



Upgrading System Memory in Cisco 3700 Series Routers

Product Numbers:

MEM3725-32CF-INCL, MEM3725-32U64CF, MEM3725-32U128CF, MEM3725-32CF=, MEM3725-64CF=,

MEM3725-128CF=

MEM3725-64D=, MEM3725-128D=

MEM3745-256D-INCL, MEM3745-256D=, MEM3745-128CF=, MEM3745-128D-INCL, MEM3745-128D=,

MEM3745-128U192D, MEM3745-128U256D, MEM3745-256U512D, MEM3745-32CF-INCL, MEM3745-32CF=,

MEM3745-32U128CF, MEM3745-32U64CF, MEM3745-64CF=, MEM3745-64D=

This document describes how to upgrade the following in a Cisco 3700 series router:

- Synchronized dynamic random-access memory (SDRAM) dual in-line memory modules (DIMMs)
- Small-outline dual in-line memory modules (SODIMMs)
- Cisco 3700 CompactFlash memory cards.



Note

In this document, the term “Cisco 3700 series” represents the following router models: Cisco 3725 router and Cisco 3745 router.

Use this document in conjunction with the following:

- *Cisco 3700 Series Hardware Installation Guide* and the *Cisco 2600 Series, Cisco 3600 Series, and Cisco 3700 Series Regulatory Compliance and Safety Information* document for your router, both available online at the following URL:
- http://www.cisco.com/univercd/cc/td/doc/product/access/acs_mod/cis3700/hw_inst/index.htm
- *Installing and Formatting Cisco 2691, Cisco 3631, and Cisco 3700 Series CompactFlash Memory Cards*, available online at the following URL:
- http://www.cisco.com/univercd/cc/td/doc/product/access/acs_mod/cis3700/hw_inst/hw_notes/comflash.htm

If you have questions or need help, see the “[Obtaining Documentation](#)” section on page 27 and the “[Obtaining Technical Assistance](#)” section on page 28 for further information.



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Memory Capacities

You might need to upgrade memory for the following reasons:

- To upgrade to a new Cisco IOS feature set or release that requires additional memory. (Memory requirements for each feature set and release are available in the release notes for that release.)
- To use very large routing tables, many protocols (as may be required, for example, when the router is part of both a large external network and your internal network), or other memory-intensive features such as spoofing or protocol translations.

This document describes how to upgrade both dynamic memory and compact flash memory. Cisco 3700 series routers use dynamic memory in the form of SDRAM DIMMs (Cisco 3725 router) or SDRAM SODIMMs (Cisco 3745 router). Memory capacities are shown in [Table 1](#).

Table 1 *Memory Capacities for Cisco 3700 Series Routers*

Router	DRAM	Compact Flash Memory
Cisco 3725	256- (default) to 256-MB SDRAM DIMMs	32- (default) to 128-MB memory card
Cisco 3745	256- (default) to 512-MB SDRAM SODIMMs	32- (default) to 128-MB memory card



Note

This document discusses how to replace dynamic memory only. To learn how to replace CompactFlash memory cards, refer to *Installing and Formatting Cisco 2691, Cisco 3631, and Cisco 3700 Series CompactFlash Memory Cards*, available online at the following URL:

http://www.cisco.com/univercd/cc/td/doc/product/access/acs_mod/cis3700/hw_inst/hw_notes/index.htm.

Memory Configurations

For information on configuring dynamic memory and compact flash memory, see the following sections.

Dynamic Memory

You can configure dynamic memory (SDRAM) as a mixture of primary or main memory that is reserved for the CPU and shared memory that is used for data transmitted or received by modules and WAN interface cards.

To examine current dynamic memory status or reconfigure memory allocation, do the following, as appropriate:

- Step 1** To see how much memory is currently installed in your router, enter the **show version** command in EXEC mode. Near the middle of the resulting output, locate a message similar to the following:

```
Cisco XXXX processor (revision X) with 24576K/8192K bytes of memory.
```

This line shows how much memory is installed (in this example, 24576K/8192K). The first number represents primary memory; the second number represents shared memory.

- Step 2** To configure the proportion of SDRAM devoted to main memory and to shared memory, enter the **memory-size iomem** command in global configuration mode.



Note

For information about these and related commands, refer to the Cisco IOS configuration guides and command references. See the [“Obtaining Documentation” section on page 27](#) for information about these publications.

Dynamic memory resides in one or two sockets in the router chassis. A socket corresponds to one bank of memory. Cisco 3700 series router sockets are as follows:

- **Cisco 3725:** Two sockets, each of which can support one SDRAM DIMM or be left empty; sockets can be filled in any order
- **Cisco 3745:** One socket that can support two SDRAM SODIMMs, one on top of the other

SDRAM DIMM and SODIMM sizes allowed in each router type, and the total memory capacity resulting from insertion of one or two DIMMs or SODIMMs, are shown in [Table 2](#).

Table 2 SDRAM Configurations for Cisco 3700 Series Routers

Router	DIMM or SODIMM 0	DIMM or SODIMM 1	Total Memory
3725/3745	128 MB (default)	128 MB (default)	256 MB
	—	128 MB	128 MB
	64 MB	128 MB	192 MB
	128 MB	64 MB	192 MB
	128 MB	128 MB	256 MB
3745	256 MB	—	256 MB
	—	256 MB	256 MB
	64 MB	256 MB	320 MB
	256 MB	64 MB	320 MB
	128 MB	256 MB	384 MB
	256 MB	128 MB	384 MB
	256 MB	256 MB	512 MB

Compact Flash Memory

Cisco IOS software on Cisco 3700 series routers is stored in two CompactFlash memory cards—one external and one internal. Memory cards come with 32-, 64-, or 128-MB of memory.

To determine how much compact flash memory is installed in your router, enter the **show flash** command in EXEC mode.



Note

To install a new CompactFlash memory card, refer to *Installing and Formatting Cisco 2691, Cisco 3631, and Cisco 3700 Series CompactFlash Memory Cards*, available online at the following URL:

http://www.cisco.com/univercd/cc/td/doc/product/access/acs_mod/cis3700/hw_inst/hw_notes/index.htm

Safety Recommendations

Follow these guidelines to ensure general safety:

- Keep the chassis area clear and dust-free during and after installation.
- Place the removed chassis cover in a safe place.
- Keep tools away from walk areas where you or others could fall over them.
- Do not wear loose clothing that could get caught in the chassis. Fasten your tie or scarf and roll up your sleeves.
- Wear safety glasses when working under any conditions that might be hazardous to your eyes.
- Do not perform any action that creates a potential hazard to people or makes equipment unsafe.

Safety Warnings

Safety warnings appear throughout this publication in procedures that, if performed incorrectly, may harm you. A warning symbol precedes each warning statement.

Warning Definition



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. To see translations of the warnings that appear in this publication, refer to the translated safety warnings that accompanied this device.

Note: SAVE THESE INSTRUCTIONS

Note: This documentation is to be used in conjunction with the specific product installation guide that shipped with the product. Please refer to the **Installation Guide, Configuration Guide, or other enclosed additional documentation for further details.** Statement 1020

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. Voor een vertaling van de waarschuwingen die in deze publicatie verschijnen, dient u de vertaalde veiligheidswaarschuwingen te raadplegen die bij dit apparaat worden geleverd.

Opmerking BEWAAR DEZE INSTRUCTIES.

Opmerking Deze documentatie dient gebruikt te worden in combinatie met de installatiehandleiding voor het specifieke product die bij het product wordt geleverd. Raadpleeg de installatiehandleiding, configuratiehandleiding of andere verdere ingesloten documentatie voor meer informatie.

Varoitus

TÄRKEITÄ TURVALLISUUTEEN LIITTYVIÄ OHJEITA

Tämä varoitusmerkki merkitsee vaaraa. Olet tilanteessa, joka voi johtaa ruumiinvammaan. Ennen kuin työskentelet minkään laitteiston parissa, ota selvää sähkökytkentöihin liittyvistä vaaroista ja tavanomaisista onnettomuuksien ehkäisykeinoista. Tässä asiakirjassa esitettyjen varoitusten käännökset löydät laitteen mukana toimitetuista ohjeista.

Huomautus SÄILYTÄ NÄMÄ OHJEET

Huomautus Tämä asiakirja on tarkoitettu käytettäväksi yhdessä tuotteen mukana tulleen asennusoppaan kanssa. Katso lisätietoja asennusoppaasta, kokoonpano-oppaasta ja muista mukana toimitetuista asiakirjoista.

Attention IMPORTANTES INFORMATIONS DE SÉCURITÉ

Ce symbole d'avertissement indique un danger. Vous vous trouvez dans une situation pouvant causer des blessures ou des dommages corporels. Avant de travailler sur un équipement, soyez conscient des dangers posés par les circuits électriques et familiarisez-vous avec les procédures couramment utilisées pour éviter les accidents. Pour prendre connaissance des traductions d'avertissements figurant dans cette publication, consultez les consignes de sécurité traduites qui accompagnent cet appareil.

Remarque CONSERVEZ CES INFORMATIONS

Remarque Cette documentation doit être utilisée avec le guide spécifique d'installation du produit qui accompagne ce dernier. Veuillez vous reporter au Guide d'installation, au Guide de configuration, ou à toute autre documentation jointe pour de plus amples renseignements.

Warnung WICHTIGE SICHERHEITSANWEISUNGEN

Dieses Warnsymbol bedeutet Gefahr. Sie befinden sich in einer Situation, die zu einer Körperverletzung führen könnte. Bevor Sie mit der Arbeit an irgendeinem Gerät beginnen, seien Sie sich der mit elektrischen Stromkreisen verbundenen Gefahren und der Standardpraktiken zur Vermeidung von Unfällen bewusst. Übersetzungen der in dieser Veröffentlichung enthaltenen Warnhinweise sind im Lieferumfang des Geräts enthalten.

Hinweis BEWAHREN SIE DIESE SICHERHEITSANWEISUNGEN AUF

Hinweis Dieses Handbuch ist zum Gebrauch in Verbindung mit dem Installationshandbuch für Ihr Gerät bestimmt, das dem Gerät beiliegt. Entnehmen Sie bitte alle weiteren Informationen dem Handbuch (Installations- oder Konfigurationshandbuch o. Ä.) für Ihr spezifisches Gerät.

Figyelem! FONTOS BIZTONSÁGI ELŐÍRÁSOK

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.

Megjegyzés ŐRIZZE MEG EZEKET AZ UTASÍTÁSOKAT!

Megjegyzés Ezt a dokumentációt a készülékhez mellékelt üzembe helyezési útmutatóval együtt kell használni. További tudnivalók a mellékelt Üzembe helyezési útmutatóban (Installation Guide), Konfigurációs útmutatóban (Configuration Guide) vagy más dokumentumban található.

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. Per le traduzioni delle avvertenze riportate in questo documento, vedere le avvertenze di sicurezza che accompagnano questo dispositivo.

Nota CONSERVARE QUESTE ISTRUZIONI

Nota La presente documentazione va usata congiuntamente alla guida di installazione specifica spedita con il prodotto. Per maggiori informazioni, consultare la Guida all'installazione, la Guida alla configurazione o altra documentazione acclusa.

Advarsel VIKTIGE SIKKERHETSINSTRUKSJONER

Dette varselssymbolet betyr fare. Du befinner deg i en situasjon som kan forårsake personskade. Før du utfører arbeid med utstyret, bør du være oppmerksom på farene som er forbundet med elektriske kretssystemer, og du bør være kjent med vanlig praksis for å unngå ulykker. For å se oversettelser av advarslene i denne publikasjonen, se de oversatte sikkerhetsvarslene som følger med denne enheten.

Merk TA VARE PÅ DISSE INSTRUKSJONENE

Merk Denne dokumentasjonen skal brukes i forbindelse med den spesifikke installasjonsveiledningen som fulgte med produktet. Vennligst se installasjonsveiledningen, konfigureringsveiledningen eller annen vedlagt tilleggsdokumentasjon for detaljer.

Aviso INSTRUÇÕES IMPORTANTES DE SEGURANÇA

Este símbolo de aviso significa perigo. O utilizador encontra-se numa situação que poderá ser causadora de lesões corporais. Antes de iniciar a utilização de qualquer equipamento, tenha em atenção os perigos envolvidos no manuseamento de circuitos eléctricos e familiarize-se com as práticas habituais de prevenção de acidentes. Para ver traduções dos avisos incluídos nesta publicação, consulte os avisos de segurança traduzidos que acompanham este dispositivo.

Nota GARDE ESTAS INSTRUÇÕES

Nota Esta documentação destina-se a ser utilizada em conjunto com o manual de instalação incluído com o produto específico. Consulte o manual de instalação, o manual de configuração ou outra documentação adicional inclusa, para obter mais informações.

¡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. Vea las traducciones de las advertencias que acompañan a este dispositivo.

Nota GARDE ESTAS INSTRUCCIONES

Nota Esta documentación está pensada para ser utilizada con la guía de instalación del producto que lo acompaña. Si necesita más detalles, consulte la Guía de instalación, la Guía de configuración o cualquier documentación adicional adjunta.

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. Se översättningarna av de varningsmeddelanden som finns i denna publikation, och se de översatta säkerhetsvarningarna som medföljer denna anordning.

OBS! SPARA DESSA ANVISNINGAR

OBS! Denna dokumentation ska användas i samband med den specifika produktinstallationshandbok som medföljde produkten. Se installationshandboken, konfigurationshandboken eller annan bifogad ytterligare dokumentation för närmare detaljer.

Предупреждение ВАЖНЫЕ СВЕДЕНИЯ ПО БЕЗОПАСНОСТИ

Этот символ предупреждает о наличии опасности. При неправильных действиях возможно получение травм. Перед началом работы с любым оборудованием необходимо ознакомиться с ситуациями, в которых возможно поражение электротоком, и со стандартными действиями для предотвращения несчастных случаев. Переведенный текст предупреждений содержится в соответствующем документе, поставляемом вместе с устройством.

Примечание **СОХРАНЯЙТЕ ЭТУ ИНСТРУКЦИЮ**

Примечание Эта инструкция должна использоваться вместе с руководством по установке конкретного изделия, входящим в комплект поставки. Дополнительные сведения см. в руководстве по установке, руководстве по настройке и другой документации, поставляемой с изделием.

警告 有关安全的重要说明

这个警告符号指有危险。您所处的环境可能使身体受伤。操作设备前必须意识到电流的危险性，务必熟悉操作标准，以防发生事故。如果需要了解本说明中出现的警告符号的译文，请参阅本装置所附之安全警告译文。

注意 保存这些说明

注意 本文件应与本产品附带的特定安装说明一并阅读。如欲了解详情，请参阅《安装说明》、《配置说明》或所附的其他文件。

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、一般的な事故防止対策に留意してください。このマニュアルに記載されている警告の各国語版は、装置に付属の「Translated Safety Warnings」を参照してください。

注 これらの注意事項を保管しておいてください。

注 この資料は、製品に付属のインストラクション ガイドと併用してください。詳細は、インストラクション ガイド、コンフィギュレーション ガイド、または添付されているその他のマニュアルを参照してください。



Warning

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

Statement 1030



Warning

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

Statement 1040

Safety with Electricity



Warning

Never touch uninsulated telephone wires or terminals unless the telephone line has been disconnected at the network interface. Statement 1037



Warning

Do not work on the system or connect or disconnect cables during periods of lightning activity. Statement 1001



Warning

To avoid electric shock, do not connect safety extra-low voltage (SELV) circuits to telephone-network voltage (TNV) circuits. LAN ports contain SELV circuits, and WAN ports contain TNV circuits. Some LAN and WAN ports both use RJ-45 connectors. Use caution when connecting cables. Statement 1021



Warning

Hazardous network voltages are present in WAN ports regardless of whether power to the unit is OFF or ON. To avoid electric shock, use caution when working near WAN ports. When detaching cables, detach the end away from the unit first. Statement 1021



Warning

Connect the unit only to DC power source that complies with the safety extra-low voltage (SELV) requirements in IEC 60950 based safety standards. Statement 1033

Follow these guidelines when working on equipment powered by electricity:

- Locate the emergency power-off switch in the room in which you are working. Then, if an electrical accident occurs, you can quickly shut the power off.
- Before working on the router, turn off the power and unplug the power cord.
- Disconnect all power before doing the following:
 - Installing or removing a router chassis
 - Working near power supplies
 - Performing most hardware upgrades
- Do not work alone if potentially hazardous conditions exist.
- Never assume that power is disconnected from a circuit. Always check.
- Look carefully for possible hazards in your work area, such as moist floors, ungrounded power extension cables, and missing safety grounds.
- If an electrical accident occurs, proceed as follows:
 - Use caution; do not become a victim yourself.
 - Turn off power to the router.
 - If possible, send another person to get medical aid. Otherwise, determine the condition of the victim and then call for help.
 - Determine if the victim needs rescue breathing or external cardiac compressions; then take appropriate action.

Preventing Electrostatic Discharge Damage

Electrostatic discharge (ESD) can damage equipment and impair electrical circuitry. ESD can occur when electronic printed circuit cards are improperly handled, and can result in complete or intermittent failures. Always follow ESD-prevention procedures when removing and replacing cards. Ensure that the router chassis is electrically connected to earth ground. Wear an ESD-preventive wrist strap, ensuring that it makes good skin contact. Connect the clip to an unpainted surface of the chassis frame to safely channel unwanted ESD voltages to ground. To properly guard against ESD damage and shocks, you must use the wrist strap and cord properly. If no wrist strap is available, ground yourself by touching the metal part of the chassis.


Caution

For safety, periodically check the resistance value of the antistatic strap. It should be between 1 and 10 megohms (Mohms).


Caution

Before opening the chassis, be sure that you have discharged all static electricity from your body and the power is off.

Tools and Equipment Needed

You need the following tools and equipment to remove and install DIMMs or SODIMMs in a Cisco 3700 series router:

- Number 2 Phillips screwdriver
- Small flat-blade screwdriver
- ESD-preventive wrist strap
- Antistatic mat

Upgrading System Memory in Cisco 3725 Routers


Note

The following warning applies to DC powered systems only.


Warning

Before performing any of the following procedures, ensure that power is removed from the DC circuit.
Statement 1003

Removing the Cisco 3725 Router Cover

To remove the router cover, follow these steps:

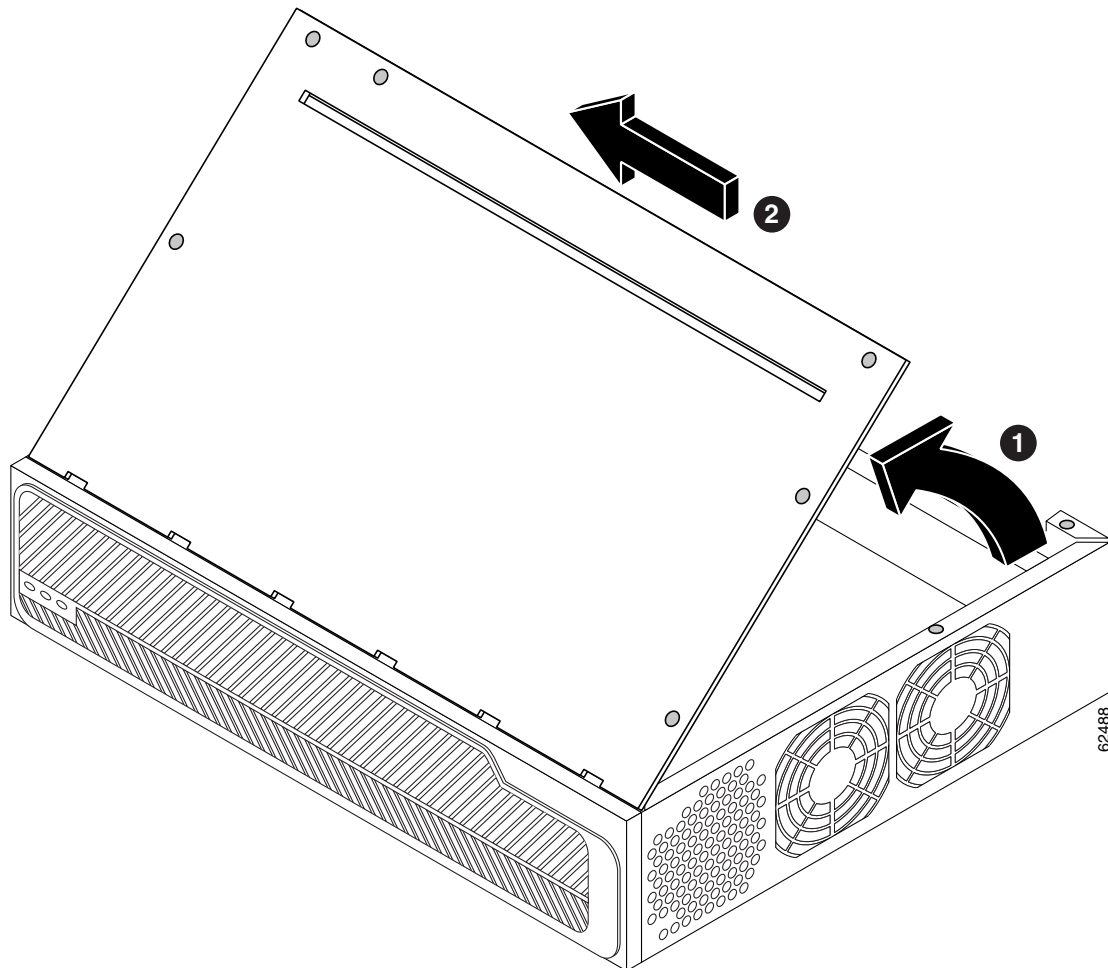
- Step 1** Attach an ESD-preventive wrist strap and ensure that it makes good contact with your skin. Connect the equipment end of the wrist strap to the metal back plate of the chassis, avoiding contact with the connectors.
- Step 2** Turn off the power and unplug the power cord.

**Warning**

Before opening the unit, disconnect the telephone-network cables to avoid contact with telephone-network voltages. Statement 1041

- Step 3** Disconnect all network-interface cables from the rear panel.
- Step 4** Place the chassis so that the rear panel faces you.
- Step 5** Remove the six screws located on top of the cover. Set the screws aside in a safe place.
- Step 6** Lift the front edge of the cover up to a 45-degree angle so that it clears the front of the chassis. (See [Figure 1](#) part 1.)
- Step 7** Slide the cover to the side, away from the side with the fans, until the tabs are free from the slots. (See [Figure 1](#) part 2.)

Figure 1 Removing the Cover from a Cisco 3725 Router



Step 8 When you are ready to replace the cover, see the [“Replacing the Cisco 3725 Cover”](#) section on page 16.

Replacing Cisco 3725 SDRAM

SDRAM DIMM Location and Orientation

[Figure 2](#) shows the location of dynamic memory—SDRAM DIMM sockets 0 and 1—in a Cisco 3725 router.

DIMMs are manufactured with polarization notches to ensure proper orientation, and alignment holes to ensure proper positioning. [Figure 3](#) shows the polarization notches and alignment holes on a DIMM. SDRAM DIMMs are installed with the connector edge down and the polarization notches toward the left side of the chassis.



Caution

To avoid damaging ESD-sensitive components, observe all ESD precautions. To avoid damaging the underlying mainboard, do not use excessive force when you remove or replace DIMMs.

Figure 2 SDRAM DIMM Locations in the Cisco 3725 Router

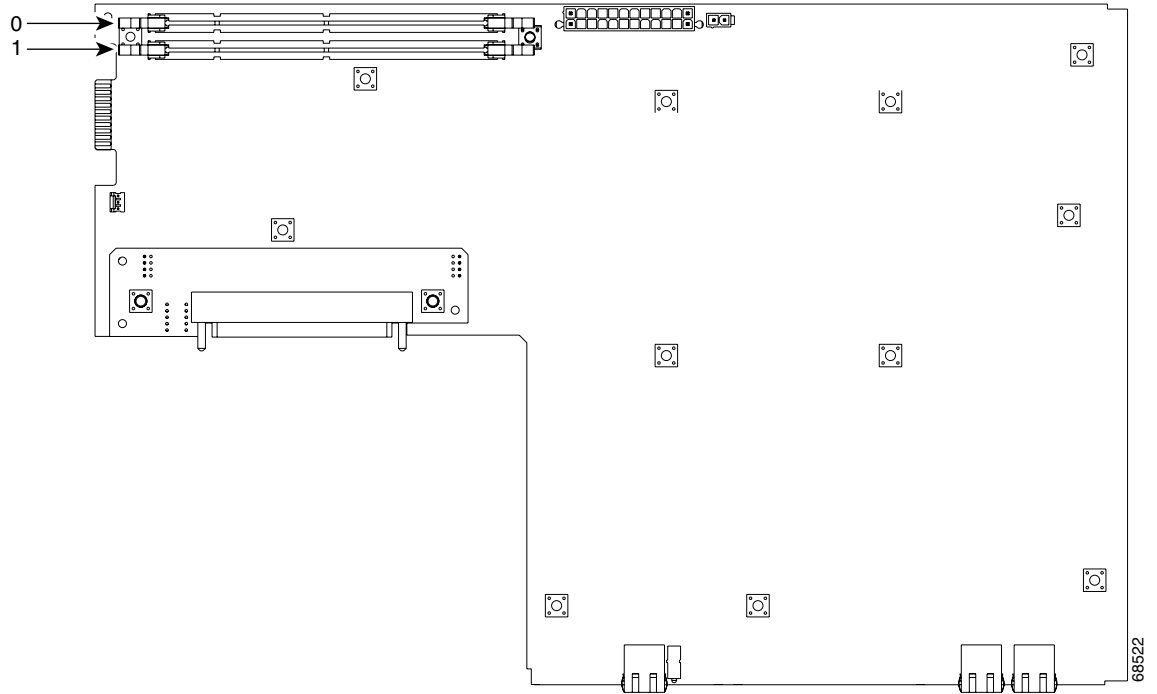
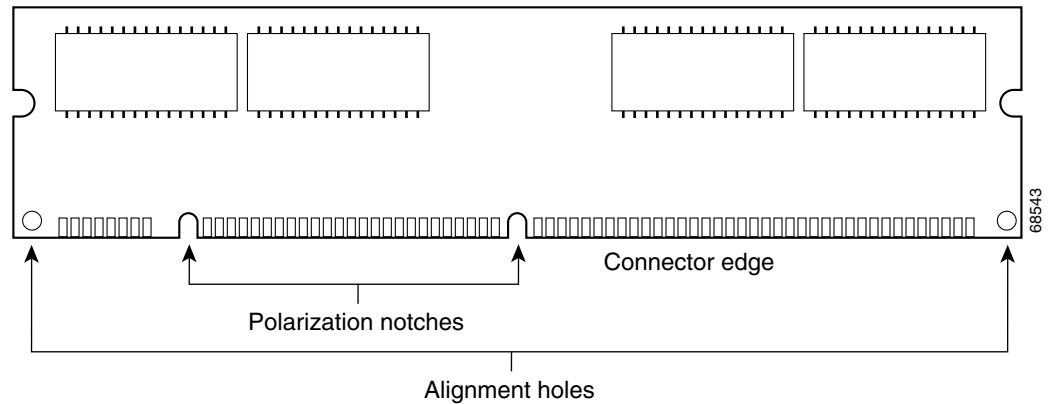


Figure 3 SDRAM DIMM Orientation in the Cisco 3725 Router



Removing SDRAM DIMMs

To remove SDRAM DIMMs, follow these steps:

- Step 1** Attach an ESD-preventive wrist strap and ensure that it makes good contact with your skin. Connect the equipment end of the wrist strap to the metal back plate of the chassis, avoiding contact with the connectors.
- Step 2** On the mainboard, locate SDRAM DIMM sockets 0 and 1. (See [Figure 2](#).)

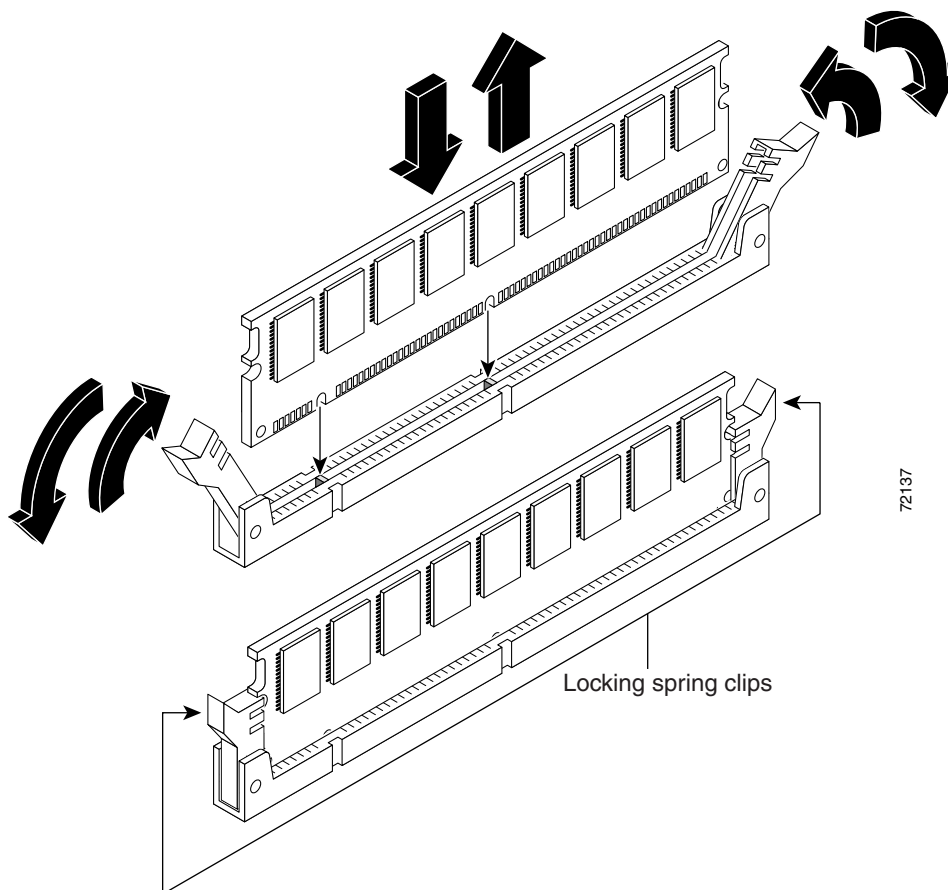


Caution

Handle the DIMM by the nonconnector edges only; do not press on the center. Handle carefully. DIMMs are ESD-sensitive components and can be damaged by mishandling.

- Step 3** Remove the DIMM by pushing the locking spring clips on both sides outward. This ejects the DIMM from its socket. (See [Figure 4.](#))

Figure 4 Removing and Installing SDRAM DIMMs in the Cisco 3725 Router



- Step 4** Hold the DIMM by the edges with your thumb and index finger and lift it out of the socket. Place it in an antistatic bag to protect it from ESD damage.
- Step 5** If necessary, repeat [Step 3](#) and [Step 4](#) for the other DIMM.
- Step 6** Proceed to the [“Installing SDRAM DIMMs”](#) section on page 15.

Installing SDRAM DIMMs

To install SDRAM DIMMs, follow these steps:

Step 1 Attach an ESD-preventive wrist strap and ensure that it makes good contact with your skin. Connect the equipment end of the wrist strap to the metal back plate of the chassis, avoiding contact with the connectors.

Step 2 On the mainboard, locate the SDRAM DIMM sockets. (See [Figure 2](#).)



Caution

Handle the DIMM by the nonconnector edges only; do not press on the center. Handle carefully. DIMMs are ESD-sensitive components and can be damaged by mishandling.

Step 3 Insert the DIMM, ensuring that the polarization notches align correctly with the socket. Gently push into place until the socket guideposts fit through the alignment holes and the latches on both sides snap into place. (See [Figure 4](#).)



Caution

It is normal to feel some resistance when installing a DIMM, but do not use excessive force and do not touch the surface components.

Step 4 Ensure that each DIMM is straight (perpendicular to the socket).

Step 5 If necessary, repeat [Step 3](#) and [Step 4](#) to install a second DIMM.

Step 6 Proceed to either of the following as appropriate:

- [“Replacing CompactFlash Memory Cards” section on page 15](#)
- [“Replacing the Cisco 3725 Cover” section on page 16](#)

Replacing CompactFlash Memory Cards

To replace CompactFlash memory cards, follow these steps:

Step 1 Refer to *Installing and Formatting Cisco 2691, Cisco 3631, and Cisco 3700 Series CompactFlash Memory Cards*, available online at the following URL:

http://www.cisco.com/univercd/cc/td/doc/product/access/acs_mod/cis3700/hw_inst/hw_notes/index.htm

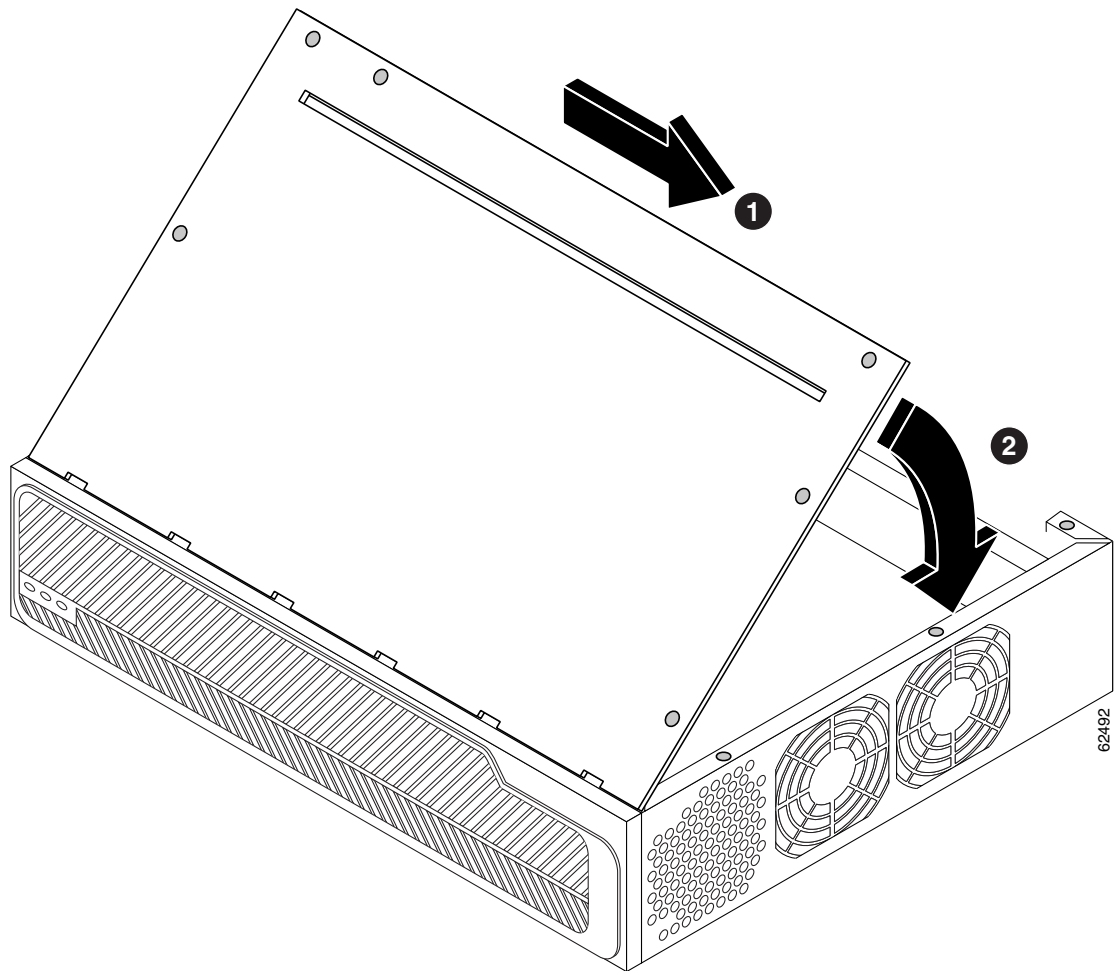
Step 2 Proceed to the [“Replacing the Cisco 3725 Cover” section on page 16](#).

Replacing the Cisco 3725 Cover

To replace the router cover, follow these steps:

- Step 1** Place the chassis so that the front panel faces you. Make sure that all cables are securely tucked in and are not in danger of being stressed or cut.
- Step 2** Hold the cover at a 45-degree angle, and insert the tabs into the slots along the front (bezel) edge of the chassis to engage the hinges. (See [Figure 5](#) part 1.)
- Step 3** Lower the front of the cover onto the chassis, making sure that the side tabs on the cover fit inside the chassis side panels, and the chassis tabs fit under the cover side panels. (See [Figure 5](#) part 2.)

Figure 5 Replacing the Cover on a Cisco 3725 Router



- Step 4** With a number 2 Phillips screwdriver, fasten the cover with the six screws that you previously set aside.
- Step 5** Reinstall the chassis on a rack or desktop.
- Step 6** Proceed to the [“Replacing Connections to the Router”](#) section on page 17.

Replacing Connections to the Router

To make final connections to the router, follow these steps:



Warning

Read the installation instructions before connecting the system to the power source. Statement 1004

-
- Step 1** Replace all network connections.
- Step 2** Do one of the following:
- **AC-powered router:** Plug the power cord into a 3-terminal, single-phase power source that provides power within the acceptable range (100 to 240 VAC, 50 to 60 Hz).
 - **DC-powered router:** Remove the tape from the circuit breaker switch handle and reinstate power by moving the handle of the circuit breaker to the ON position.
- Step 3** Turn on the power switch. The power LED on the front panel of the router should come on.
- Step 4** Check the Sys LED on the right side of the front panel to verify that it goes on after a few seconds delay when booting.
- Step 5** If you have problems, see the [“Obtaining Technical Assistance”](#) section on page 28.
- Step 6** Proceed to the [“Recovering Compact Flash Memory and System Images”](#) section on page 27.
-

Upgrading System Memory in Cisco 3745 Routers



Warning

Before working on a system that has an on/off switch, turn OFF the power and unplug the power cord. Statement 1

Removing the Cisco 3745 Mainboard Tray

To remove the mainboard tray, follow these steps:

-
- Step 1** Attach an ESD-preventive wrist strap and ensure that it makes good contact with your skin. Connect the equipment end of the wrist strap to the metal back plate of the chassis, avoiding contact with the connectors.
- Step 2** Turn off the power, but do not unplug the power cord.

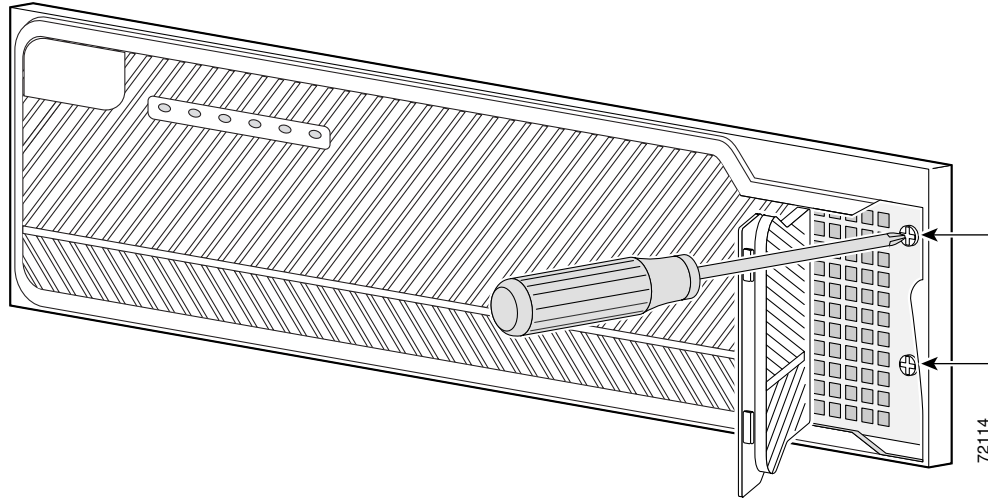


Caution

The Cisco 3745 router can have more than one power supply. Be sure that all power supplies are powered off and that all LEDs are dark.

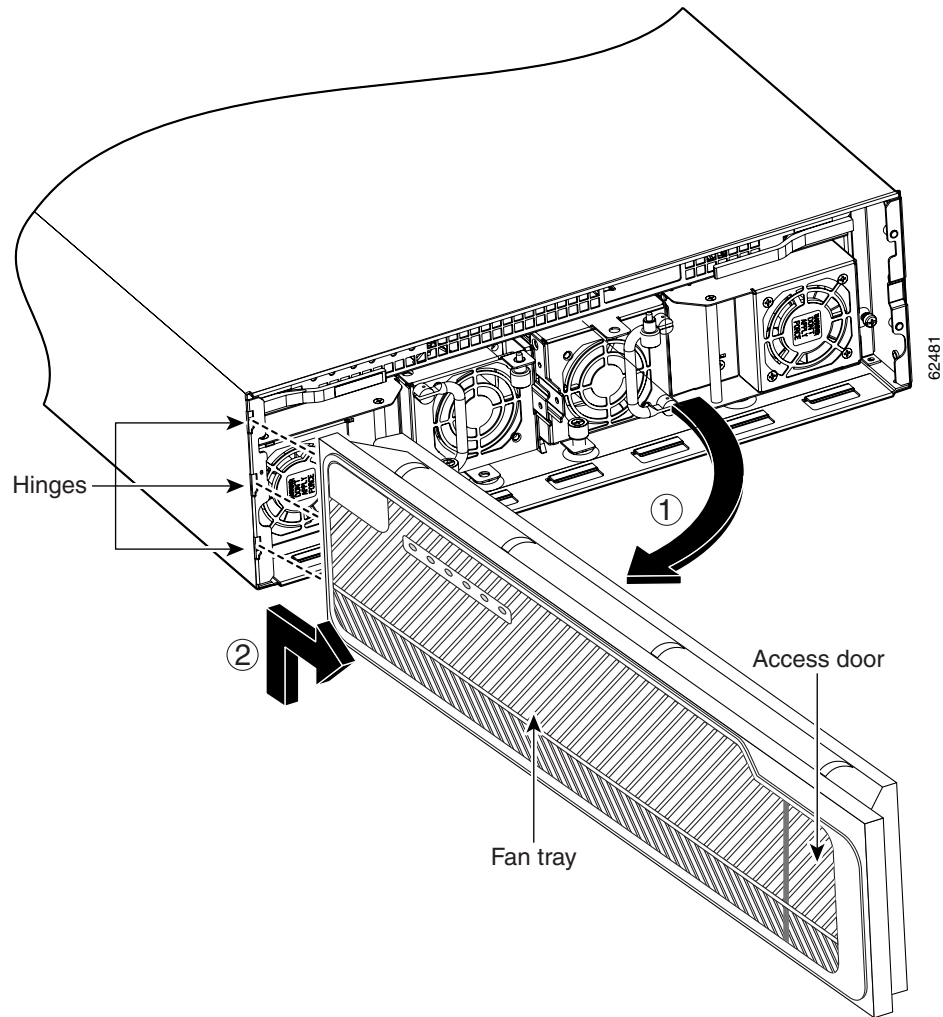
-
- Step 3** Place the router on a flat surface so that the front panel faces you, and open the small access door at the right-hand edge of the front panel.
- Step 4** Loosen the two captive screws located behind the access door. (See [Figure 6](#).)

Figure 6 *Captive Screws on a Cisco 3745 Router*



Step 5 Open the front panel to the straight-out position and lift it off its hinges. (See [Figure 7](#) parts 1 and 2.)

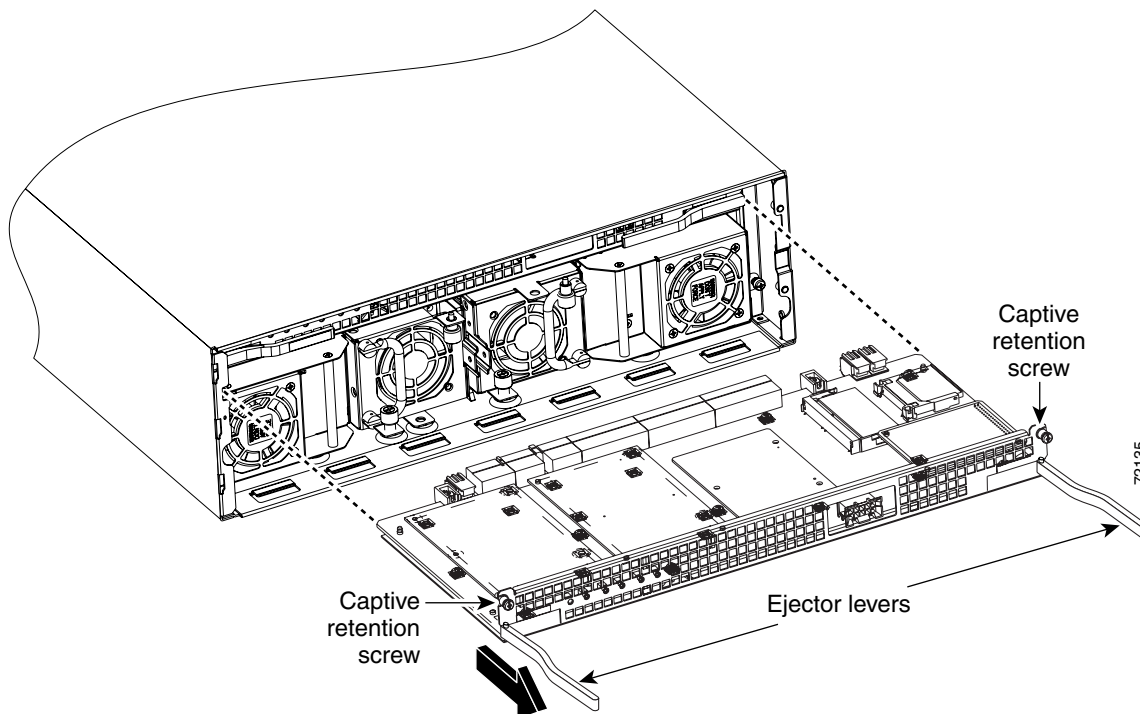
Figure 7 Removing the Front Panel from a Cisco 3745 Router



Step 6 Loosen the two captive retention screws, one on either side of the motherboard. (See [Figure 8](#).)

Step 7 Pull the ejector levers at both sides, and carefully pull the mainboard straight out of the chassis. Place it on an antistatic surface.

Figure 8 Removing the Mainboard Tray from a Cisco 3745 Router



Caution The mainboard is an ESD-sensitive component. To avoid damage, observe all ESD precautions.

Step 8 When you are ready to replace the mainboard tray, see the [“Replacing the Cisco 3745 Mainboard”](#) section on page 24.

Replacing Cisco 3745 SDRAM

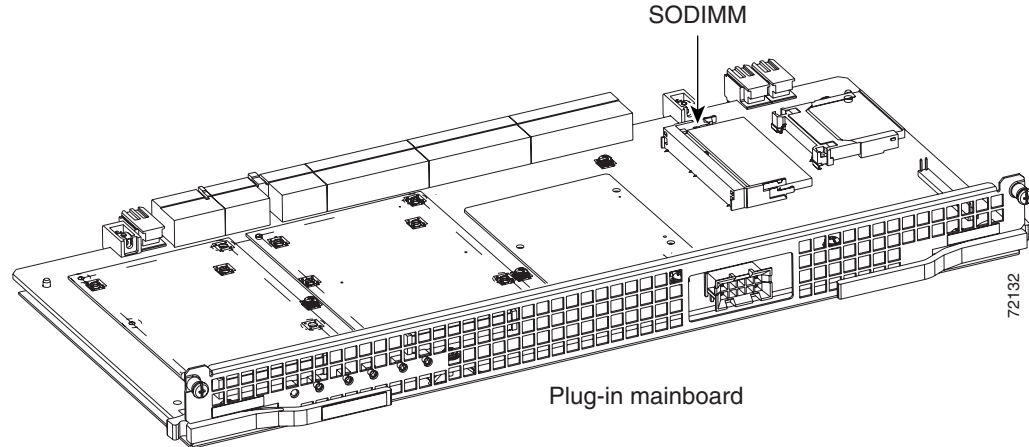
SDRAM SODIMM Location and Orientation

The Cisco 3745 router mainboard includes one SODIMM socket, that supports two SDRAM SODIMMs one on top of the other. You must remove the top SODIMM to gain access to the one on the bottom.

[Figure 9](#) shows the location of dynamic memory—that is, SDRAM SODIMMs—in the Cisco 3745 router.



Caution To avoid damaging ESD-sensitive components, observe all ESD precautions. To avoid damaging the underlying mainboard, do not use excessive force when you remove or replace SODIMMs.

Figure 9 SDRAM SODIMM Location in the Cisco 3745 Router

Removing SDRAM SODIMMs

To remove SDRAM SODIMMs, follow these steps:

-
- Step 1** Attach an ESD-preventive wrist strap and ensure that it makes good contact with your skin. Connect the equipment end of the wrist strap to the metal back plate of the chassis, avoiding contact with the connectors.
- Step 2** On the mainboard, locate the SDRAM SODIMM socket. (See [Figure 9](#).)

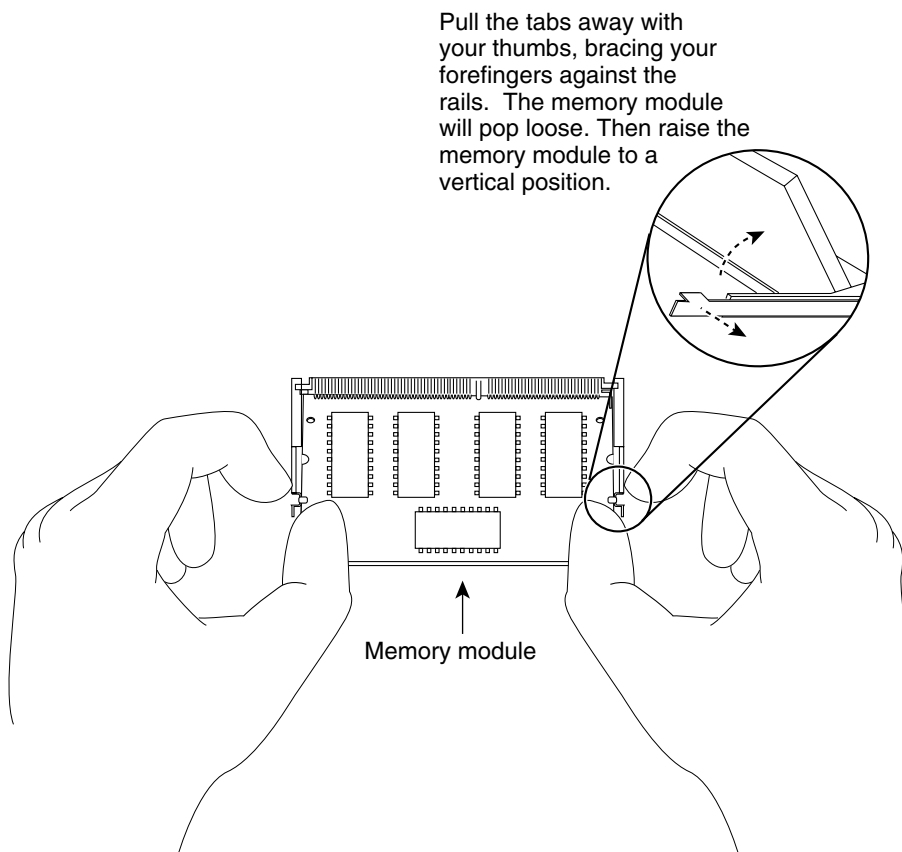


Caution

Handle the SODIMM by the edges only; do not touch the memory modules, pins, or traces (metal fingers along the connector edge). Handle carefully. SODIMMs are ESD-sensitive components and can be damaged by mishandling.

- Step 3** Release the plastic clips from the top SODIMM, which releases the SODIMM from its socket. (See [Figure 10](#).)

Figure 10 Removing and Installing SDRAM SODIMMs in the Cisco 3745 Router



- Step 4** When both ends of the SODIMM are released from the socket, grasp the ends of the SODIMM with your thumb and forefinger and pull it completely out of the socket. Place it in an antistatic bag to protect it from ESD damage.
- Step 5** If necessary, repeat [Step 3](#) and [Step 4](#) to remove the bottom SODIMM.
- Step 6** Proceed to the [“Installing SDRAM DIMMs”](#) section on page 15.

Installing SDRAM SODIMMs

To install SDRAM SODIMMs, follow these steps:

- Step 1** Attach an ESD-preventive wrist strap and ensure that it makes good contact with your skin. Connect the equipment end of the wrist strap to the metal back plate of the chassis, avoiding contact with the connectors.
- Step 2** On the mainboard, locate the SDRAM SODIMM socket. (See [Figure 9](#).)

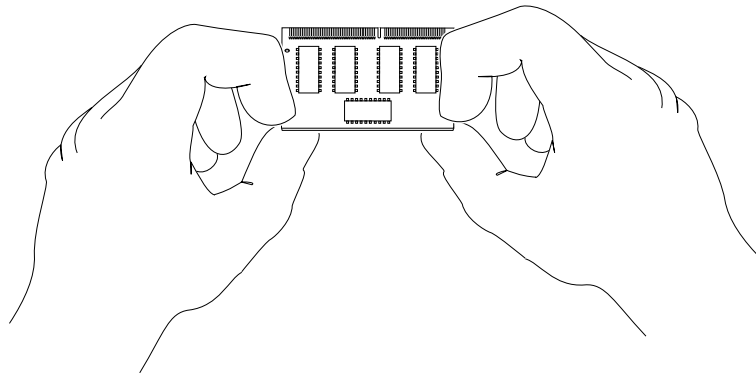


Caution

Handle the SODIMM by the edges only; do not touch the memory modules, pins, or traces (metal fingers along the connector edge). Handle carefully. SODIMMs are ESD-sensitive components and can be damaged by mishandling.

- Step 3** Hold the SODIMM component-side up, with connector edge (the metal fingers) away from you. Keep the sides of the SODIMM between your thumb and middle finger, with your forefinger against the far edge and opposite the connector edge. (See [Figure 11](#).)

Figure 11 Handling a SODIMM



- Step 4** Tilt the SODIMM to the same angle as the socket, then insert the connector edge into the socket. Gently push into place until the plastic clips snap into place.



Caution

It is normal to feel some resistance when installing a SODIMM, but do not use excessive force and do not touch the surface components.

- Step 5** Check the two alignment holds and ensure that the plastic clips are visible. If necessary, carefully remove and reseat the SODIMM.
- Step 6** If necessary, repeat [Step 3](#) through [Step 5](#) to install the top SODIMM.
- Step 7** Proceed to either of the following as appropriate:
- [“Replacing CompactFlash Memory Cards”](#) section on page 23
 - [“Replacing the Cisco 3745 Mainboard”](#) section on page 24

Replacing CompactFlash Memory Cards

To install a new CompactFlash memory card, follow these steps:

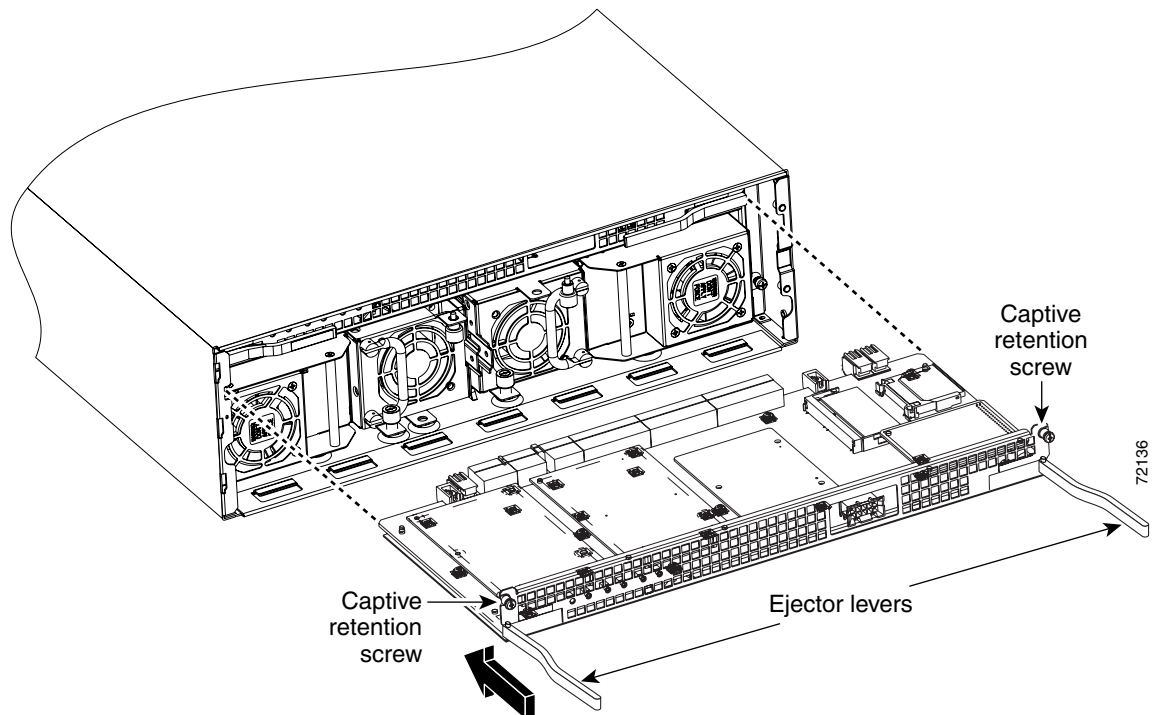
- Step 1** Refer to *Installing and Formatting Cisco 2691, Cisco 3631, and Cisco 3700 Series CompactFlash Memory Cards*, available online at the following URL:
- http://www.cisco.com/univercd/cc/td/doc/product/access/acs_mod/cis3700/hw_inst/hw_notes/index.htm
- Step 2** Proceed to [“Replacing the Cisco 3745 Mainboard”](#) section on page 24.

Replacing the Cisco 3745 Mainboard

To replace the mainboard, follow these steps:

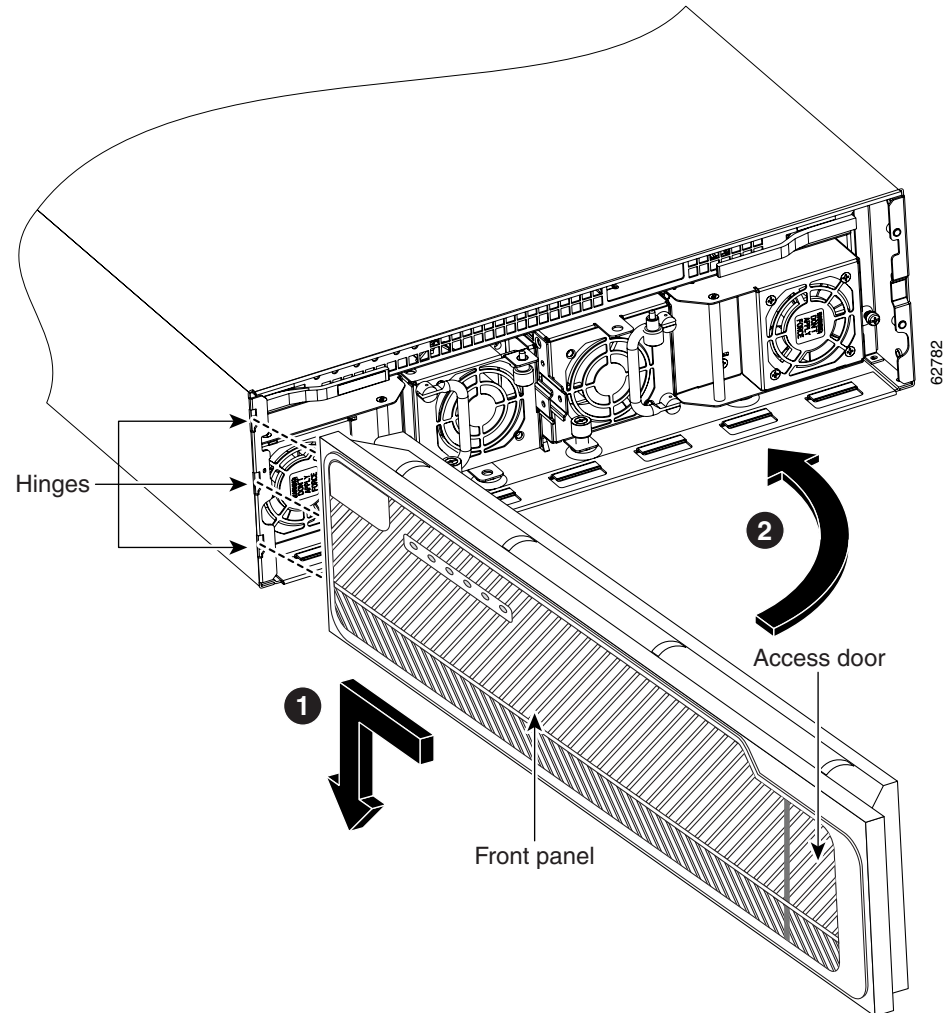
- Step 1** Place the chassis so that the empty mainboard slot faces you.
- Step 2** With the ejector levers fully open, carefully insert the mainboard tray into the chassis slot until the connector is engaged. (See [Figure 12](#).)

Figure 12 Inserting the Mainboard into a Cisco 3745 Router



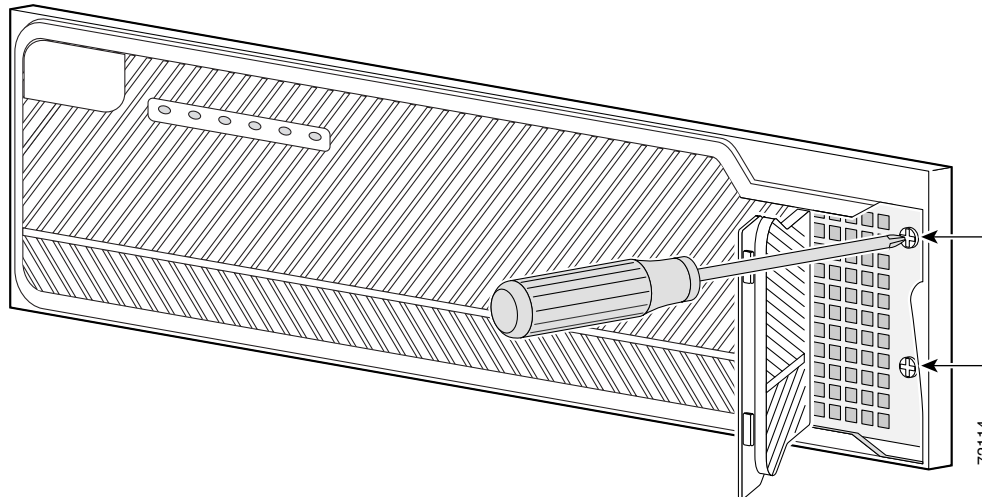
- Step 3** Close the ejector levers to fully seat the mainboard connector.
- Step 4** With a number 2 Phillips screwdriver, tighten the two captive retention screws, one on either side of the mainboard.
- Step 5** Hold the front panel straight out from the chassis, engage the hinges, and close the front panel. (See [Figure 13](#) parts 1 and 2.)

Figure 13 Installing the Front Panel on a Cisco 3745 Router



Step 6 Tighten the two captive screws behind the small access door at the right-hand edge. (See [Figure 14](#).)

Figure 14 Captive Screws on a Cisco 3745 Router



- Step 7** Reinstall the chassis on a rack or desktop.
- Step 8** Proceed to the [“Replacing Connections to the Router”](#) section on page 26.

Replacing Connections to the Router

To make final connections to the router, follow these steps:

- Step 1** Replace all network connections.
- Step 2** Do one of the following:
- **AC-powered router:** Plug the power cord into a 3-terminal, single-phase power source that provides power within the acceptable range (100 to 240 VAC, 50 to 60 Hz).
 - **DC-powered router:** Remove the tape from the circuit breaker switch handle and reinstate power by moving the handle of the circuit breaker to the ON position.
- Step 3** Turn ON the power switch. The power LED on the front panel of the router should come on.
- Step 4** Check the Sys LED on the right side of the front panel to verify that it goes on after a few seconds delay when booting.
- Step 5** If you have problems, see the [“Obtaining Technical Assistance”](#) section on page 28.
- Step 6** Proceed to the [“Recovering Compact Flash Memory and System Images”](#) section on page 27.

Recovering Compact Flash Memory and System Images

If you have increased system compact flash memory or reduced DRAM or SDRAM in a Cisco 3700 series router, you might need to reload the Cisco IOS image, using the **xmodem** command in ROM monitor mode. To use this command, the computer attached to your console must have a terminal emulator that has xmodem capability.

For complete information about ROM monitor commands, refer to *Software Configuration Guide for Cisco 2600 Series, Cisco 3600 Series, and Cisco 3700 Series Routers*, available online at the following URL:

http://www.cisco.com/univercd/cc/td/doc/product/access/acs_mod/index.htm

Using the xmodem Command

If the system image is erased from compact flash memory, the **xmodem** command establishes a connection between a console and the router console or auxiliary port for disaster recovery.

xmodem [*filename*]
—Establishes an xmodem connection between the console and the router. The optional argument *filename* specifies the source file containing the Cisco IOS image.

Other options are:

- c—Use cyclic redundancy check (CRC-16).
- y—Use Ymodem transfer protocol.
- r—Copy the image to DRAM for launch.
- x—Do not launch image on completion of download.

Obtaining Documentation

Cisco documentation and additional literature are available on Cisco.com. Cisco also provides several ways to obtain technical assistance and other technical resources. These sections explain how to obtain technical information from Cisco Systems.

Cisco.com

You can access the most current Cisco documentation at this URL:

<http://www.cisco.com/univercd/home/home.htm>

You can access the Cisco website at this URL:

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You can access international Cisco websites at this URL:

http://www.cisco.com/public/countries_languages.shtml

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You can find instructions for ordering documentation at this URL:

http://www.cisco.com/univercd/cc/td/doc/es_inpk/pdi.htm

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You can send comments about technical documentation to bug-doc@cisco.com.

You can submit comments by using the response card (if present) behind the front cover of your document or by writing to the following address:

Cisco Systems
Attn: Customer Document Ordering
170 West Tasman Drive
San Jose, CA 95134-9883

We appreciate your comments.

Obtaining Technical Assistance

For all customers, partners, resellers, and distributors who hold valid Cisco service contracts, Cisco Technical Support provides 24-hour-a-day, award-winning technical assistance. The Cisco Technical Support Website on Cisco.com features extensive online support resources. In addition, Cisco Technical Assistance Center (TAC) engineers provide telephone support. If you do not hold a valid Cisco service contract, contact your reseller.

Cisco Technical Support Website

The Cisco Technical Support Website provides online documents and tools for troubleshooting and resolving technical issues with Cisco products and technologies. The website is available 24 hours a day, 365 days a year at this URL:

<http://www.cisco.com/techsupport>

Access to all tools on the Cisco Technical Support Website requires a Cisco.com user ID and password. If you have a valid service contract but do not have a user ID or password, you can register at this URL:

<http://tools.cisco.com/RPF/register/register.do>

Submitting a Service Request

Using the online TAC Service Request Tool is the fastest way to open S3 and S4 service requests. (S3 and S4 service requests are those in which your network is minimally impaired or for which you require product information.) After you describe your situation, the TAC Service Request Tool automatically provides recommended solutions. If your issue is not resolved using the recommended resources, your service request will be assigned to a Cisco TAC engineer. The TAC Service Request Tool is located at this URL:

<http://www.cisco.com/techsupport/servicerequest>

For S1 or S2 service requests or if you do not have Internet access, contact the Cisco TAC by telephone. (S1 or S2 service requests are those in which your production network is down or severely degraded.) Cisco TAC engineers are assigned immediately to S1 and S2 service requests to help keep your business operations running smoothly.

To open a service request by telephone, use one of the following numbers:

Asia-Pacific: +61 2 8446 7411 (Australia: 1 800 805 227)

EMEA: +32 2 704 55 55

USA: 1 800 553 2447

For a complete list of Cisco TAC contacts, go to this URL:

<http://www.cisco.com/techsupport/contacts>

Definitions of Service Request Severity

To ensure that all service requests are reported in a standard format, Cisco has established severity definitions.

Severity 1 (S1)—Your network is “down,” or there is a critical impact to your business operations. You and Cisco will commit all necessary resources around the clock to resolve the situation.

Severity 2 (S2)—Operation of an existing network is severely degraded, or significant aspects of your business operation are negatively affected by inadequate performance of Cisco products. You and Cisco will commit full-time resources during normal business hours to resolve the situation.

Severity 3 (S3)—Operational performance of your network is impaired, but most business operations remain functional. You and Cisco will commit resources during normal business hours to restore service to satisfactory levels.

Severity 4 (S4)—You require information or assistance with Cisco product capabilities, installation, or configuration. There is little or no effect on your business operations.

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Information about Cisco products, technologies, and network solutions is available from various online and printed sources.

- Cisco Marketplace provides a variety of Cisco books, reference guides, and logo merchandise. Visit Cisco Marketplace, the company store, at this URL:

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- The Cisco *Product Catalog* describes the networking products offered by Cisco Systems, as well as ordering and customer support services. Access the Cisco Product Catalog at this URL:
<http://cisco.com/univercd/cc/td/doc/pcat/>
- *Cisco Press* publishes a wide range of general networking, training and certification titles. Both new and experienced users will benefit from these publications. For current Cisco Press titles and other information, go to Cisco Press at this URL:
<http://www.ciscopress.com>
- *Packet* magazine is the Cisco Systems technical user magazine for maximizing Internet and networking investments. Each quarter, Packet delivers coverage of the latest industry trends, technology breakthroughs, and Cisco products and solutions, as well as network deployment and troubleshooting tips, configuration examples, customer case studies, certification and training information, and links to scores of in-depth online resources. You can access Packet magazine at this URL:
<http://www.cisco.com/packet>
- *iQ Magazine* is the quarterly publication from Cisco Systems designed to help growing companies learn how they can use technology to increase revenue, streamline their business, and expand services. The publication identifies the challenges facing these companies and the technologies to help solve them, using real-world case studies and business strategies to help readers make sound technology investment decisions. You can access iQ Magazine at this URL:
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<http://www.cisco.com/ipj>
- World-class networking training is available from Cisco. You can view current offerings at this URL:
<http://www.cisco.com/en/US/learning/index.html>

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