 3-16](#).

Figure 3-16 Physical Representation of Banks and Channels



Memory Population Rules

When considering the memory configuration of your server, you should consider the following items:

- DIMMs within the server should all be the same type, speed, and size. Do not mix different size DIMMs or DIMMs with different clock rates in the same server. Doing so causes the system to set the memory system speed to that of the slowest installed DIMMs.
- DIMMs can be used either in a one DIMM per Channel (1DPC) configuration or in a two DIMMs per Channel (2DPC) configuration.
- There are blue and black DIMM slots. Populate blue slots in a bank first.
- (Generation M2 only) Low-voltage (1.35 V) DIMM and standard-voltage DIMM (1.5 V) can be mixed in the same server. Note that this causes the system BIOS to default to standard-voltage operation (Performance Mode). See [Low-Voltage DIMM Considerations \(Generation M2 Only\)](#), page 3-25.



Note Low voltage DIMMs are supported in Generation M2 servers only.

Low-Voltage DIMM Considerations (Generation M2 Only)

The Generation M2 of this server can be ordered with low-voltage (1.35 V) DIMMs or standard-voltage (1.5 V) DIMMs. Note the following considerations:

- Low-voltage DIMMs within the server must have the identical manufacturer, type, speed, and size.
- Low-voltage DIMMs and standard-voltage DIMMs can be mixed in the same server. Note that this causes the system BIOS to default to standard-voltage operation (Performance Mode). That is, the server cannot operate in Power Saving Mode unless all DIMMs are low-voltage DIMMs.



Note CPUs that have a maximum memory frequency less than 1333 MHz support LV DIMMs operating in Power saving Mode only, and do not support Performance mode. However, if your server has one of these CPUs, monitoring output for LV DIMMs will show identical voltages for both Power Saving Mode and Performance Mode. In this case, Performance Mode is not active and its fields only mirror the values from the Power Savings Mode fields.

- In Generation M2 only, there is a setting in the BIOS Setup utility that you can use to change the DDR memory mode when the server has all low-voltage DIMMs installed. To access this setting, follow these steps:

-
- Step 1** Enter the BIOS setup utility by pressing the **F2** key when prompted during bootup.
- Step 2** Select the **Advanced** tab.
- Step 3** Select **Low Voltage DDR Mode**.
- Step 4** In the pop-up window, select either **Power Saving Mode** or **Performance Mode**.
- Power Saving Mode—Prioritizes low-voltage memory operation. This setting is available only if all DIMMs installed are low-voltage DIMMs.
 - Performance Mode—Prioritizes performance memory operation. If you mix low-voltage DIMM pairs with standard-voltage DIMM pairs, the system defaults to this setting.
- Step 5** Press **F10** to save your changes and exit the setup utility.
-

Memory Mirroring and RAS

- The CPUs support memory mirroring only when Channels A and B on CPU 1 are populated with DIMMs that are identical in configuration, size, and speed. Do not populate channel C. If three channels are populated with DIMMs, memory mirroring is automatically disabled.
- If DIMMs on CPU 2 are populated, channels D and E must be populated with DIMMs that are identical in configuration, size, and speed. Do not populate channel F. If three channels are populated with DIMMs, memory mirroring is automatically disabled.
- If memory mirroring is used, the DRAM size is reduced by 50 percent for reasons of reliability. Memory sparing is not supported.

DIMM Installation Procedure

To install or replace a DIMM, follow these steps:

**Note**

Refer to the DIMM population rules before removing or installing DIMMs. See the [“Memory Performance Guidelines and Population Rules”](#) section on page 3-23.

Step 1

Remove an existing DIMM:

- a. Power off the server as described in the [“Shutting Down and Powering Off the Server”](#) section on page 3-7.
- b. Disconnect all power cords from the power supplies.
- c. Slide the server out the front of the rack far enough so that you can remove the top cover. You might have to detach cables from the rear panel to provide clearance.

**Caution**

If you cannot safely view and access the component, remove the server from the rack.

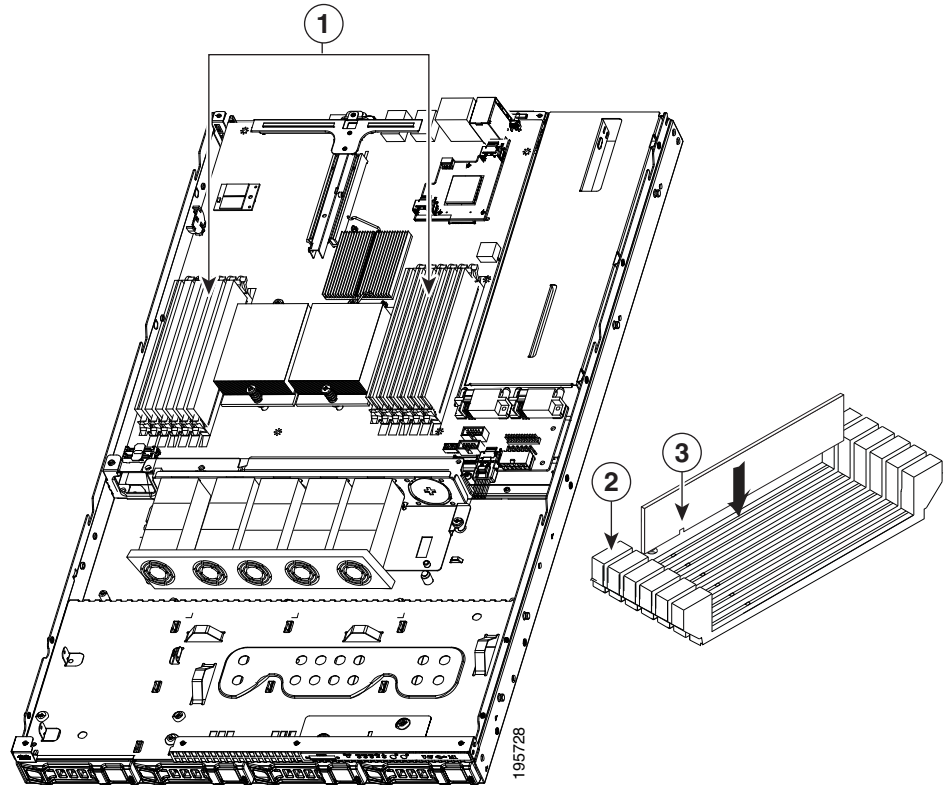
- d. Remove the top cover as described in the [“Removing and Replacing the Server Top Cover”](#) section on page 3-9.
- e. Remove the air baffle that sits over the CPUs and DIMMs and set it aside.
- f. Push down on the ejector levers at both ends of the DIMM slot.
- g. Grasp the DIMM by its top corners and remove it from the server. Place the DIMM on an antistatic mat or in antistatic packaging.

Step 2

Install a DIMM:

- a. With the ejector levers at both ends of the DIMM slot fully open, orient the DIMM's alignment notch with the alignment key in the DIMM slot.
- b. Press down on both top corners of the DIMM simultaneously until the ejector levers click and lock in place on the DIMM.
- c. Replace the air baffle and the top cover.
- d. Replace the server in the rack, replace power cords and any other cables, and then power on the server by pressing the **Power** button.

Figure 3-17 Removing and Replacing Memory Modules



1	DIMM slots (twelve)	3	Alignment key in DIMM slot
2	DIMM slot ejector lever (two on each slot)		

Installing CPUs and Heatsinks

The qualified and supported part numbers for this component are subject to change over time. For the most up-to-date list of replaceable components, see the following URL and then scroll to *Technical Specifications*:

http://www.cisco.com/en/US/products/ps10493/products_data_sheets_list.html

To install or replace a CPU and heatsink, follow these steps:

Step 1 Remove an existing CPU and heatsink:

- a. Power off the server as described in the “Shutting Down and Powering Off the Server” section on page 3-7.
- b. Disconnect all power cords from the power supplies.
- c. Slide the server out the front of the rack far enough so that you can remove the top cover. You might have to detach cables from the rear panel to provide clearance.



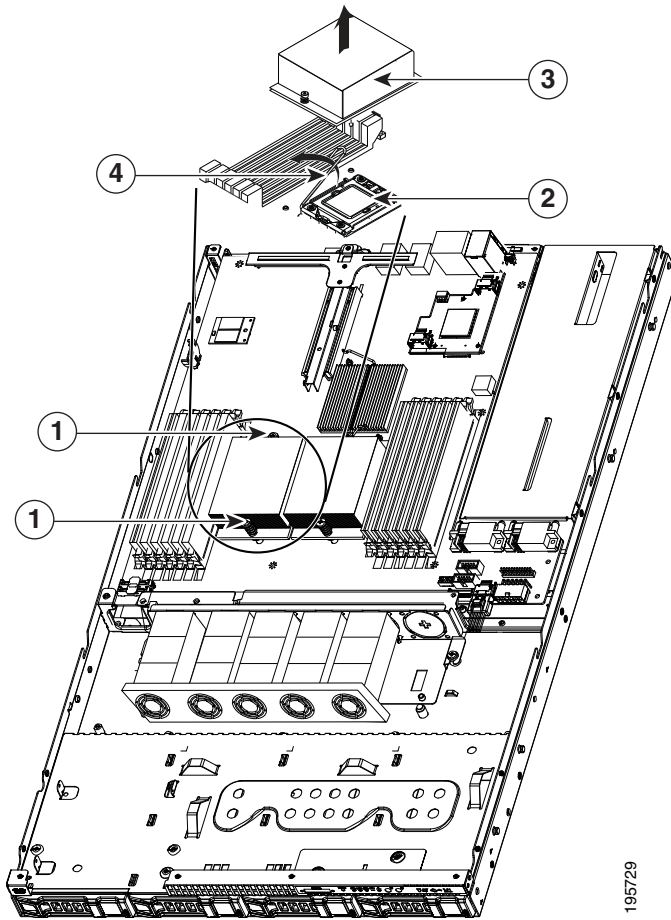
Caution If you cannot safely view and access the component, remove the server from the rack.

- d. Remove the top cover as described in the “Removing and Replacing the Server Top Cover” section on page 3-9.
- e. Remove the air baffle that sits over the CPUs and DIMMs and set it aside.
- f. Loosen the two captive screws that hold the heatsink to the chassis posts and lift the heatsink out of the server (see Figure 3-18).
- g. If you plan to use this heatsink with your new CPU, clean all of the old thermal compound from the bottom of the heatsink.
- h. Unhook the CPU socket latch and open the CPU cover plate.
- i. Lift the CPU out of the socket and set it aside on an antistatic mat or in an antistatic bag.

Step 2 Install a CPU and heatsink:

- a. Set the new CPU into the socket, being careful to orient the CPU alignment notches with the alignment keys in the socket.
- b. Close the CPU cover plate and hook the socket latch back in the locked position.
- c. Prepare the thermal compound, which aids heat transference between the CPU and the heatsink:
 - If you are installing a new heatsink, a thermal pad comes pre-applied on the heatsink. Remove the protective film to expose the thermal pad. Do not use the syringe of thermal compound that is shipped with a replacement CPU in this case.
 - If you are using your existing heatsink, make sure that all of the old thermal compound is removed from the underside of the heatsink. Then apply the full contents of the syringe that is supplied with the new CPU to apply thermal compound to the top of the CPU. Apply the compound as evenly as possible so that it forms an even layer when the heatsink is tightened down.
- d. Align the heatsink captive screws with the chassis posts, and then tighten both captive screws evenly.
- e. Replace the air baffle and the top cover.
- f. Replace the server in the rack, replace power cords and any other cables, and then power on the server by pressing the **Power** button.

Figure 3-18 Removing and Replacing CPUs and Heatsinks



1	Captive heatsink screws (two per CPU)	3	CPU socket alignment keys
2	CPU cover plate	4	CPU socket latch

Installing a Motherboard CMOS Battery

**Warning**

There is 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. (Statement 1015)

The qualified and supported part numbers for this component are subject to change over time. For the most up-to-date list of replaceable components, see the following URL and then scroll to *Technical Specifications*:

http://www.cisco.com/en/US/products/ps10493/products_data_sheets_list.html

To install or replace a CMOS battery on the motherboard, follow these steps:

Step 1 Remove a motherboard CMOS battery:

- a. Power off the server as described in the “[Shutting Down and Powering Off the Server](#)” section on [page 3-7](#).
- b. Disconnect all power cords from the power supplies.
- c. Slide the server out the front of the rack far enough so that you can remove the top cover. You might have to detach cables from the rear panel to provide clearance.

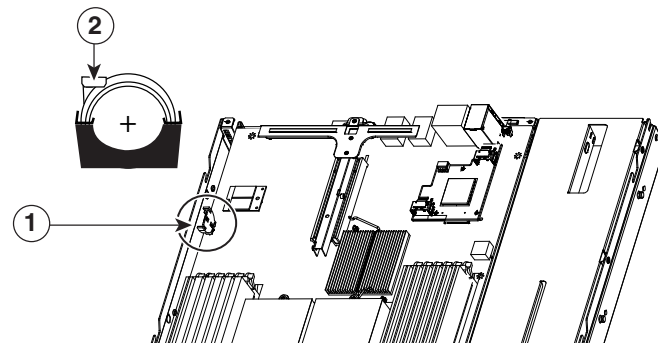


Caution If you cannot safely view and access the component, remove the server from the rack.

- d. Remove the top cover as described in the “[Removing and Replacing the Server Top Cover](#)” section on [page 3-9](#).
- e. Press the battery socket retaining clip toward the chassis wall (see [Figure 3-19](#)).
- f. Lift the battery from the socket. Use needle-nose pliers to grasp the battery if there is not enough clearance for your fingers.

Step 2 Install a motherboard CMOS battery:

- a. Press the battery socket retaining clip toward the chassis wall.
- b. Insert the new battery into the socket with the battery's positive (+) marking toward the chassis wall. Ensure that the retaining clip clicks over the top of the battery.
- c. Replace the top cover.
- d. Replace the server in the rack, replace power cords and any other cables, and then power on the server by pressing the **Power** button.

Figure 3-19 Removing and Replacing a Motherboard CMOS Battery

1	Motherboard CMOS battery socket (positive side toward chassis wall)	2	Battery retaining clip
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Installing a Trusted Platform Module

The qualified and supported part numbers for this component are subject to change over time. For the most up-to-date list of replaceable components, see the following URL and then scroll to *Technical Specifications*: http://www.cisco.com/en/US/products/ps10493/products_data_sheets_list.html

To install or replace a trusted platform module (TPM), follow these steps:

Step 1 Remove a TPM:

- a. Power off the server as described in the “[Shutting Down and Powering Off the Server](#)” section on [page 3-7](#).
- b. Disconnect all power cords from the power supplies.
- c. Slide the server out the front of the rack far enough so that you can remove the top cover. You might have to detach cables from the rear panel to provide clearance.



Caution If you cannot safely view and access the component, remove the server from the rack.

- d. Remove the top cover as described in the “[Removing and Replacing the Server Top Cover](#)” section on [page 3-9](#).
- e. Remove the PCIe riser card assembly to provide clearance to the TPM.
See the “[Replacing a PCIe Riser Card Assembly](#)” section on [page 3-33](#) for instructions.
- f. Remove the securing screw that holds the TPM to the motherboard standoff (see [Figure 3-20](#)).
- g. Lift up on both ends of the TPM to free it from the socket on the motherboard.

Step 2 Install a TPM:

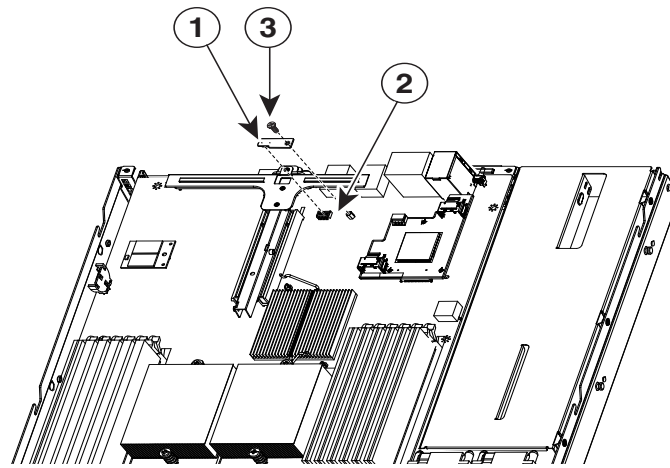
- a. Align the connector that is on the underside of the new TPM with motherboard socket JP2, and then press firmly on both ends of the TPM to press the connector into the socket.
- b. Replace the securing screw that holds the TPM to the motherboard standoff.

- c. Replace the PCIe riser card assembly.
See the “[Replacing a PCIe Riser Card Assembly](#)” section on page 3-33 for instructions.
- d. Replace the top cover.
- e. Replace the server in the rack, replace power cords and any other cables, and then power on the server by pressing the **Power** button. See the following note.

**Note**

The TPM must be activated in the BIOS before you can use it. If you have not already activated the TPM in the BIOS, proceed with the following step.

Figure 3-20 Removing and Replacing a TPM



1	TPM	3	Securing screw
2	JP2 socket on motherboard		

Step 3 Activate the TPM in the server BIOS:

- a. Either attach a VGA monitor and USB keyboard to the server, or log in remotely to the CIMC interface of the server and open a virtual KVM console window. For instructions on using the CIMC, refer to the [Cisco UCS C-Series Rack-Mount Server Configuration Guide](#).
- b. Reboot the server.

**Note**

You can reboot the server by pressing the Power button on the server; by selecting **Macros > Ctrl-Alt-Del** on the Cisco KVM Console window menu bar; or by selecting **Power Cycle Server** on the Server Summary tab of the CIMC GUI.

- c. Watch during bootup for the F2 prompt, and then press **F2** to enter BIOS setup.
- d. If you have already configured a BIOS Administrator password, enter it and skip to Step **h**.
- e. If you have not set a BIOS Administrator password for the server, continue with this step.
On the BIOS utility screen, select the **Security** tab, then select **Set Administrator Password**. Use the pop-up boxes to set the BIOS administrator password, then press **F10** to save your settings and reboot the server.
- f. Watch during bootup for the F2 prompt, and then press **F2** to enter BIOS setup.
- g. Log into the BIOS Setup utility with your BIOS Administrator password.

- h. On the BIOS utility screen, select the **Security** tab.
 - i. Scroll down to **TPM** and select **TURN ON**.
 - j. Press **F10** to save your settings and reboot the server.
 - k. Watch during bootup for the F2 prompt, and then press **F2** to enter BIOS setup.
 - l. Log into the BIOS Setup utility with your BIOS Administrator password.
 - m. Verify that the TPM is now enabled. Select the **Security** tab. Verify that the TPM entry now says Enabled.
-

Replacing a PCIe Riser Card Assembly

The qualified and supported part numbers for this component are subject to change over time. For the most up-to-date list of replaceable components, see the following URL and then scroll to *Technical Specifications*:

http://www.cisco.com/en/US/products/ps10493/products_data_sheets_list.html

To replace a PCIe riser card assembly, follow these steps:

Step 1 Remove a PCIe riser card:

- a. Power off the server as described in the “[Shutting Down and Powering Off the Server](#)” section on [page 3-7](#).
- b. Disconnect all power cords from the power supplies.
- c. Slide the server out the front of the rack far enough so that you can remove the top cover. You might have to detach cables from the rear panel to provide clearance.

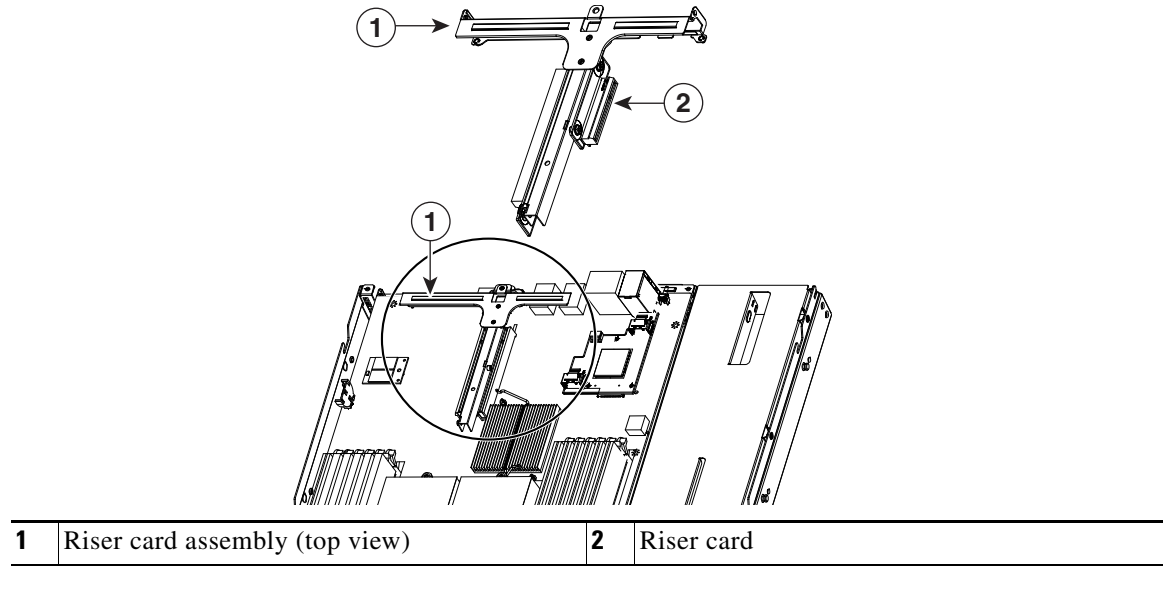


Caution If you cannot safely view and access the component, remove the server from the rack.

- d. Remove the top cover as described in the “[Removing and Replacing the Server Top Cover](#)” section on [page 3-9](#).
- e. Remove the screw that holds the riser card assembly to the rear of the chassis (see [Figure 3-21](#)).
- f. Lift the assembly and any attached PCIe cards straight up and out of the chassis. Lift up on both ends of the bracket evenly to avoid damaging the sockets or the riser cards.
- g. Remove any PCIe card from the riser card assembly and set it aside.

Step 2 Install a PCIe riser card:

- a. Replace any PCIe card in the new riser card assembly.
- b. Set the assembly in place, aligning the riser cards with the PCIe slots on the motherboard.
- c. Press down evenly on both ends of the assembly to fully engage the riser cards with the PCIe slots on the motherboard.
- d. Replace the screw that secures the assembly to the chassis.
- e. Replace the top cover.
- f. Replace the server in the rack, replace power cords and any other cables, and then power on the server by pressing the **Power** button.

Figure 3-21 Removing and Replacing a PCIe Riser Card Assembly

Replacing a PCIe Card

This section contains the following topics:

- [Replacement Procedure, page 3-35](#)
- [Special Considerations for the Cisco UCS P81E Virtual Interface Card \(N2XX-ACPCI01\), page 3-37](#)
- [How to Identify Which Power Supply Model is in Your Server, page 3-37](#)
- [Installing Multiple PCIe Cards and Resolving Limited Resources, page 3-38](#)



Note

If you are installing a Cisco UCS P81E Virtual Interface Card (N2XX-ACPCI01), there are prerequisite considerations. See [Special Considerations for the Cisco UCS P81E Virtual Interface Card \(N2XX-ACPCI01\), page 3-37](#).



Note

See also [RAID Controller Considerations, page C-1](#) for information about supported controllers and cables.

The qualified and supported part numbers for this component are subject to change over time. For the most up-to-date list of replaceable components, see the following URL and then scroll to *Technical Specifications*:

http://www.cisco.com/en/US/products/ps10493/products_data_sheets_list.html

Replacement Procedure

Installing a PCIe card requires that you first remove the riser card assembly from the chassis. To install or replace a PCIe card, follow these steps:

- Step 1** Remove a PCIe card:
- Power off the server as described in the “[Shutting Down and Powering Off the Server](#)” section on [page 3-7](#).
 - Disconnect all power cords from the power supplies.
 - Slide the server out the front of the rack far enough so that you can remove the top cover. You might have to detach cables from the rear panel to provide clearance.



Caution If you cannot safely view and access the component, remove the server from the rack.

- Remove the top cover as described in the “[Removing and Replacing the Server Top Cover](#)” section on [page 3-9](#).
 - Pull the PCIe card retaining latch away from the card. See [Figure 3-21](#) on [page 3-34](#).
 - Lift the assembly and any attached PCIe cards straight up and out of the chassis. Lift up on both ends of the assembly evenly to avoid damaging the sockets or the riser cards.
 - Pull the PCIe card retaining latch away from the card’s rear tab (see [Figure 3-23](#)).
- Step 2** Pull the PCIe card connector out of the riser card socket and set the card aside.

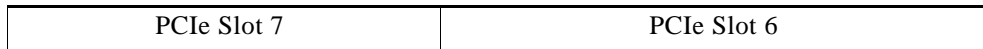
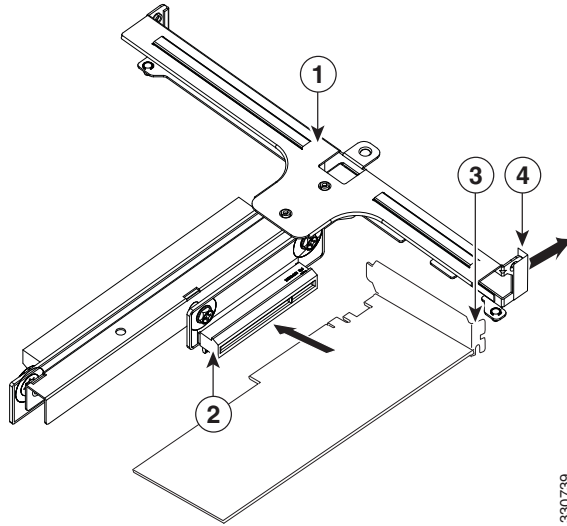
- Step 3** Install a PCIe card:

- If you are installing a PCIe card to an empty slot on the riser card assembly, remove any blank panel from the assembly rear slot.



Note A standard-profile PCIe card must be installed on the right side of the assembly, as viewed from the rear of the server. A low-profile PCIe card can be installed in either the low-profile slots on the left, or the standard-profile slots on the right if a standard-profile I/O bracket is used on the card.

- Align the PCIe card connector with the riser card socket and push on both ends of the card evenly to fully engage the connector with the riser card socket.
 - Pull the PCIe card retaining latch away from the card’s rear tab, then close the latch over the tab.
 - Set the assembly in place, aligning the riser cards with the PCIe slots on the motherboard.
 - Press down evenly on both ends of the assembly to fully engage the riser cards with the PCIe slots on the motherboard.
 - Replace the screw that secures the riser card assembly to the chassis.
 - Replace the top cover.
 - Replace the server in the rack, replace power cords and any other cables, and then power on the server by pressing the **Power** button.
- Step 4** If the card that you replaced was a RAID controller card, see [Restoring RAID Configuration After Replacing a RAID Controller](#), [page C-6](#).

Figure 3-22 PCIe Slot Numbering and Physical Orientation, Facing Server Rear**Figure 3-23** Removing and Replacing a PCIe Card

330739

1	Riser card assembly removed from chassis	3	PCIe card rear plate
2	PCIe socket on riser card	4	PCIe card retaining latch

Special Considerations for the Cisco UCS P81E Virtual Interface Card (N2XX-ACPCI01)

The Cisco UCS P81E Virtual Interface Card is a standard-profile, half-length, dual-port 10 Gb PCIe card with SFP+. See the following special considerations and prerequisites:

- This card is supported in server Generations M1 and M2.
- This server supports installation of one of these cards.
- This card is supported only in PCIe slot 6 of this server.



Note This card must be installed in PCIe slot 6 to use the Cisco Card NIC mode (see [Figure 3-22 on page 3-36](#)). See also [NIC Modes and NIC Redundancy Settings, page 2-12](#).

- This card requires that the server has CIMC firmware version 1.2(1) or later installed. There is a heartbeat LED on the top and bottom of the card that indicates when firmware is active.
- To use this card for UCS integration (UCSM mode) with Cisco UCS Manager 2.0(2xx) or later, the minimum card-firmware and uboot image level is 2.0(2g).
- To use this card for UCS integration (UCSM mode) with Cisco UCS Manager 1.4 or 2.0(1), the minimum card-firmware and uboot image level is 1.4(1i).
- To connect this card to an upstream Cisco Nexus fabric interconnect (switch), the minimum NXOS version on the fabric interconnect must be 5.0 or later.
- This card requires that you have the new power supply model R2X0-PSU2-650W-SB. A 5A standby mode has been added to these power supplies to support this card. See [How to Identify Which Power Supply Model is in Your Server, page 3-37](#).
- Both power supplies must be model R2X0-PSU2-650W-SB. Do not mix power supply models in the same server.

How to Identify Which Power Supply Model is in Your Server

There are two methods that you can use to identify which power supply is installed in your server:

1. Visually inspect the power supply at the rear of the server. The new power supply model R2X0-PSU2-650W-SB has a black handle; the old power supply had silver handle.
2. Use the Cisco Integrated Management Controller (CIMC) GUI to view the power supply model:
 - a. Use a browser to connect to CIMC using the CIMC IP address.
 - b. Log in to CIMC using your administrator user name and password.
 - c. On the CIMC **Server** tab, click **Inventory**.
 - d. On the **Inventory** pane, click the **Power Supplies** tab.
 - e. View the power supply model number in the **Product ID** column. The new power supply is listed by the manufacturer's model number, R2X0-PSU2-650W-SB.

Installing Multiple PCIe Cards and Resolving Limited Resources

When a large number of PCIe add-on cards are installed in the server, the system may run out of the following resources required for PCIe devices:

- Option ROM memory space
- 16-bit I/O space

The topics in this section provide guidelines for resolving the issues related to these limited resources.

- [Resolving Insufficient Memory Space to Execute Option ROMs, page 3-38](#)
- [Resolving Insufficient 16-Bit I/O Space, page 3-39](#)

Resolving Insufficient Memory Space to Execute Option ROMs

The system has very limited memory to execute PCIe legacy option ROMs, so when a large number of PCIe add-on cards are installed in the server, the system BIOS might not be able to execute all of the option ROMs. The system BIOS loads and executes the option ROMs in the order that the PCIe cards are enumerated (Slot 1, Slot 2, Slot 3, etc.).

If the system BIOS does not have sufficient memory space to load any PCIe option ROM, it skips loading that option ROM, reports a system event log (SEL) event to the CIMC controller and reports the following error in the Error Manager page of the BIOS Setup utility:

ERROR CODE	SEVERITY	INSTANCE	DESCRIPTION
146	Major	N/A	PCI out of resources error. Major severity requires user intervention but does not prevent system boot.

To resolve this issue, disable the Option ROMs that are not needed for system booting. The BIOS Setup Utility provides the setup options to enable or disable the Option ROMs at the PCIe slot level for the PCIe expansion slots and at the port level for the onboard NICs. These options can be found in the BIOS Setup Utility **Advanced** → **PCI Configuration** page.

- **Guidelines for RAID controller booting:**

If the server is configured to boot primarily from RAID storage, make sure that the option ROMs for the slots where your RAID controllers are installed are enabled in the BIOS, depending on your RAID controller configuration.

If the RAID controller does not appear in the system boot order even with the option ROMs for those slots are enabled, the RAID controller option ROM might not have sufficient memory space to execute. In that case, disable other option ROMs that are not needed for the system configuration to free up some memory space for the RAID controller option ROM.

- **Guidelines for onboard NIC PXE booting:**

If the system is configured to primarily perform PXE boot from onboard NICs, make sure that the option ROMs for the onboard NICs to be booted from are enabled in the BIOS Setup Utility. Disable other option ROMs that are not needed to create sufficient memory space for the onboard NICs.

Resolving Insufficient 16-Bit I/O Space

The system has only 64 KB of legacy 16-bit I/O resources available. This 64 KB of I/O space is divided between the CPUs in the system because the PCIe controller is integrated into the CPUs. This server BIOS has the capability to dynamically detect the 16-bit I/O resource requirement for each CPU and then balance the 16-bit I/O resource allocation between the CPUs accordingly during the PCI bus enumeration phase of the BIOS POST.

When a large number of PCIe cards are installed in the system, the system BIOS might not have sufficient I/O space for some PCIe devices. If the system BIOS is not able to allocate the required I/O resources for any PCIe devices, the following symptoms have been observed:

- The system might get stuck in an infinite reset loop.
- The BIOS might appear to hang while initializing PCIe devices.
- The PCIe option ROMs might take excessive time to complete, which appears to lock up the system.
- PCIe boot devices might not be accessible from the BIOS.
- PCIe option ROMs might report initialization errors. These errors are seen before the BIOS passes control to the operating system.
- The keyboard might not work.

To work around this problem, rebalance the 16-bit I/O load using the following methods:

1. Physically remove any unused PCIe cards.
2. If the system has one or more Cisco virtual interface cards (VICs) installed, disable the PXE boot on the VICs that are not required for the system boot configuration by using the Network Adapters page in the CIMC WebUI to free up some 16-bit I/O resources. Each VIC uses a minimum 16 KB of 16-bit I/O resource, so disabling PXE boot on Cisco VICs would free up some 16-bit I/O resources that can be used for other PCIe cards that are installed in the system.

Replacing an LSI MegaRAID Battery Backup Unit

When you install an LSI MegaRAID card and the optional BBU in this server, do not install the BBU on top of the card as described in the LSI instructions. To avoid overheating the card, you must install the BBU on a special bracket that is located on the fan tray.

**Note**

LSI recommends that you replace the LSI BBU once per year or after 1,000 recharge cycles, whichever comes first. Verify whether BBU replacement is required by looking in the CIMC. Log in to CIMC for the server, then click **Server—Inventory—Storage—Battery Backup Unit**. If the Battery Replacement Required field says, “True,” then you must purchase a replacement BBU and replace it.

**Warning**

There is 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.

Statement 1015

The qualified and supported part numbers for this component are subject to change over time. For the most up-to-date list of replaceable components, see the following URL and then scroll to *Technical Specifications*:

http://www.cisco.com/en/US/products/ps10493/products_data_sheets_list.html

**Note**

The instructions for installing the BBU differ depending on which BBU version you are installing. The newer LSiBBU08 version requires that you replace the server's mounting bracket. Procedures for both LSiBBU06 and LSiBBU08 are included here.

This section includes the following procedures:

- [Replacing an LSiBBU06 BBU, page 3-40](#)
- [Replacing an LSiBBU08 BBU, page 3-42](#)

Replacing an LSiBBU06 BBU

This BBU is supported by Cisco for use with the following RAID controller cards:

- LSI MegaRAID 9260-4i (Cisco product ID R200-PL004, LSI 6G MegaRAID 9260-4i card w/512MB write cache)
- LSI MegaRAID 9280-4i4e (Cisco product ID UCSC-RAID-C-4i4e, LSI 9280-4i4e)

To install or replace an LSiBBU06 version BBU, follow these steps:

-
- Step 1** Remove a BBU:
- a. Remove the three screws that secure the BBU to the BBU bracket on the fan tray (see [Figure 3-24](#)).
 - b. Disconnect the cable from the BBU. If you are only replacing a BBU and not the LSI card, you do not have to disconnect the other end of the cable from the card.
- Step 2** Install a BBU:
- a. Install the cable that is connected to the LSI controller card to socket J2 on the underside of the BBU.



Note Be careful to align the arrow-mark on the cable connector with the arrow-mark on the socket to avoid damaging the connector pins.

- b. Place the new BBU over the BBU bracket on the fan tray and align the three screw-holes in the BBU with the three preinstalled standoffs on the bracket.
- c. Replace the three securing screws that hold the BBU to the BBU bracket.

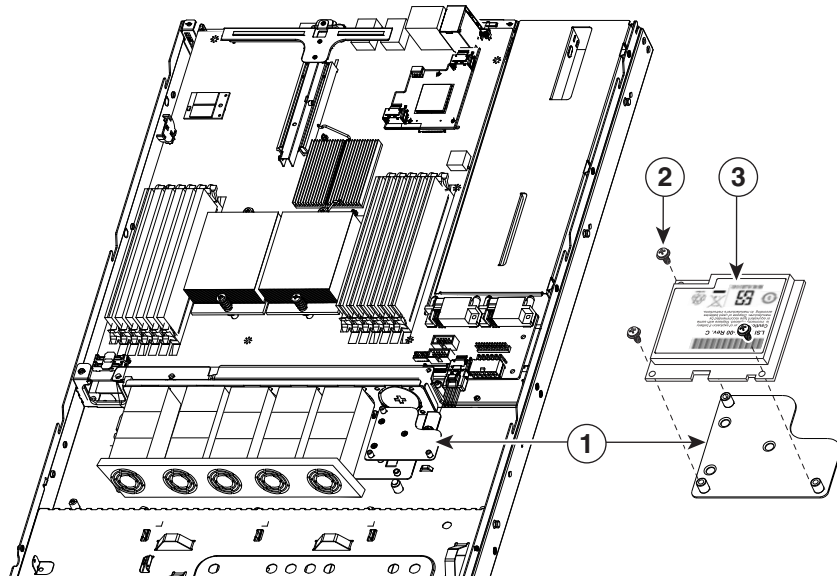
Step 3 If this is a first-time installation of the BBU rather than a replacement, install the cable from the BBU to the LSI card.

Connect the cable from the BBU to the socket on the adapter.



Note Be careful to align the arrow-mark on the cable connector with the arrow-mark on the socket to avoid damaging the connector pins.

Figure 3-24 Removing and Replacing an LSIiBBU06 BBU



1	BBU bracket on fan tray	3	BBU (connector J2 is on the underside)
2	Securing screws (three)		

Replacing an LSiBBU08 BBU

This BBU is supported by Cisco for use with the following RAID controller cards:

- LSI MegaRAID 9260-4i (Cisco product ID R200-PL004, LSI 6G MegaRAID 9260-4i card w/512MB write cache)
- LSI MegaRAID 9280-4i4e (Cisco product ID UCSC-RAID-C-4i4e, LSI 9280-4i4e)
- LSI MegaRAID 9260-8i (Cisco product ID RC460-PL001, LSI 6G MegaRAID 9260-8i (C200 SFF only))

To install the LSiBBU08 BBU, you must replace the mounting bracket on the fan tray with a special adapter bracket that is included with the BBU. Use the following procedure to replace the bracket and to install the BBU.

Step 1 Replace the mounting bracket—only if you are replacing an LSiBBU06 with an LSiBBU08.

Skip this step and go to Step 2 if your server is already using an LSiBBU08 BBU and it already has the new mounting bracket.

- Remove any existing BBU from the existing bracket by removing the BBU retaining screws.
- Disconnect the RAID controller-to-BBU cable from the old BBU.
- Remove the three screws that hold the bracket to the standoffs on the fan tray (see [Figure 3-25](#)).
- Set the new bracket in place and replace the three screws that secure it to the fan tray (see [Figure 3-26](#)).

Figure 3-25 Replacing a Mounting Bracket for the LSiBBU08 BBU

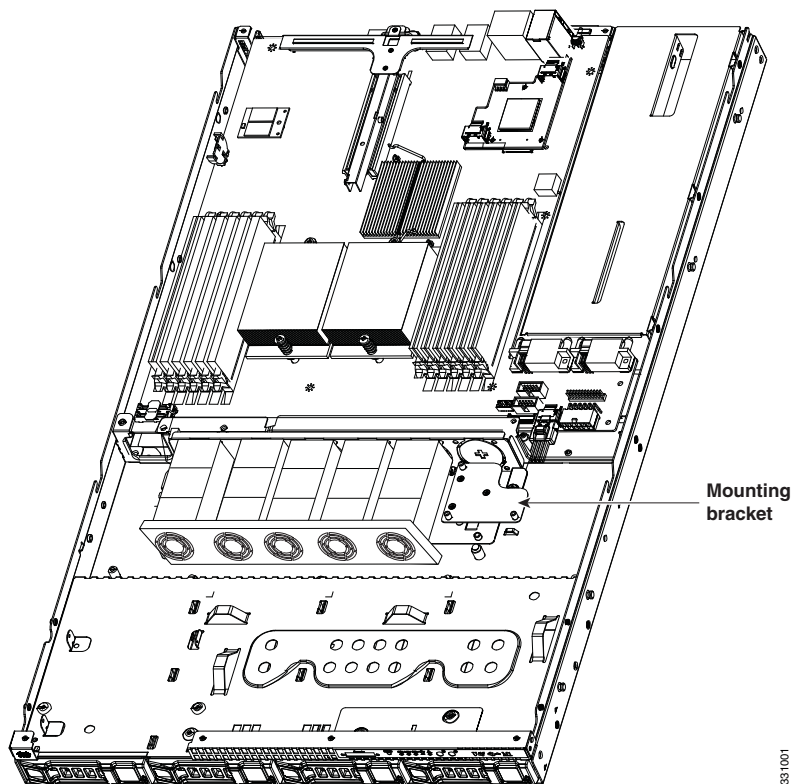
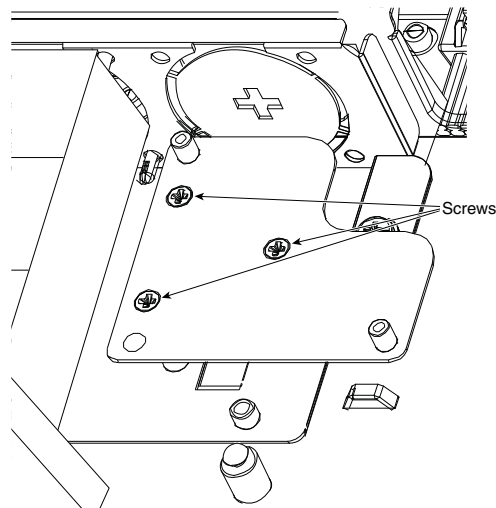


Figure 3-26 Replacing a Mounting Bracket for the LSiBBU08 BBU (Enlarged)

Step 2 Install the new LSiBBU08 BBU:

**Note**

The LSiBBU08 BBU requires minimum LSI MegaRAID card firmware 2.120.133.1322 or later to be recognized. You can use the Cisco Host Upgrade Utility to upgrade your LSI MegaRAID card firmware. Obtain the Cisco Host Upgrade Utility 1.4.1 or later package (including drivers) by navigating from the Cisco.com software download site: <http://www.cisco.com/cisco/software/navigator.html>

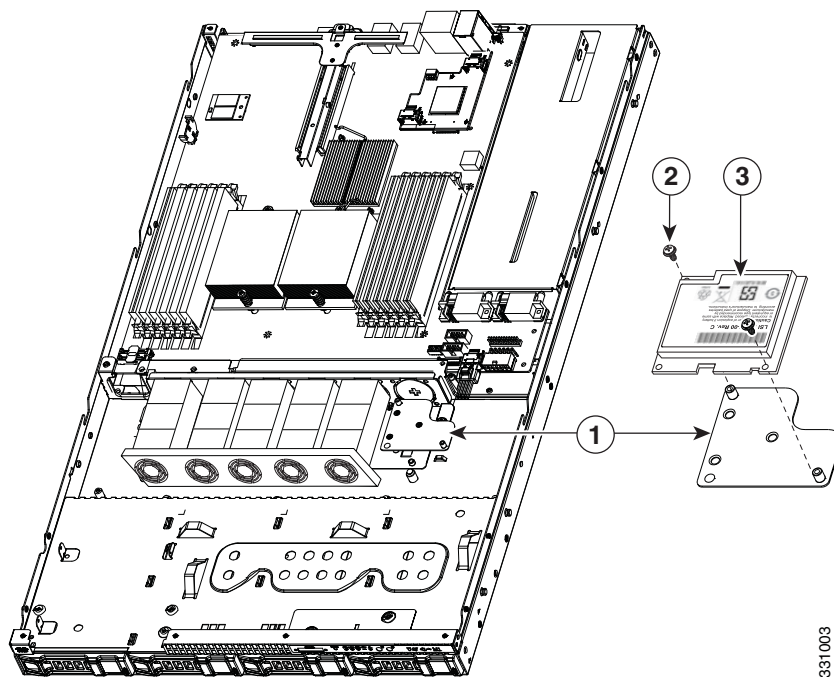
- a. Install the BBU cable from the LSI controller card to socket J2 on the new BBU.

**Note**

Align the arrow-mark on the cable connector with the arrow-mark on the socket to avoid damaging the connector pins.

- b. Place the new BBU over the new BBU bracket on the fan tray and align the two screw-holes in the BBU with the two preinstalled standoffs on the bracket.
- c. Install the two securing screws that hold the BBU to the BBU bracket.

Figure 3-27 Removing and Replacing an LSiBBU06 BBU



331003

1	BBU bracket on fan tray	3	BBU (connector J2 is on the underside)
2	Securing screws (two)		

Installing a Mezzanine Card

The qualified and supported part numbers for this component are subject to change over time. For the most up-to-date list of replaceable components, see the following URL and then scroll to *Technical Specifications*:

http://www.cisco.com/en/US/products/ps10493/products_data_sheets_list.html

To install or replace a mezzanine card, follow these steps:

Step 1 Remove a mezzanine card:

- a. Power off the server as described in the “[Shutting Down and Powering Off the Server](#)” section on [page 3-7](#).
- b. Disconnect all power cords from the power supplies.
- c. Slide the server out the front of the rack far enough so that you can remove the top cover. You might have to detach cables from the rear panel to provide clearance.



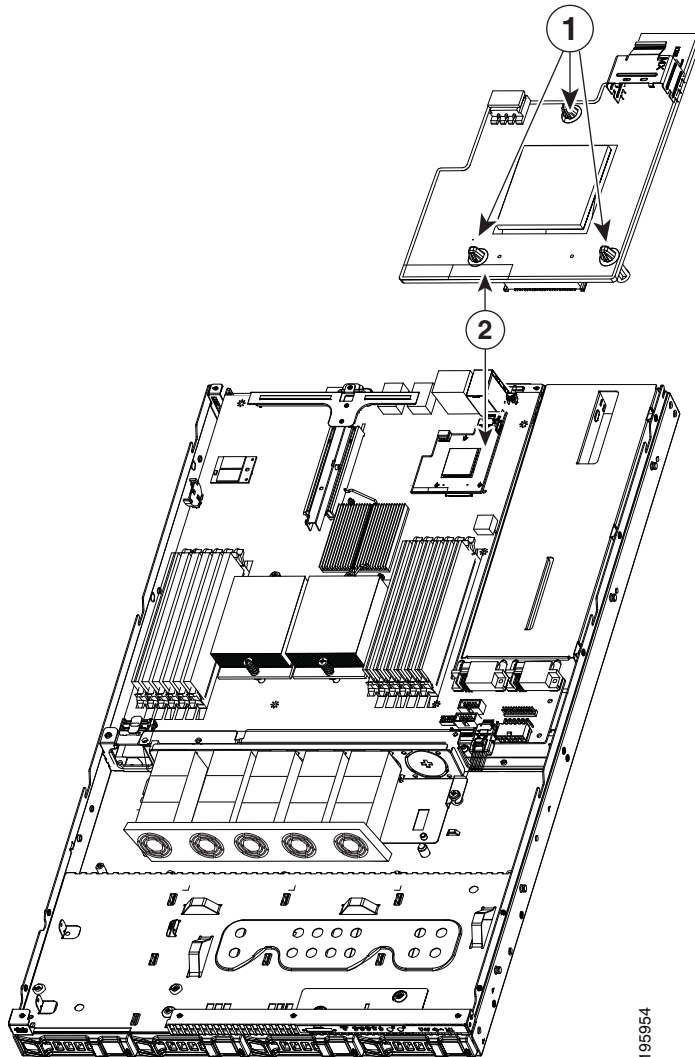
Caution If you cannot safely view and access the component, remove the server from the rack.

- d. Remove the top cover as described in the “[Removing and Replacing the Server Top Cover](#)” section on [page 3-9](#).
- e. Disconnect the cable harness from the connector on the top of the mezzanine card.
- f. Use needle-nose pliers to pinch the three plastic standoff posts that hold the mezzanine card to the motherboard. Pinching the top of the post provides clearance to lift the mezzanine card off the posts (see [Figure 3-28](#)).
- g. Lift up on both ends of the mezzanine card evenly to disengage its connector from the motherboard socket.

Step 2 Install a mezzanine card:

- a. Place the mezzanine card in the chassis, aligning the holes on the card with the three plastic standoff posts on the motherboard.
- b. Push down firmly on the card to fully engage the connector of the card with the motherboard socket.
- c. Ensure that the holes in the card click down over the three plastic posts on the motherboard.
- d. Reconnect the cable harness to the connector on the top of the mezzanine card.
- e. Replace the top cover.
- f. Replace the server in the rack, replace power cords and any other cables, and then power on the server by pressing the **Power** button.

Figure 3-28 Removing and Replacing a Mezzanine Card



1 Mezzanine card retaining posts (three)	2 Mezzanine card
--	------------------



APPENDIX **A**

Technical Specifications

This appendix lists the technical specifications for the Cisco UCS C200 server and includes the following sections:

- [Physical Specifications, page A-1](#)
- [Environmental Specifications, page A-2](#)
- [Power Specifications, page A-2](#)

Physical Specifications

[Table A-1](#) lists the physical specifications for the server.

Table A-1 *Physical Specifications*

Description	Specification
Height	1.70 in. (4.32 cm)
Width	16.92 in. (43.00 cm)
Depth	27.80 in. (70.60 cm)
Weight (loaded chassis)	33.00 lbs (14.97 kg)

Environmental Specifications

Table A-2 lists the environmental specifications for the server.

Table A-2 Environmental Specifications

Description	Specification
Temperature, operating: Derate 1°C for every 1000 ft (304 m) up to a maximum altitude of 10,000 ft (3048 m)	50 to 95°F (10 to 35°C)
Temperature, nonoperating within altitude: 0 to 40,000 feet (0 to 12,000 meters)	-40 to 149°F (-40 to 65°C)
Humidity (RH), noncondensing	5 to 93%
Altitude	0 to 10000 feet
Sound power level Measure A-weighted per ISO7779 LwAd (dBA) Operation at 73°F (23°C)	54.7 dBA
Sound power level Measure A-weighted per ISO7779 LwAd (Bels) Operation at 73°F (23°C)	5.7 Bels

Power Specifications

Table A-3 lists the specifications for each power supply.

Table A-3 Power Supply Specifications

Description	Specification
AC-input voltage	115 to 230 VAC nominal (Range: 90 to 264 VAC)
AC-input frequency	50 to 60 Hz nominal (Range: 47 to 63 Hz)
Maximum AC-input current	10 Amps
Maximum output power for each power supply	650 W (up to two power supplies can be installed)
Power supply output voltage	Main power: 12 VDC Standby power: 5 VDC

You can get more specific power information for your exact server configuration by using the Cisco UCS Power Calculator:

http://www.cisco.com/assets/cdc_content_elements/flash/dataCenter/cisco_ucs_power_calculator/



APPENDIX **B**

Cable and Power Cord Specifications

This appendix provides cabling and port specifications for control devices and power connections and includes the following sections:

- [KVM Cable, page B-1](#)
- [Supported Power Cords and Plugs, page B-2](#)

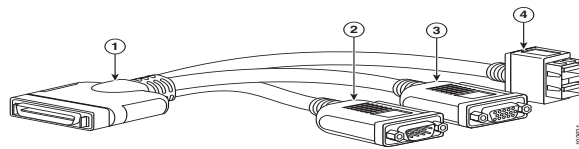
KVM Cable

The KVM cable provides a connection into the server, providing a DB9 serial connector, a VGA connector for a monitor, and dual USB ports for a keyboard and mouse. With this cable, you can create a direct connection to the operating system and the BIOS running on the server.

This server supports the following Cisco components and part numbers.

Supported Components	Part Number
KVM cable	37-1016-01

Figure B-1 KVM Cable



1	Connector to server	3	VGA connection for a monitor
2	DB9 serial connector	4	Two-port USB connector for a mouse and keyboard

Supported Power Cords and Plugs

Each power supply has a separate power cord. Standard power cords or jumper power cords are available for connection to the server. The jumper power cords, for use in racks, are available as an optional alternative to the standard power cords.


Note

Only the approved power cords or jumper power cords provided with the server are supported.

Table B-1 lists the power cords for the server power supplies.

Table B-1 Supported Power Cords for the Server

Description	Length		Power Cord Reference Illustration
	Feet	Meters	
SFS-250V-10A-AR Power Cord, 250 VAC 10 A IRAM 2073 Plug Argentina	8.2	2.5	Figure B-2
CAB-9K10A-AU 250 VAC 10 A 3112 Plug, Australia	8.2	2.5	Figure B-3
SFS-250V-10A-CN Power Cord, 250 VAC 10 A GB 2009 Plug China	8.2	2.5	Figure B-4
CAB-9K10A-EU Power Cord, 250 VAC 10 A M 2511 Plug Europe	8.2	2.5	Figure B-5
SFS-250V-10A-ID Power Cord, 250 VAC 16A EL-208 Plug South Africa, United Arab Emirates, India	8.2	2.5	Figure B-6
SFS-250V-10A-IS Power Cord, 250 VAC 10 A SI32 Plug Israel	8.2	2.5	Figure B-7
CAB-9K10A-IT Power Cord, 250 VAC 10 A CEI 23-16 Plug Italy	8.2	2.5	Figure B-8
CAB-9K10A-SW Power Cord, 250 VAC 10 A MP232 Plug Switzerland	8.2	2.5	Figure B-9
CAB-9K10A-UK Power Cord, 250 VAC 10 A BS1363 Plug (13 A fuse) United Kingdom	8.2	2.5	Figure B-10
CAB-AC-250V/13A Power Cord, 250 VAC 13 A IEC60320 Plug North America	6.6	2.0	Figure B-11

Table B-1 Supported Power Cords for the Server (continued)

Description	Length		Power Cord Reference Illustration
	Feet	Meters	
CAB-N5K6A-NA Power Cord, 250 VAC 13 A NEMA 6-15 Plug, North America	8.2	2.5	Figure B-12
CAB-9K12A-NA Power cord, 125 VAC, 13 A, NEMA 5-15 Plug North America	8.2	2.5	Figure B-13
CAB-C13-C14-JMPR Cabinet Jumper Power Cord, 250 VAC 13 A, C13-C14 Connectors	2.2	0.7	Figure B-14

AC Power Cord Illustrations

This section contains the AC power cord illustrations.

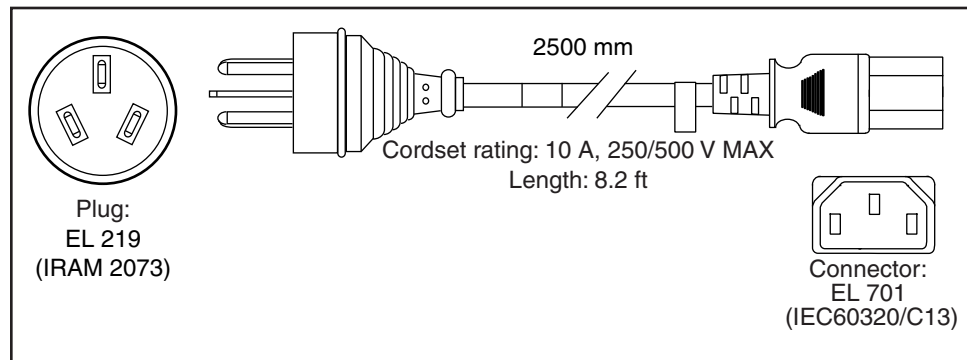
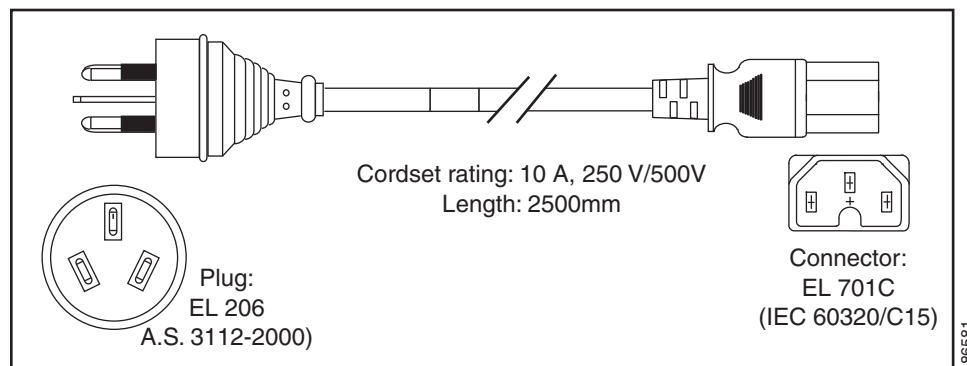
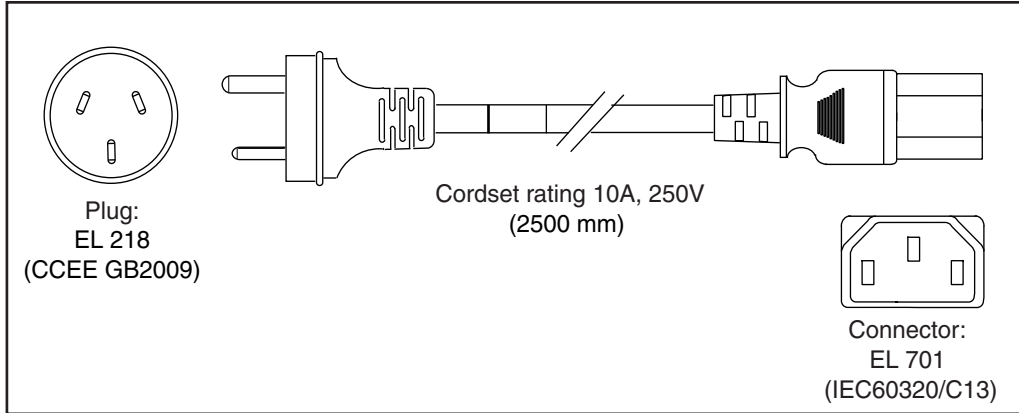
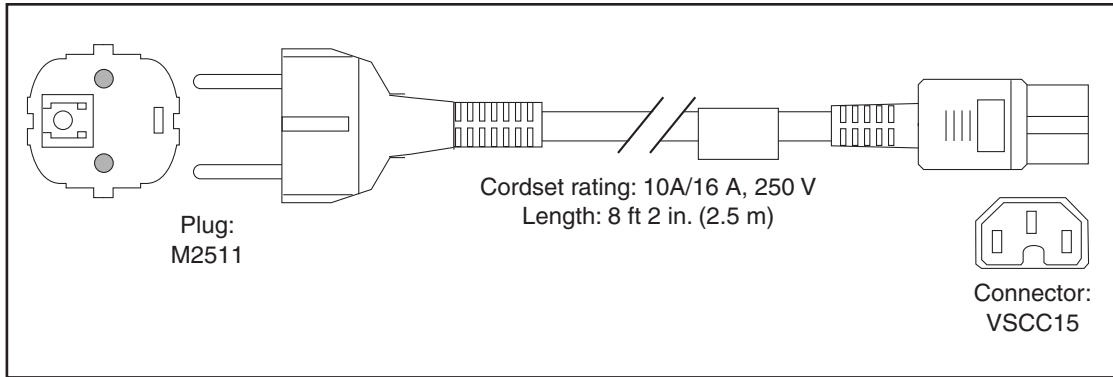
Figure B-2 SFS-250V-10A-AR**Figure B-3 CAB-9K10A-AU**

Figure B-4 SFS-250V-10A-CN



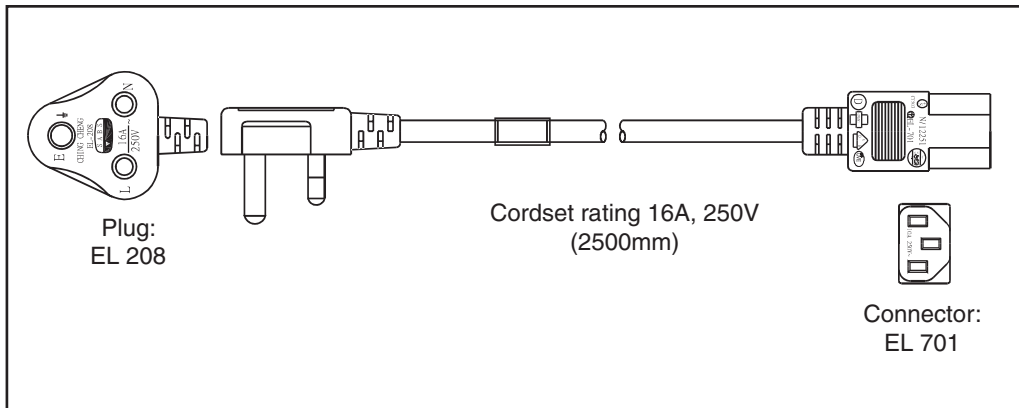
186573

Figure B-5 CAB-9K10A-EU



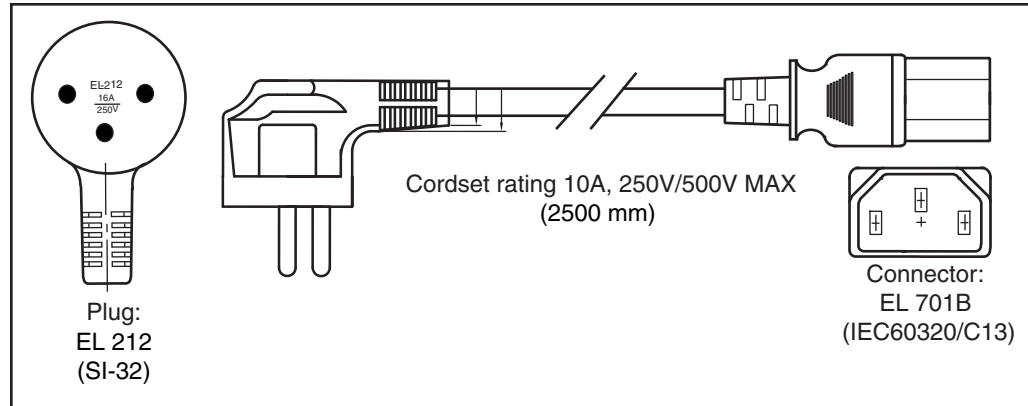
186576

Figure B-6 SFS-250V-10A-ID



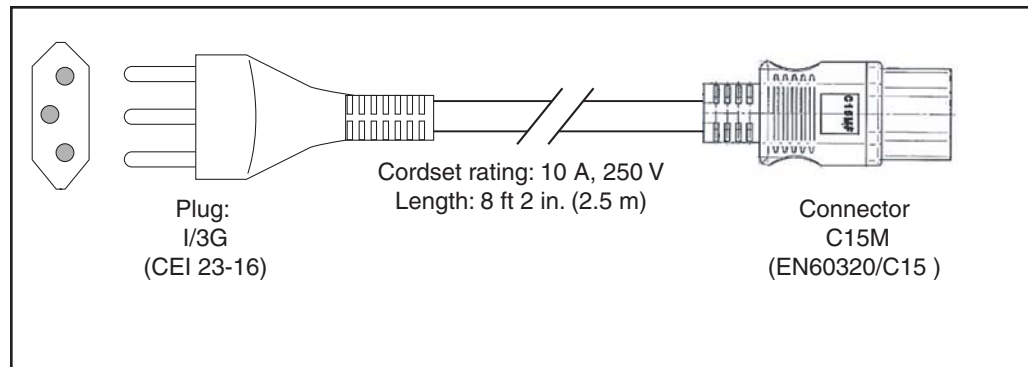
187490

Figure B-7 SFS-250V-10A-IS



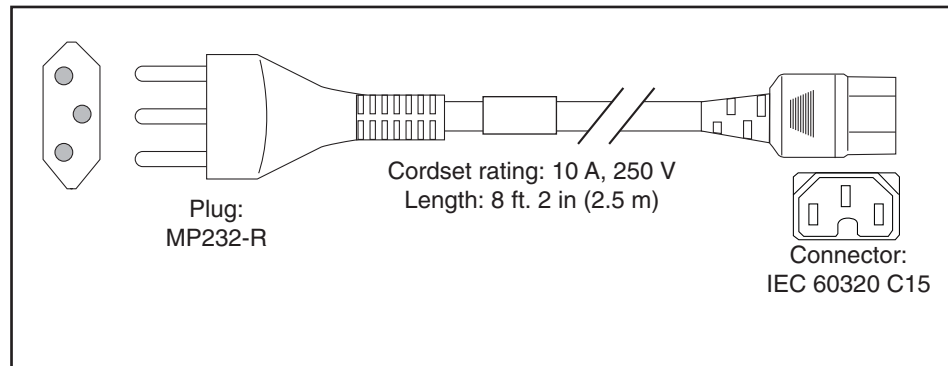
186574

Figure B-8 CAB-9K10A-IT



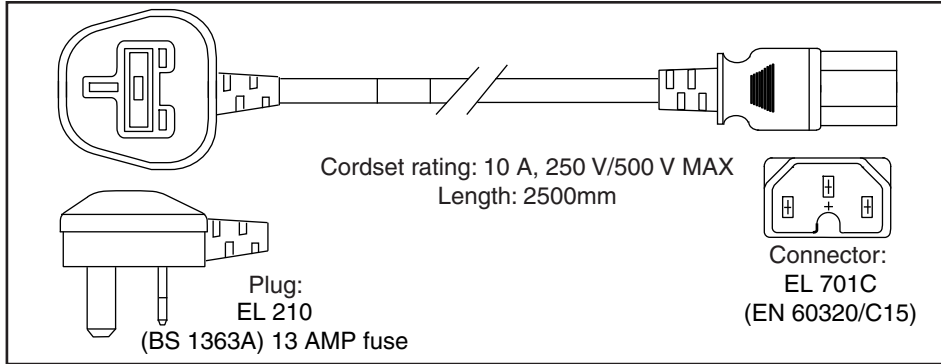
186575

Figure B-9 CAB-9K10A-SW



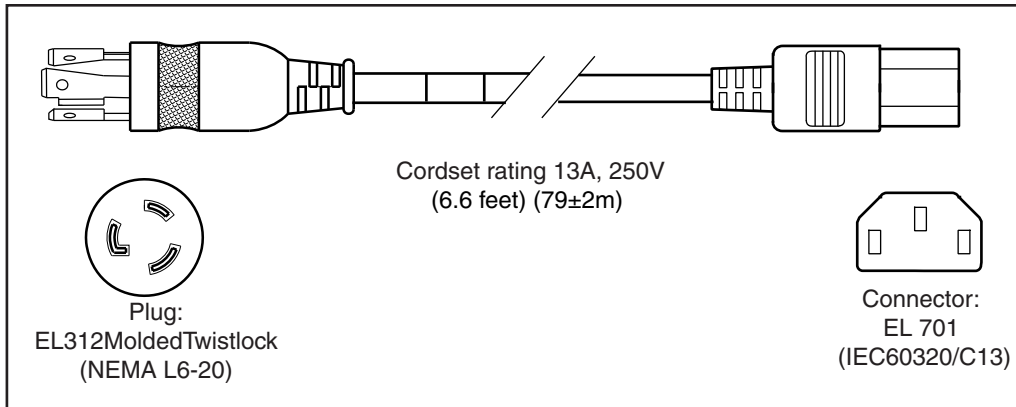
186578

Figure B-10 CAB-9K10A-UK



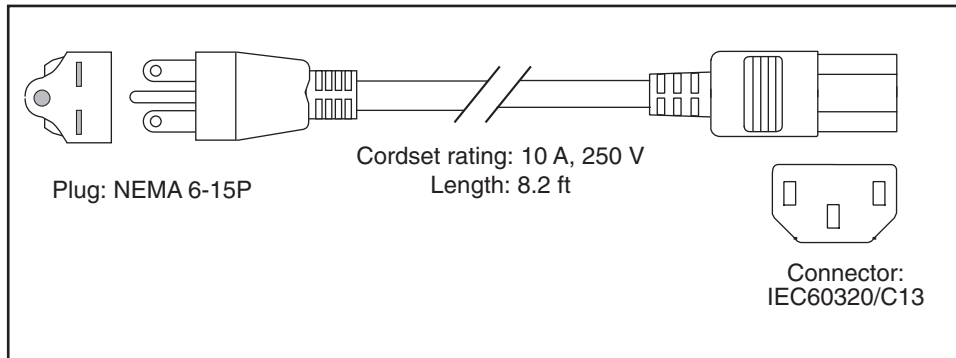
186580

Figure B-11 CAB-AC-250V/13A



186568

Figure B-12 CAB-N5K6A-NA



186570

Figure B-13 CAB-9K12A-NA

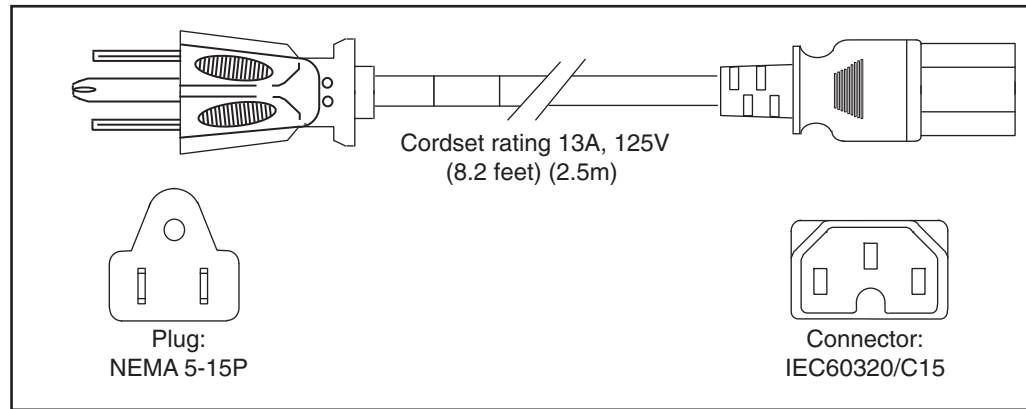
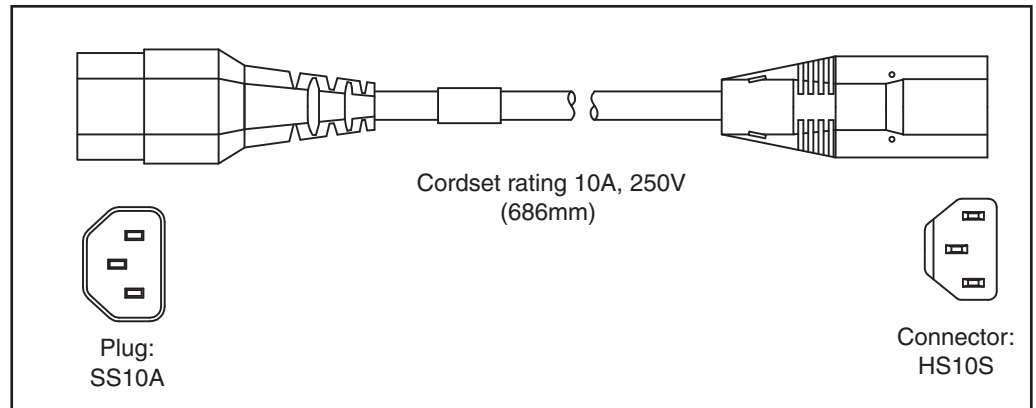


Figure B-14 CAB-C13-C14-JMPR, Jumper Power Cord





APPENDIX C

RAID Controller Considerations

This appendix contains the following sections:

- [Supported RAID Controllers and Required Cables, page C-1](#)
- [Enabling the Integrated Intel ICH10R RAID Controller in the BIOS, page C-2](#)
- [Enabling the Mezzanine Card RAID Controller in the BIOS, page C-3](#)
- [RAID Controller Cabling, page C-3](#)
- [How to Determine Which Controller Is in Your Server, page C-4](#)
- [How to Disable Quiet Boot For CIMC Firmware Earlier Than Release 1.2\(1\), page C-5](#)
- [How To Launch Option ROM-Based Controller Utilities, page C-5](#)
- [Restoring RAID Configuration After Replacing a RAID Controller, page C-6](#)
- [For More Information, page C-7](#)

Supported RAID Controllers and Required Cables

The Cisco UCS C200 Large Form-Factor (LFF) and C200 Small Form-Factor (SFF) server models support the RAID controller options and cable requirements shown in [Table C-1](#) and [Table C-2](#).



Note

Do not mix controller types in the server. Dual controllers are not supported.

Table C-1 Cisco UCS C200 LFF RAID Options (Up to Four 3.5-Inch Internal Drives)

Controller	Style	Max. Internal Drives	SAS	SATA	Opt. BBU	RAID Levels	Required Cables
Intel ICH10R ¹	Integrated	4	No	Yes	No	0, 1	1 SATA R200-SATACBL
LSI 1064E	Mezzanine	4	Yes ²	Yes	No	0, 1, 1E	1 SAS R200-SASCBL
LSI MegaRAID 9260-4i	PCIe	4	Yes ³	Yes	Yes	0, 1, 5, 6, 10, 50, 60	1 SAS R200-SASCBL
LSI MegaRAID 9280-4i4e	PCIe	4	Yes	Yes	Yes	0, 1, 5, 6, 10, 50, 60	1 SAS R200-SASCBL

1. The integrated ICH10R controller must be enabled in the BIOS. This controller is not compatible for use with VMWare ESX/ESXi Server software in any generation or version of the Cisco UCS C200 server.
2. You cannot mix SAS and SATA drives when using a 1064E-based controller.
3. You can mix SAS and SATA drives when using an LSI MegaRAID card. However, you cannot mix SAS and SATA drives within a volume.

Table C-2 Cisco UCS C200 SFF RAID Options (Up to Eight 2.5-Inch Internal Drives)

Controller	Style	Max. Internal Drives	SAS	SATA	Opt. BBU	RAID Levels	Required Cables
Intel ICH10R ¹	Integrated	4	No	Yes	No	0, 1	1 SATA R200-SATACBL
LSI 1068E	Mezzanine	8	Yes ²	Yes	No	0, 1, 1E	4 drives: 1 SAS 8 drives: 2 SAS R200-SASCBL ³
LSI MegaRAID 9260-8i	PCIe	8	Yes ⁴	Yes	Yes	0, 1, 5, 6, 10, 50, 60	4 drives: 1 SAS 8 drives: 2 SAS R200-SASCBL
LSI MegaRAID 9280-4i4e	PCIe	4	Yes	Yes	Yes	0, 1, 5, 6, 10, 50, 60	1 SAS R200-SASCBL

1. The integrated ICH10R controller must be enabled in the BIOS. This controller is not compatible for use with VMWare ESX/ESXi Server software in any generation or version of the Cisco UCS C200 server.
2. You can mix SAS and SATA drives when using a 1068E-based controller. However, you cannot mix SAS and SATA drives within a volume.
3. Two SAS cables (R200-SASCBL) are shipped with the Cisco UCS C200 SFF server.
4. You can mix SAS and SATA drives when using an LSI MegaRAID card. However, you cannot mix SAS and SATA drives within a volume.

Enabling the Integrated Intel ICH10R RAID Controller in the BIOS



Note

The integrated ICH10R RAID controller is not compatible for use with VMWare ESX/ESXi Server software in any generation or version of the Cisco UCS C200 server.

When using the integrated RAID, you must enable the ICH10R controller in SW RAID mode.

- Step 1** Boot the server and press **F2** when prompted to enter the BIOS Setup utility.
- Step 2** Select the **Advanced** tab, then **Mass Storage Controllers Configuration**.
- Step 3** Set Onboard SATA Controller to **Enabled**.
- Step 4** Set SATA Mode to **SW RAID**.
- Step 5** Press **F10** to save your changes and exit the utility.

Enabling the Mezzanine Card RAID Controller in the BIOS

When using the supported mezzanine-style RAID controller card, you must enable the ICH10R controller in Enhanced mode.

-
- Step 1** Make sure that a RAID cable is attached between the mezzanine card and the disk backplane.
 - Step 2** Boot the server and press **F2** when prompted to enter the BIOS Setup utility.
 - Step 3** Select the **Advanced** tab, then **Mass Storage Controllers Configuration**.
 - Step 4** Set Onboard SATA Controller to **Enabled**.
 - Step 5** Set SATA Mode to **Enhanced**.
 - Step 6** Press **F10** to save your changes and exit the BIOS Setup utility.
 - Step 7** To set up a RAID configuration when using the mezzanine card, boot the server and press **Ctrl-C** when prompted to start the WebBIOS utility.
-

RAID Controller Cabling

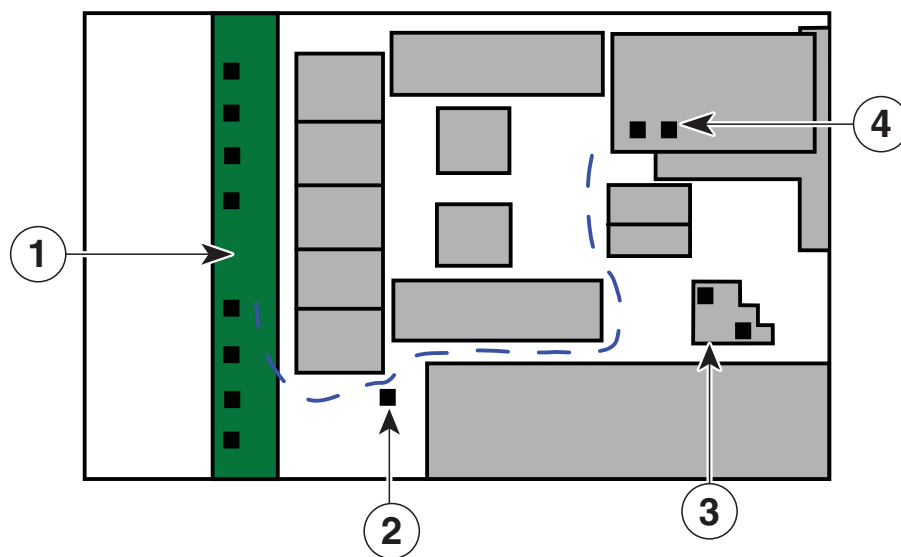
The possible RAID controller connectors in this server are shown in [Figure C-1](#). The blue line indicates the recommended cable routing path from the backplane to the possible controller locations.



Note

The Cisco UCS C200 SFF server is shown, with an eight-drive backplane. The LFF server has a four-drive backplane.

Figure C-1 RAID Controller Connectors



332177

1	Drive backplane	3	Mezzanine card connector(s)
2	Integrated RAID connector on motherboard	4	LSI MegaRAID PCIe card connectors

Cisco UCS C200 LFF Server Cabling

The cable connections required for each type of controller are as follows:

- Integrated ICH10R: Connect one SATA cable from the motherboard connector to the drives 1–4 connectors on the backplane.
- 1064E mezzanine card: Connect one SAS cable from the single connector on the mezzanine card to the drives 1–4 connectors on the backplane.
- LSI MegaRAID card: Connect one SAS cable from connector 1 on the card to the drives 1–4 connectors on the backplane.

For all controller types, connect the numbered cable connectors to the corresponding numbered backplane connectors. Connect the cable connector labelled SGPIO to the backplane connector labeled SGPIO.

Cisco UCS C200 SFF Server Cabling

The cable connections required for each type of controller are as follows:



Note

Two SAS cables (R200-SASCBL) are shipped with the Cisco UCS C200 SFF server (but not with the LFF version of the server). You can order a set of two spare SAS cables (Cisco PID UCSC-CBL-I2F1).

- Integrated ICH10R: Connect one SATA cable from the motherboard connector to the drives 1–4 connectors on the backplane. (Controls 4 drives only.)
- 1068E mezzanine card: Connect SAS cable 1 from connector 1 on the card to the drives 1–4 connectors on the backplane. Connect SAS cable 2 from connector 2 on the card to the drives 5–8 connectors on the backplane.
- LSI MegaRAID 9260-8i card: Connect SAS cable 1 from connector 1 on the card to the drives 1–4 connectors on the backplane. Connect SAS cable 2 from connector 2 on the card to the drives 5–8 connectors on the backplane.
- LSI MegaRAID 9280-4i4e card: Connect one SAS cable from connector 1 on the card to the drives 1–4 connectors on the backplane. (Controls 4 drives only.)

For all controller types, connect the numbered cable connectors to the corresponding numbered backplane connectors. Connect the cable connector labelled SGPIO to the backplane connector labeled SGPIO.

How to Determine Which Controller Is in Your Server

If you do not have a record of which device is used in the server, you can read the on-screen messages that are displayed during system bootup. These messages display information about the devices that are installed in your server.

- Information about the models of card installed are displayed as part of the verbose boot. You are also prompted to press **Ctrl-H** to launch configuration utilities for those cards. For servers running CIMC firmware earlier than release 1.2(1), see also [How to Disable Quiet Boot For CIMC Firmware Earlier Than Release 1.2\(1\)](#), page C-5.

- If the mezzanine-style card is enabled, you are prompted to press **Ctrl-C** to launch the configuration for these cards. See also [Enabling the Mezzanine Card RAID Controller in the BIOS, page C-3](#)
- If no models of card are displayed but there is a RAID configuration, your server is using the onboard ICH10R controller. You are also prompted to press **Ctrl-M** to launch the configuration utilities for this controller (see graphic below). See also [Enabling the Integrated Intel ICH10R RAID Controller in the BIOS, page C-2](#).

```

Cisco Virtual KVM Console - 172.25.183.144
File View Macros Tools Help

LSI MegaRAID Software RAID BIOS Version A.09.07211059R
LSI SATA RAID Found at PCI Bus No:00 Dev No:1F
Device present at port 0 ST3500320NS 476420MB
Device present at port 1 ST3500320NS 476420MB
Device present at port 5 Optiarc DVD RW AD-7580S

01 Virtual drive(s) Configured.
Array# Mode Stripe Size No.Of Stripes DriveSize Status
00 RAID 1 64KB 02 475803MB Online
Press Ctrl-M or Enter to run LSI Software RAID Setup Utility.
  
```

How to Disable Quiet Boot For CIMC Firmware Earlier Than Release 1.2(1)

For CIMC firmware and BIOS release 1.2(1) and later, Quiet Boot has been removed. If you are running CIMC firmware and BIOS earlier than release 1.2(1), you can use the following procedure to disable Quiet Boot.

To disable quiet boot so that the controller information and the prompts for the option ROM-based LSI utilities are displayed during bootup, follow these steps:

-
- Step 1** Boot the server and watch for the F2 prompt during bootup.
 - Step 2** Press **F2** when prompted to enter the BIOS Setup utility.
 - Step 3** On the Main page of the BIOS Setup utility, set Quiet Boot to Disabled. This allows non-default messages, prompts, and POST messages to display during bootup instead of the Cisco logo screen.
 - Step 4** Press F10 to save your changes and exit the utility.
-

How To Launch Option ROM-Based Controller Utilities

To alter the RAID configurations on your hard drives, you can use your host-based utilities that you install on top of your host OS, or you can use the LSI option ROM-based utilities that are installed on the server.

When you boot the server and you have quiet boot disabled (see [How to Disable Quiet Boot For CIMC Firmware Earlier Than Release 1.2\(1\), page C-5](#)), information about your controller is displayed along with the prompts for the key combination to launch the option ROM-based utilities for your controller.

Watch for the prompt for your controller during verbose boot:

- The prompt for LSI controller card utility is **Ctrl-H**.
- The prompt for the mezzanine-style controller cards is **Ctrl-C**.
- The prompt for the onboard Intel ICH10R controller utility is **Ctrl-M**.

**Note**

Cisco has also developed the Cisco Server Configuration Utility for C-Series servers, which can assist you in setting up some RAID configurations for your drives. This utility is shipped with new servers on CD. You can also download the ISO from Cisco.com. See the user documentation for this utility at the following URL:

http://www.cisco.com/en/US/docs/unified_computing/ucs/sw/ucsscu/user/guide/20/SCUUG20.html

Restoring RAID Configuration After Replacing a RAID Controller

When you replace a RAID controller, the RAID configuration that is stored in the controller is lost. Use the following procedure to restore your RAID configuration to your new RAID controller.

-
- Step 1** Replace your RAID controller. See [Replacing an LSI MegaRAID Battery Backup Unit, page 3-40](#).
- Step 2** If this was a full chassis swap, replace all drives into the drive bays, in the same order that they were installed in the old chassis.
- Step 3** If Quiet Boot is enabled, disable it in the system BIOS. See [How to Disable Quiet Boot For CIMC Firmware Earlier Than Release 1.2\(1\), page C-5](#).
- Step 4** Reboot the server and watch for the prompt to press F.
- Step 5** Press **F** when you see the following on-screen prompt:
- ```
Foreign configuration(s) found on adapter.
Press any key to continue or 'C' load the configuration utility,
or 'F' to import foreign configuration(s) and continue.
```
- Step 6** Press any key (other than C) to continue when you see the following on-screen prompt:
- ```
All of the disks from your previous configuration are gone. If this is
an unexpected message, then please power of your system and check your cables
to ensure all disks are present.
Press any key to continue, or 'C' to load the configuration utility.
```
- Step 7** Watch the subsequent screens for confirmation that your RAID configuration was imported correctly.
- If you see the following message, your configuration was successfully imported. The LSI virtual drive is also listed among the storage devices.


```
N Virtual Drive(s) found on host adapter.
```
 - If you see the following message, your configuration was not imported. This can happen if you do not press F quickly enough when prompted. In this case, reboot the server and try the import operation again when you are prompted to press F.


```
0 Virtual Drive(s) found on host adapter.
```

For More Information

The LSI utilities have help documentation for more information about using the utilities.

For basic information about RAID and for using the utilities for the RAID controller cards, see the [Cisco UCS Servers RAID Guide](#).

Full LSI documentation is also available:

- LSI MegaRAID SAS Software User's Guide (for LSI MegaRAID)
http://www.cisco.com/en/US/docs/unified_computing/ucs/3rd-party/lsi/mrsas/userguide/LSI_MR_SAS_SW_UG.pdf
- LSI SAS2 Integrated RAID Solution User Guide (for LSI SAS1064E)
http://www.cisco.com/en/US/docs/unified_computing/ucs/3rd-party/lsi/irsas/userguide/LSI_IR_SAS_UG.pdf



APPENDIX **D**

Installation for Cisco UCS Integration

The Cisco UCS integration instructions have been moved to the integration guides found here:
[Cisco UCS C-Series Server Integration with UCS Manager Guides](#)

Refer to the guide that is for the version of Cisco UCS Manager that you are using.

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