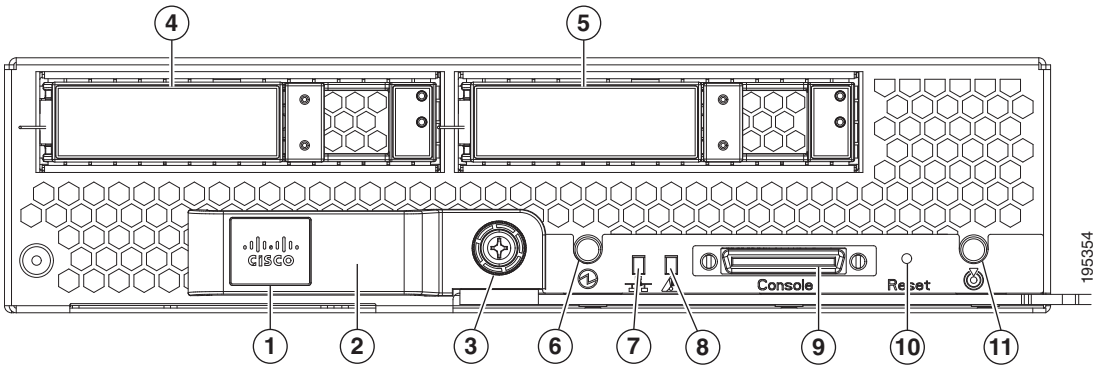
Cisco UCS B200 Blade Server Installation and Service Note

The UCS B200 blade server (shown in Figure 1) is now only available in the M2 version (the M1 version is no longer sold as of 1/21/2011). The procedures in this document apply to both versions. The Cisco UCS B200 is a half-width blade with 12 DIMM slots; it supports one adapter. You may install up to eight UCS B200 Blade Servers to a UCS chassis.

Figure 1 Cisco UCS B200 Front Panel



1	Asset tab [1]	**7**	Network link status LED
2	Blade ejector handle	**8**	Blade health LED
3	Ejector captive screw	**9**	Console connector
4	Hard drive bay 1	**10**	Reset button access
5	Hard drive bay 2	**11**	Beaconing LED and button
6	Power button and LED		

1. Each server has a blank plastic tag that pulls out of the front panel, provided so you can add your own asset tracking label without interfering with the intended air flow.

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LEDs

The LED indicators indicate whether the blade server is in active or standby mode, the status of the network link, the over all health of the blade server, and whether the server is set to give a flashing blue beaconing indication. See Table 1 for details.

The removable hard disks also have LEDs indicating hard disk access activity and hard disk health.

Table 1 Blade Server LEDs

LED	Color	Description
Power	Off	Power off.
	Green	Normal operation.
	Amber	Standby.
Link	Off	None of the network links are up.
	Green	At least one network link is up.
Health	Off	Power off.
	Green	Normal operation.
	Amber	Minor error.
	Blinking Amber	Critical error.
Beaconing	Off	Beaconing not enabled.
	Blinking blue 1 Hz	Beaconing to locate a selected blade—If the LED is not blinking, the blade is not selected. You can initiate beaconing in UCS Manager or with the button.
Activity (Disk Drive)	Off	Inactive.
	Green	Outstanding I/O to disk drive.
Health (Disk Drive)	Off	No fault.
	Amber	Some fault.[1]

1. This reading may not be reliable if the drive is part of a damaged RAID array, or if the BIOS fails to complete POST.

Buttons

The Reset button is just inside the chassis and must be pressed using the tip of a paper clip or a similar item. Hold the button down for five seconds and then release it to restart the server if other methods of restarting are not working.

The beaconing function for an individual server may get turned on or off by pressing the combination button and LED. See Table 1 for details.

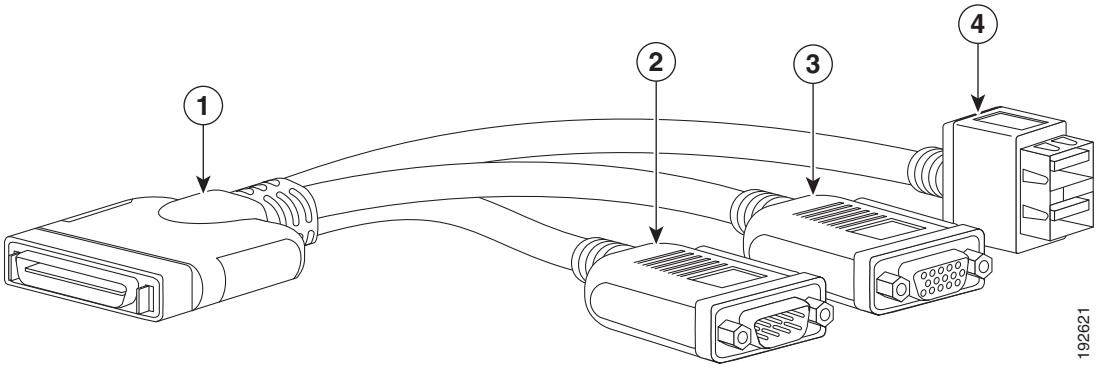
The power button and LED allows you to manually take a server temporarily out of service but leave it in a state where it can be restarted quickly. If the desired power state for a service profile associated with a blade server or an integrated rack-mount server is set to "off", using the power button or Cisco UCS Manager to reset the server will cause the desired power state of the server to become out of sync with the actual power state and the server may unexpected shutdown at a later time. To safely reboot a server from a power-down state, use the Boot Server action in Cisco UCS Manager.

Connectors

A console port is provided to give a direct connection to a blade server to allow operating system installation and other management tasks to be done directly rather than remotely. The port uses the KVM dongle device included in the chassis accessory kit.

The KVM cable (N20-BKVM shown in Figure 2) provides a connection into a Cisco UCS blade 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 a blade server.

Figure 2 KVM Cable for Blade Servers



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

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

FONTOS BIZTONSÁGI ELOÍRÁSOK

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

警告 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。

주의 중요 안전 지침

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이 지시 사항을 보관하십시오.

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 legemesbeskadigelse. 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 للحيلولة دون وقوع أي حوادث. استخدم رقم البيان الموجود في أخر 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 συνήθεις 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 כד לאתר את התרגום באזהרות הבטיחות המתורגמות שמצורפות להתקן.

שמור הוראות אלה

Opomena

ВАЖНИ БЕЗБЕДНОСНИ НАПАТСТВИЈА

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 преведените безбедносни предупредувања што се испорачани со уредот.

ЧУВАЈТЕ ГИ ОВИЕ 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

Opozorilo

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

Installing and Removing a Blade Server Hard Drive

There are up to 2 front-accessible, hot-swappable, 2.5-inch drives per blade. An LSI 1064E RAID controller is embedded in the motherboard (it is not separately replaceable) and it supports RAID 0 and 1. You can remove blade server hard drives without removing the blade server from the chassis. All other component replacement for a blade server requires removing the blade from the chassis. Unused hard drive bays should always be covered with cover plates (N20-BBLKD) to assure proper cooling and ventilation. The chassis is omitted from illustrations here to simplify the drawing.

Caution To prevent ESD damage, wear grounding wrist straps during these procedures and handle modules by the carrier edges only.

Note Seagate SATA disks and Intel or Samsung SATA SSDs are not supported in UCS Manager release 1.2(1) and can not be used with servers using UCS Manager release 1.2(1).

Caution RAID array migration between a B200 M1 or B200 M2 and a B200 M3 is not supported

Replacing an HDD or SSD with a drive of the same size, model, and manufacturer generally causes few problems with UCS Manager. If the drive being replaced was part of a RAID array we recommend using a newly ordered drive of identical size, model, and manufacturer to replace the failed drive. Cisco recommends following industry standard practice of using drives of the same capacity when creating RAID volumes. If drives of different capacities are used, the useable portion of the smallest drive will be used on all drives that make up the RAID volume. Before upgrading or adding an HDD to a running system, check the service profile in UCS Manager and make sure the new hardware configuration will be within the parameters allowed by the service profile.

Hard disk and RAID troubleshooting information is in the "Troubleshooting Server Hardware" chapter of the *Cisco UCS Troubleshooting Guide*.

Table 2 shows the drives supported in this blade server.

Table 2 Supported Hard Disk Drives (HDD)

Product ID	Description
HDD	
A03-D073GC2[1]	73 GB, 6Gb SAS transfer rate[2], 15K RPM HDD/hot plug/drive sled mounted
A03-D146GA2 [3]	146 GB 6Gb SAS transfer rate[2], 10K RPM SFF HDD/hot plug/drive sled mounted
A03-D146GC2	146 GB 6Gb SAS transfer rate[2], 10K RPM SFF HDD/hot plug/drive sled mounted
A03-D300GA2	300 GB, 6Gb SAS transfer rate[2], 10K RPM HDD/hot plug/drive sled mounted
A03-D600GA2	600 GB, 6Gb SAS transfer rate[2], 10K RPM HDD/hot plug/drive sled mounted
A03-D1TBSATA	1TB 6Gb SATA 7.2K RPM SFF HDD/hot plug/drive sled mounted [2]
A03-D500GC3	500GB 6Gb SATA 7.2K RPM SFF hot plug/drive sled mounted [2]
UCS-HDD300GI2F105	300GB 6Gb SAS 15K RPM SFF HDD/hot plug/drive sled mounted[5]
UCS-HDD900GI2F106	900GB 6Gb SAS 10K RPM SFF HDD/hot plug/drive sled mounted[4]
SSD	
UCS-SSD100GI1F104	100GB SATA SSD SFF [5]
A03-D100SSD	100 GB SATA SSD HDD/hot plug/drive sled mounted[3]

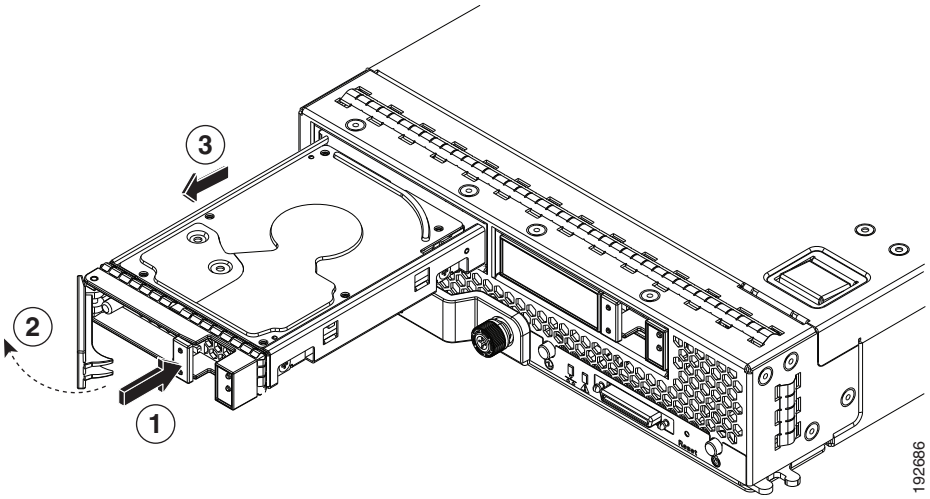
1. This part reached end of sale on 12/12/2011.
2. The built-in 1064E RAID controller runs at 1.5Gb Link Speed instead of 3Gb with 6Gb Local Disks when running UCS 1.4(2) and earlier software eleases.
3. This part reached end of sale on 12/16/2011.
4. This drive requires UCS capability catalog version 1.0.54.T or 2.0.1pT or later.
5. This drive requires UCS capability catalog version 1.0.50.T or 2.0.1nT or later.

Removing a Blade Server Hard Drive

To remove a hard drive from a blade server, follow these steps:

Step 1 Push the button to release the ejector, and then pull the hard drive from its slot.

Figure 3 Removing the Hard Drive



Step 2 Place the hard drive on an antistatic mat or antistatic foam if you are not immediately reinstalling it in another blade server.

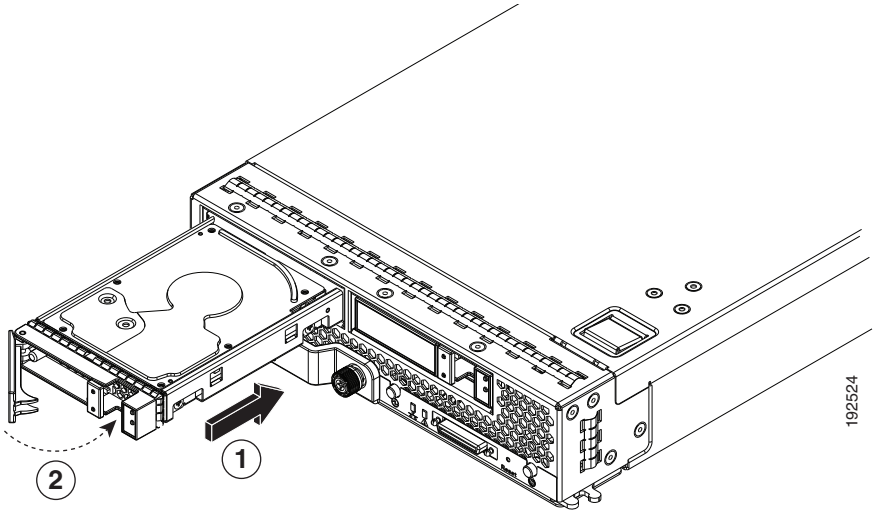
Step 3 Install a blank faceplate (N20-BBLKD) to keep dust out of the blade server if the slot will remain empty.

Installing a Blade Server Hard Drive

To install a blade server hard drive in a blade server, follow these steps:

Step 1 Place the hard drive lever into the open position by pushing the release button (see Figure 4).

Figure 4 Installing a Hard Drive in a Blade Server



Step 2 Gently slide the hard drive into the opening in the blade server until it seats into place.

Step 3 Push the hard drive lever into the closed position.

You can use UCS Manager to format and configure RAID services. refer to the UCS Manager configuration guide for your software release for details on RAID configuration.

If you need to move a RAID cluster, refer to the Moving a RAID Cluster section of the "Troubleshooting Server Hardware" chapter of the Cisco UCS Troubleshooting Guide.

Removing and Installing a UCS B200 Blade Server

Before performing any internal operation on a blade server, you must remove it from the chassis. To prevent ESD damage, wear grounding wrist straps during these procedures and handle modules by the carrier edges only.

Caution To prevent ESD damage, wear grounding wrist straps during these procedures and handle modules by the carrier edges only.

Shutting Down and Powering Off A Blade Server

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.

After establishing a connection to the blade server's operating system, you can directly shut down the blade server using the operating system.

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

- Use the UCS Manager. See either the Cisco UCS Manager GUI Configuration Guide or the Cisco UCS Manager 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.

- 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 If you are shutting down all blade servers in a chassis, you should now disconnect the power cords from the chassis to completely power off the servers. If you are only shutting down one server, you can skip unplugging the chassis and move to removing the server.

Removing a Cisco UCS B200 Blade Server

Using UCS Manager, decommission the server using UCS Manager before physically removing the server. To remove a blade server from the chassis, follow these steps:

Step 1 Loosen the captive screw on the front of the blade.

Step 2 Remove the blade from the chassis by pulling the ejector lever on the blade until it unseats the blade server.

Step 3 Slide the blade part of the way out of the chassis, and place your other hand under the blade to support its weight.

Step 4 Once removed, place the blade on an antistatic mat or antistatic foam if you are not immediately reinstalling it into another slot.

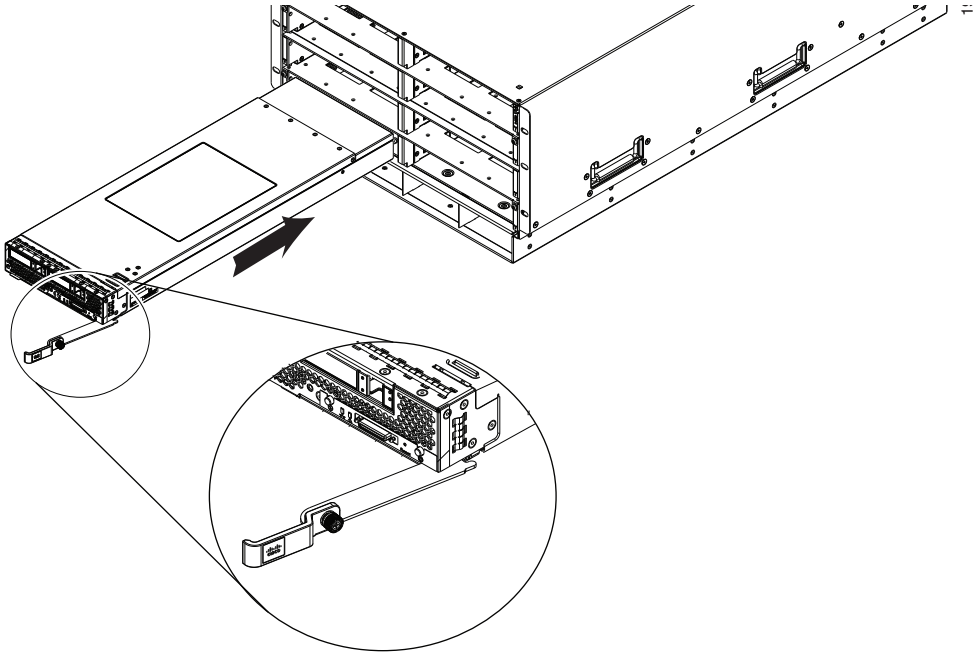
Step 5 If the slot is to remain empty, install a blank faceplate (N20-CBLKB1) to keep dust out of the chassis.

Installing a Cisco UCS B200 Blade Server

To install a blade server, follow these steps:

Step 1 Grasp the front of the blade server and place your other hand under the blade to support it. See Figure 5.

Figure 5 Positioning a Blade Server in the Chassis



Step 2 Open the ejector lever in the front of the blade server.

Step 3 Gently slide the blade into the opening until you cannot push it any farther.

Step 4 Press the ejector lever so that it catches the edge of the chassis and presses the blade server all the way in.

Step 5 Tighten the captive screw on the front of the blade to no more than 3 in-lbs. Tightening with bare fingers only is unlikely to lead to stripped or damaged captive screws.

Step 6 Power on the server. UCS Manager will automatically re acknowledge, reassociate, and recommission the server, provided any hardware changes are allowed by the service profile.

Figure 5 shows the positioning of a blade server in the chassis. Blade servers reside within the eight upper slots of the chassis.

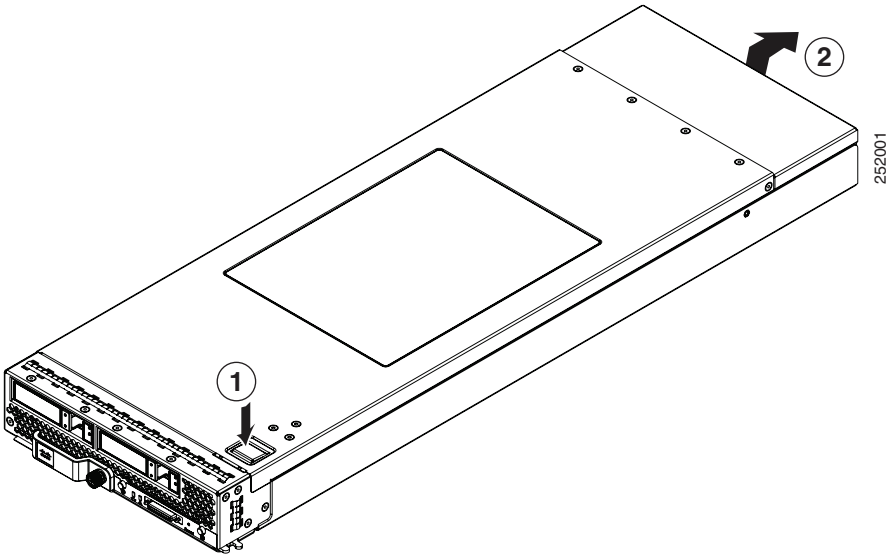
Removing a Blade Server Cover

Replacing the cover is the reverse of removing the cover. To open a blade server:

Step 1 Press and hold the button down as shown in Figure 6

Step 2 While holding the back end of the cover, pull the cover up and back.

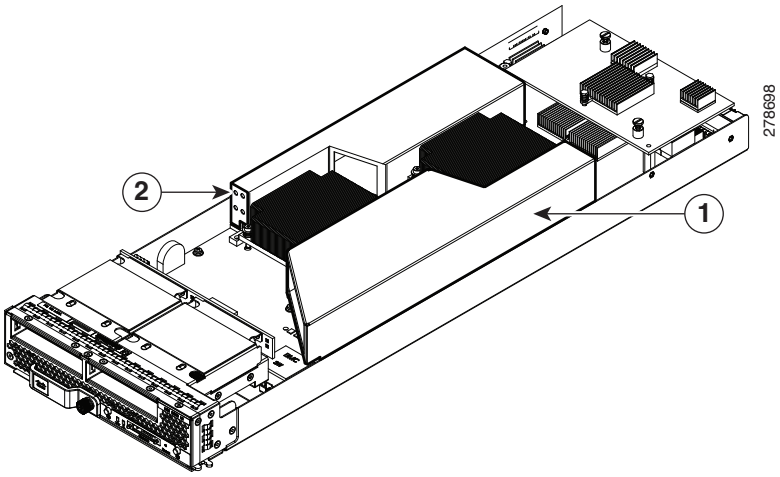
Figure 6 Opening a Cisco UCS B200 Blade Server



Air Baffles

The air baffles shown in Figure 7 ship with all M2 models, they direct and improve air flow for the server components. No tools are necessary to install them, just place them over the DIMMs as shown.

Figure 7 Cisco UCS B200 Air Baffles

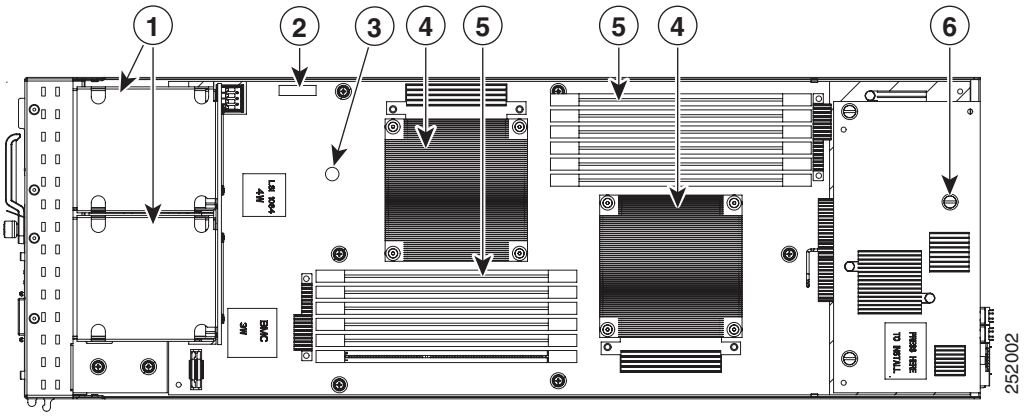


1	Left Baffle	**2**	Right Baffle

Internal Components

Figure 8 calls out the various components within the blade server.

Figure 8 Inside View of a Blade Server



1	Hard drive bays	**2**	Battery
3	Diagnostic button	**4**	CPU and heat sink
5	DIMM slots	**6**	Adapter card

Diagnostics Button and LEDs

At blade start-up, POST diagnostics test the CPUs, DIMMs, HDDs and adapter cards, and any failure notifications are sent to UCS Manager. You can view these notifications in the System Error Log or in the output of the **show tech-support** command. If errors are found, an amber diagnostic LED will also light up next to the failed component. During run time, the blade BIOS, component drivers, and OS all monitor for hardware faults and will light up the amber diagnostic LED for a component if an uncorrectable error or correctable errors (such as a host ECC error) over the allowed threshold occur.

LED states are saved, and if you remove the blade from the chassis the LED values will persist for up to 10 minutes. Pressing the LED diagnostics button on the motherboard will cause the LEDs that currently show a component fault to light for up to 30 seconds for easier component identification. LED fault values are reset when the blade is reinserted into the chassis and booted, and the process begins from its start.

If DIMM insertion errors are detected, they may cause the blade discovery to fail and errors will be reported in the server POST information, viewable using the UCS Manager GUI or CLI. UCS blade servers require specific rules to be followed when populating DIMMs in a blade server, and the rules depend on the blade server model. Refer to the documentation for a specific blade server for those rules.

HDD status LEDs are on the front face of the HDD. Faults on the CPU, DIMMs, or adapter cards will also cause the server health LED to light solid Amber for minor error conditions or blinking Amber for critical error conditions.

Installing a Motherboard CMOS Battery

The B200 blade server supports the following Cisco component:

Supported Components	Part Number
CR2032 battery	N20-MBLIBATT

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

To install or replace a motherboard complementary metal-oxide semiconductor (CMOS) battery, follow these steps:

Step 1 Remove a motherboard CMOS battery:

a. Power off the blade, remove it from the chassis, and remove the top cover as described in the "Removing a Blade Server Cover" section on page 14.

b. Press the battery socket retaining clip toward the chassis wall (see Figure 9).

c. 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:

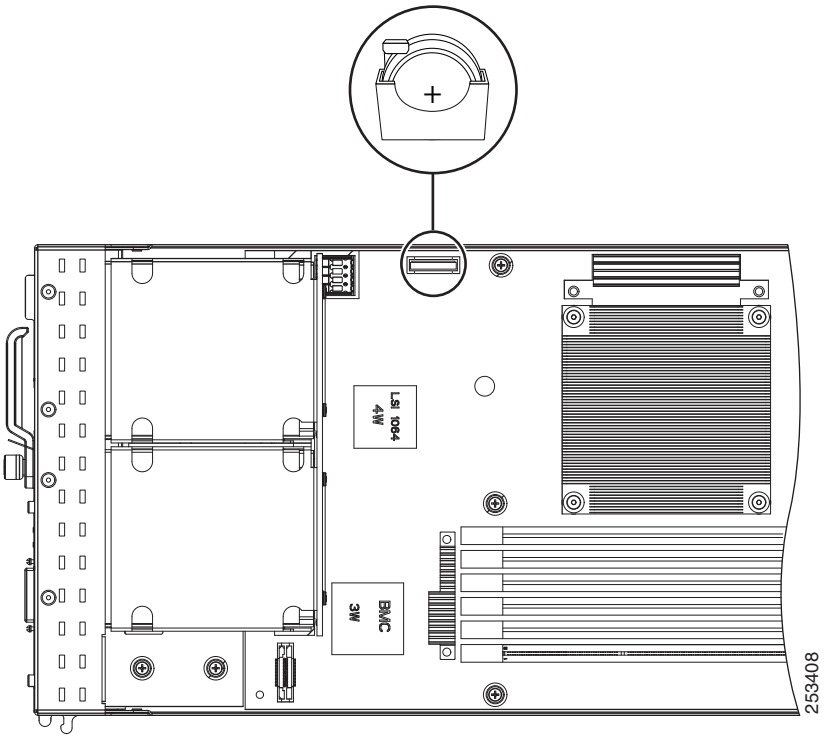
a. Press the battery socket retaining clip toward the chassis wall.

b. Insert the new battery into the socket with the battery's negative (–) 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 chassis and power on the blade by pressing the **Power** button.

Figure 9 Removing and Replacing a Motherboard CMOS Battery



CPU Replacement

You can order your blade server with two CPUs, or upgrade later to a second CPU. Both CPUs must be of the same type, and memory in slots intended for the second CPU will not be recognized if the second CPU is not present (see Memory Arrangement). You may need to use these procedures to move a CPU from one server to another, or to replace a faulty CPU.

Table 3 and Table 4 show the available CPU options:

Table 3 CPU Options, M1 Models

Product ID	Power Draw (W)	Clock Speed	DDR3	Cache
N20-X00001 / Xeon X5570	95W	2.93 GHz	1333	8MB
N20-X00002 / Xeon E5540	80W	2.53 GHz	1066	8MB
N20-X00003 / Xeon E5520	80W	2.26 GHz	1066	8MB
N20-X00004 / Xeon L5520	60W	2.26 GHz	1066	8MB
N20-X00006 / Xeon X5550	95 W	2.66 GHz	1333	8 MB
N20-X00009 / Xeon E5504	80 W	2.00 GHz	800	8 MB

Table 4 CPU Options, M2 Models

Product ID	Power Draw (W)	Clock Speed	DDR3 (MHz)	Cache
N20-X00001 / Xeon X5570	95 W	2.93 GHz	1333	8MB
N20-X00002 / Xeon E5540	80 W	2.53 GHz	1066	8MB
N20-X00003 / Xeon E5520	80 W	2.26 GHz	1066	8MB
N20-X00004 / Xeon L5520	60W	2.26 GHz	1066	8MB
N20-X00006 / Xeon X5550	95 W	2.66 GHz	1333	8 MB
N20-X00009 / Xeon E5504	80 W	2.00 GHz	800	8 MB
A01-X0100 / Xeon X5680	130 W	3.33 GHz	1333	12 MB
A01-X0102 / Xeon X5670	95 W	2.93 GHz	1333	12 MB
A01-X0105 / Xeon X5650	95 W	2.66 GHz	1333	12 MB
A01-X0106 / Xeon L5640	60 W	2.26 GHz	1066	12 MB
A01-X0109 / Xeon E5640	80 W	2.66 GHz	1066	12 MB
A01-X0111 / Xeon E5620	80 W	2.40 GHz	1066	12 MB
A01-X0115 / Xeon X5690	130 W	3.46 GHz	1333	12 MB
A01-X0117 / Xeon X5675	95 W	3.06 GHz	1333	12 MB
A01-X0120 / Xeon E5649	80 W	2.53 GHz	1333	12 MB
UCS-CPU-X5687 / Xeon X5687 [1]	130 W	3.60 GHz	1333	12 MB
UCS-CPU-E5645 / E5645 [1]	80W	2.40 GHz	1333	12 MB

1. This CPU requires UCS capability catalog version 1.0.50.T or 2.0.1nT or later.

Removing a CPU and Heat Sink

To remove a CPU and heat sink, follow these steps:

Step 1 Unscrew the four captive screws securing the heat sink to the motherboard. See Figure 10, callout 1.

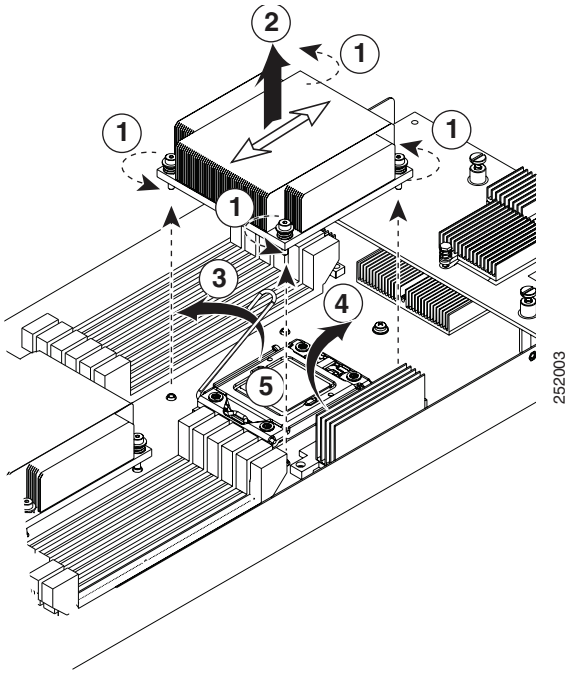
Step 2 Remove the heat sink (N20-BHTS1 on both M1 and M2). See Figure 10, callout 2. Remove the old thermal compound from the bottom of the heat sink using the cleaning kit (UCSX-HSCK=) available from Cisco. Follow the instructions on the two bottles of cleaning solvent.

Step 3 Unhook the socket latch. See Figure 10, callout 3.

Step 4 Open the socket latch. See Figure 10, callout 4.

Step 5 Remove the CPU or socket protective cover. See Figure 10, callout 5.

Figure 10 Removing The Heat Sink and Accessing the CPU Socket



Installing a CPU and Heat Sink

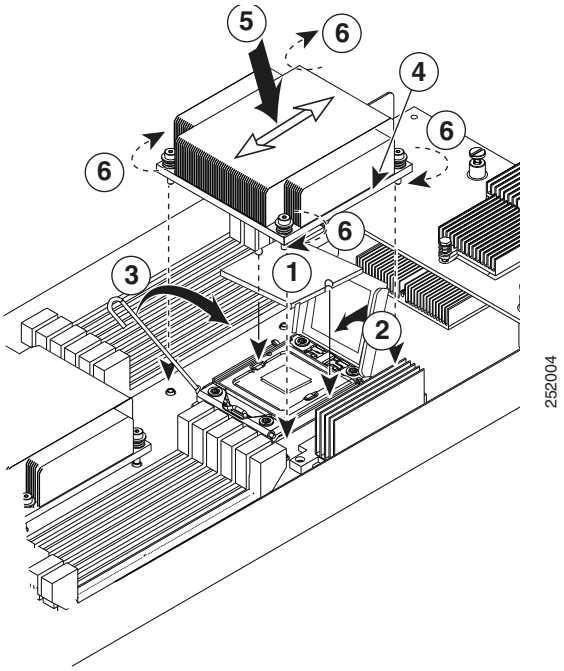
Before installing a new CPU in a server, verify the following:

- The CPU is supported for that model server.
- A BIOS is available and installed that supports the CPU/DIMM and server combination.
- The service profile for this server in UCS Manager will recognize and allow the new CPU. This is especially important if you have been using a single processor and install a second processor.

To install a CPU and heat sink, follow these steps:

Step 1 Place the CPU on the base with the notches aligned to the pins on the base. See Figure 11, callout 1.

Figure 11 Inserting the CPU and Replacing the Heat Sink



Step 2 Close the socket latch. See Figure 11, callout 2.

Step 3 Lock the socket latch into place with the hook. See Figure 11, callout 3.

Step 4 Using the tube of thermal compound provided with replacement CPUs and servers (Dow-Corning TC-1996, Intel D54816-0 or an equivalent may also be used), add a protective film of thermal compound to the bottom of the heat sink where it will contact the CPU. See Figure 11, callout 4.

Step 5 Replace the heat sink (N20-BHTS1). See Figure 11, callout 5.

Caution For proper cooling, align the arrows on the installed heat sink to point to the front and back of the blade. Make sure that the heat sink fins are aligned to run along the length of the blade server (see Figure 11).

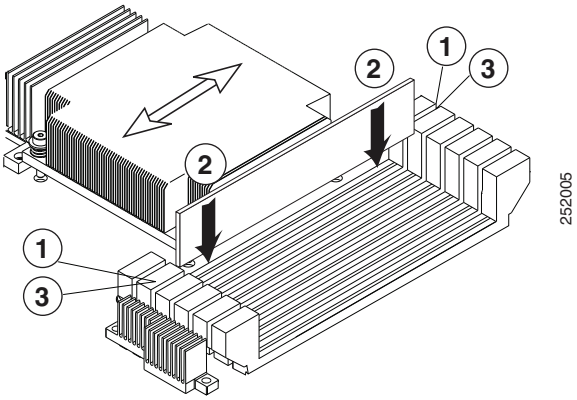
Step 6 Secure the heat sink to the motherboard by tightening the four captive screws. See Figure 11, callout 6.

Installing Memory

To install a DIMM into the B200 blade server, follow these steps:

Step 1 Open both DIMM connector latches.

Figure 12 Installing DIMMs in the Blade Server



Step 2 Press the DIMM into its slot evenly on both ends until it clicks into place.

Step 3 Press the DIMM connector latches inward slightly to seat them fully.

Supported DIMMs

The following tables list the type of DIMMs that Cisco Systems makes available for use with this blade server:

Table 5 Cisco Systems Supported DIMMs for M1 Servers

Cisco Product ID	Description
N01–M302GB1	2 GB DDR3 1333 MHz RDIMM PC3-10600 single rank 1Gb DRAMs
N01–M304GB1	4 GB DDR3 1333 MHz RDIMM PC3-10600 dual rank 1Gb DRAMs
N01-M308GB2	8 GB DDR3 1333 MHz RDIMM PC3-10600 dual rank 2Gb DRAMs
N01-M304GB1-L	4 GB DDR3 1333 MHz RDIMM PC3-10600 dual rank/Low Voltage[1]
N01-M308GB2-L	8 GB DDR3 1333 MHz RDIMM PC3-10600 dual rank/Low Voltage[1]
UCS-MR-1X041RX-A	4 GB DDR3-1333 MHz RDIMM PC3-10600 single rank Low Voltage

1. Low voltage DIMMs require Cisco UCS Manager version 1.2(1) or later, and the related BIOS package.

Table 6 Cisco Systems Supported DIMMs for M2 Servers

Cisco Product ID	Description
N01–M302GB1	2 GB DDR3 1333 MHz RDIMM PC3-10600 single rank 1Gb DRAMs [6]
N01–M304GB1	4 GB DDR3 1333 MHz RDIMM PC3-10600 dual rank 1Gb DRAMs [6]
N01-M308GB2	8 GB DDR3 1333 MHz RDIMM PC3-10600 dual rank 2Gb DRAMs[1] [6]
N01-M304GB1-L	4 GB DDR3 1333 MHz RDIMM PC3-10600 dual rank/Low Voltage[2] [6]
N01-M308GB2-L	8 GB DDR3 1333 MHz RDIMM PC3-10600 dual rank/Low Voltage[1] [2] [6]
A02-M316GB2-L	16 GB DDR3 1066 MHz RDIMM PC3-8500 quad rank/Low Voltage[3] [6]
UCS-MR-1X082RX-A	8 GB DDR3 1333 MHz RDIMM PC3-10600 dual rank/Low Voltage[4]

Table 6 Cisco Systems Supported DIMMs for M2 Servers

Cisco Product ID	Description
UCS-MR-1X041RX-A	4 GB DDR3 1333 MHz RDIMM PC3-10600 single rank/Low Voltage[4]
UCS-MR-1X162RX-A	16GB DDR3 1333 MHz RDIMM PC3-10600 dual rank/ Low Voltage[5] [6]
UCS-MR-1X162RY-A	16GB DDR3 1333 MHz RDIMM PC3-10600 dual rank/ Low Voltage A
A02-M316GB1-L	16GB DDR3 1066 MHz RDIMM PC3-8500 quad rank/Low-Dual Volt [5] [6]

1. This DIMM requires UCS capability catalog version 1.0.37 or later.
2. Low voltage DIMMs require Cisco UCS Manager version 1.2(1) or later, and the related BIOS package.
3. 16 GB DIMMs require Cisco UCS Manager version 1.4(1) and UCS capability catalog version 1.0.16 or later, and the related BIOS package.
4. This DIMM requires UCS capability catalog version 1.0.40 or later.
5. This DIMM requires UCS capability catalog version 1.0.50.T or 2.0.1nT or later.
6. No longer sold.

Low-Voltage DIMM Considerations

The server can be ordered with low-voltage (1.35 V) DIMM pairs or standard-voltage (1.5 V) DIMM pairs. Low-voltage DIMM pairs and standard-voltage DIMM pairs 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 the Power Saving Mode unless all DIMM pairs in the server are low-voltage DIMMs.

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**.

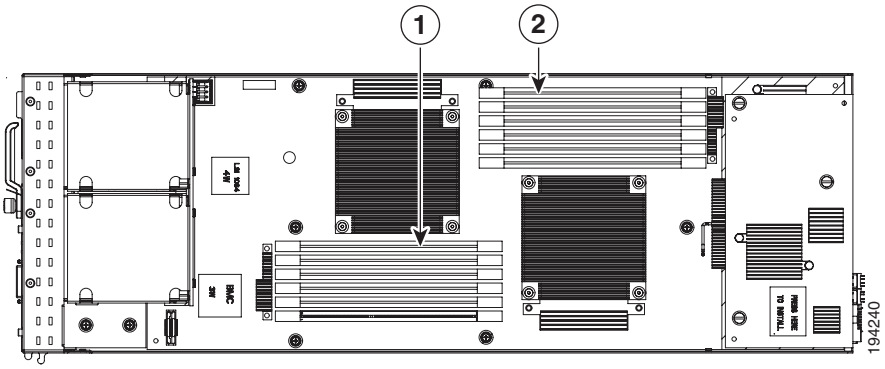
- Power Saving Mode–Enables low-voltage memory operation. This setting is available only if all DIMMs installed are low-voltage DIMMs.
- Performance Mode–Disables low-voltage memory operation. If you mix low-voltage DIMM pairs with standard-voltage DIMM pairs, the system defaults to this setting.

Step 5 Press **F10** to save your changes and exit the setup utility, or you can exit without saving changes by pressing **Esc**.

Memory Arrangement

The blade server contains 12 DIMM slots—six for each CPU. Each set of six DIMM slots is arranged into three channels, where each channel has 2 DIMMs (see Figure 13 and Figure 14).

Figure 13 Memory Slots within the Blade Server

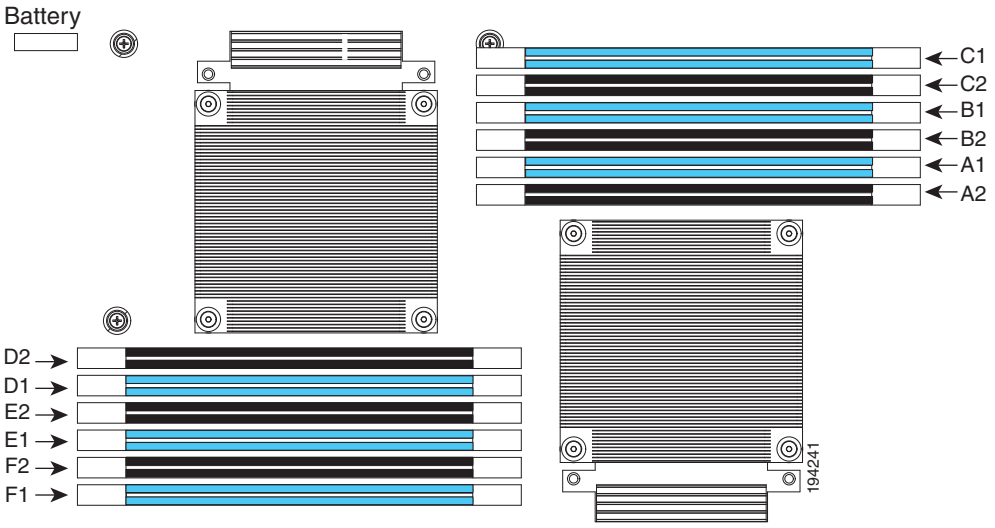


1	Channels D-F for CPU 2	**2**	Channels A-C for CPU 1

Each channel is identified by a letter—A, B, C for CPU1, and D, E, F for CPU 2. Each DIMM slot is identified by a number, either 1 or 2. Note that each DIMM slot 1 is blue, while each slot 2 is black.

Figure 14 shows how DIMMs and channels are physically laid out on the blade server. The DIMM slots in the upper right are associated with the right CPU, while the DIMM slots in the lower left are associated with the left CPU.

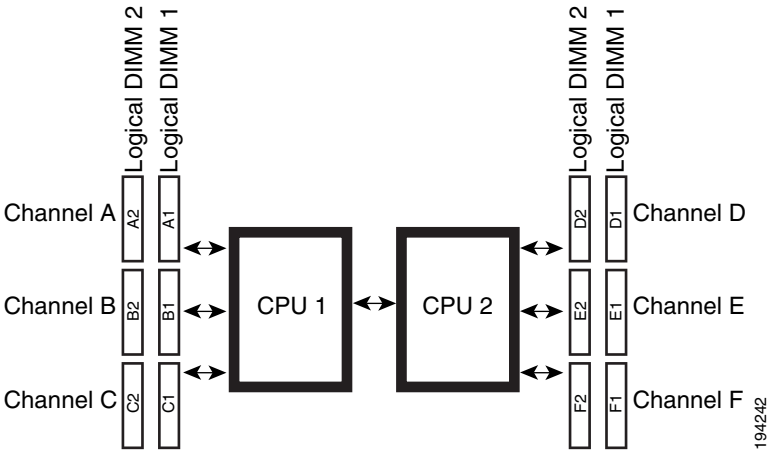
Figure 14 Physical Representation of DIMMs and Channels



Note The memory in the upper right cannot communicate with the memory in lower left, unless both CPUs are present.

Figure 15 shows a logical view of the DIMMs and Channels

Figure 15 Logical Representation of Logical DIMMs and Channels



DIMMs can be used in the blade server in either a one DIMM per Channel (1DPC) configuration or in a two DIMMs per Channel (2DPC) configuration.

Each CPU in a Cisco UCS B200 blade server supports 3 channels of 2 memory slots each. In a 1 DPC configuration, DIMMs are in slot 1 only. In a 2 DPC configuration, DIMMs are in both slot 1 and slot 2. Table 7 shows the preferred order for installing upgrade DIMMs, and while other configurations may work if problems arise moving them to the preferred arrangement should help.

Table 7 Preferred DIMM Population Order

DIMMs per CPU	CPU 1 installed slots	CPU 2 installed slots
1	A1	D1
2	A1, B1	D1, E1,
3	A1, B1, C1	D1, E1, F1
4	A1, A2, B1, C1	D1, D2, E1, F1
5	A1, A2, B1, B2, C1	D1, D2, E1, E2, F1
6	A1, A2, B1, B2, C1, C2	D1, D2, E1, E2, F1, F2

Memory Performance

When considering the memory configuration of your blade server, there are several things you need to consider. For example:

- DIMMs within the blade server should all be the same type. This goes for both speed and size. Do not mix different sized DIMMs or DIMMs with different clock rates in the same blade server. Doing so will cause a significant loss of performance.
- Your selected CPU(s) can have some affect on performance.

- DIMMs can be run in a 1 DIMM per–Channel or a two DIMM per–channel configuration. Each of these arrangements can provide different behavior.

Bandwidth and Performance

Recommendations for achieving performance of 1333 MHz on B200 M1 servers:

- Ensure the server is running the 1.3(1) or later BIOS version. If a BIOS upgrade is needed, do it before installing processors or memory.
- Use Intel Xeon X5570 or X5550 processors (PIDs N20-X00001 and N20-X00006).
- Use only Cisco certified single or dual rank DIMMs that support 1333 MHz speeds (see Table 3). DIMMs do not have to be identical in type or capacity, but beware of the caveats listed in the section below regarding performance degradation.
- Always set the system BIOS to operate the DIMMs in "Performance" mode in order to run at 1333 MHz.
- Fully populating 1 logical bank or 2 logical banks with DIMMs will ensure optimal memory bandwidth running at the 1333 MHz speed. If DIMMs are partially populated in 1 bank (less than 6 DIMMs) or 2 bank patterns (less than 12 but greater than 6 DIMMs) the 1333 MHz speed can be used, but the overall memory bandwidth will not be optimal.

Recommendations for achieving performance of 1333 MHz on B200 M2 servers:

- Use Intel Xeon X5680, X5670, or X5650 processors (see Table 4).
- Use only Cisco certified single or dual rank DIMMs that support 1333 MHz speeds (see Table 6). DIMMs do not have to be identical in type or capacity, but beware of the caveats listed in the section below regarding performance degradation.
- Always set the system BIOS to operate the DIMMs in "Performance" mode in order to run at 1333 MHz.
- Fully populating 1 bank or 2 banks with DIMMs will ensure optimal memory bandwidth running at the 1333 MHz speed. If DIMMs are partially populated in 1 bank (less than 6 DIMMs) or 2 bank patterns (less than 12 but greater than 6 DIMMs) the 1333 MHz speed can be used, but the overall memory bandwidth will not be optimal.

Performance Degradation

Performance degradation can occur if the following memory configurations are used:

- Mixing DIMM sizes and densities within a channel
- Partially populating a channel
- Unevenly populating DIMMs between CPUs

Memory Mirroring and RAS

The Intel Nehalem–EP CPUs within the blade server support memory mirroring only when no more than two Channels are populated with DIMMs. If three Channels are populated with DIMMs, memory mirroring is automatically disabled. Furthermore, if memory mirroring is used, DRAM size is reduced by 50% for reasons of reliability.

If the RAS (Reliability, Availability, and Serviceability) option is required, it is available only when Channel–3 is not populated.

Installing an Adapter Card

The network adapters and interface cards all have a shared installation process. The following options are available:

Table 8 Adapter Card Options

Cisco Product ID	Name
N20-AI0002	Cisco UCS 82598KR-CI 10 Gb Ethernet Adapter
N20-AQ0002 or N20-AE0002	Cisco UCS M71KR-E/Q Converged Network Adapter
N20-AC0002	Cisco UCS M81KR Virtual Interface Card
N20-AB0002	Cisco UCS NIC M51KR-B Broadcom BCM57711 Network Adapter [1]
N20-AI0102	Cisco UCS CNA M61KR-I Intel Converged Network Adapter[1]
N20-AQ0102	Cisco UCS CNA M72KR-Q QLogic Converged Network Adapter[1]
N20-AE0102	Cisco UCS CNA M72KR-E Emulex Converged Network Adapter [1]
UCS-VIC-M82-8P	Cisco UCS Virtual Interface Card 1280[2]

1. Requires UCS Manager 1.3(1) or later.
2. Requires UCS Manager 2.0(2) or later.

If you are switching from one type of adapter card to another, before you physically perform the switch make sure you have downloaded the latest device drivers and loaded them into the server's operating system. For more information refer to the firmware management chapter of one of the UCS Manager software configuration guides.

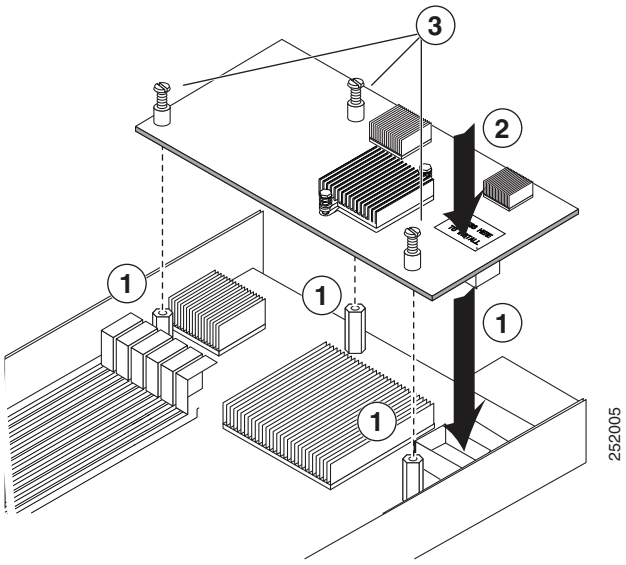
To install an adapter card on the blade server, follow these steps:

Step 1 Position the adapter board connector above the mother board connector and align the three adapter captive screws to the posts on the motherboard.

Step 2 Firmly press the adapter connector into the motherboard connector.

Step 3 Tighten the three captive screws.

Figure 16 Installing an Adapter Card



Server Troubleshooting

For general server troubleshooting information, refer to the "*Troubleshooting Server Hardware*" chapter of the *Cisco UCS Troubleshooting Guide*.

Server Configuration

UCS servers are intended to be configured and managed using UCS Manager. Refer to the UCS Manager Configuration Guide appropriate for your UCS Manager version

Server Specifications

Table 9 Physical Specifications for the Cisco UCS B200 Blade Server

Specification	Value
Height	1.95 inches (50 mm)
Width	8.00 inches (203 mm)
Depth	24.4 inches (620 mm)
Weight	13.5 lbs (6.1 kg) [1]

1. The system weight listed here is an estimate for a fully configured system and will vary depending on peripheral devices installed.

Related Documentation

The documentation set for the Cisco Unified Computing System environment is described in full at:

http://www.cisco.com/go/unifiedcomputing/b-series-doc

Obtaining Documentation and Submitting a Service Request

For information on obtaining documentation, submitting a service request, and gathering additional information, see *What's New in Cisco Product Documentation* at: http://www.cisco.com/en/US/docs/general/whatsnew/whatsnew.html.

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