



Doc. No. 78-3915-01

Upgrading DRAM on the CIP2

Product Numbers: MEM-CIP-64M= and MEM-CIP-128M=

This publication contains procedures for upgrading dynamic random-access memory (DRAM) single in-line memory modules (SIMMs) on the second-generation Channel Interface Processor (CIP2).

Note DRAM SIMMs must be removed or installed in the field by a Cisco-certified maintenance provider *only*.



Caution Improper handling of the bus and tag and ESCON channel cables and interface adapters can cause significant problems for other devices on the same channel as the CIP2. Mainframe processors can, in some circumstances, be rendered inoperable due to system crashes caused by improper cable handling. We strongly recommend that only Cisco-certified maintenance providers connect and disconnect channel cables between the router and the mainframe, and perform maintenance procedures on the CIP2.

Note For more complete information on the CIP2, refer to the configuration note *Second-Generation Channel Interface Processor (CIP2) Installation and Configuration*, which ships with the CIP2 and is available on the Cisco Connection Documentation, Enterprise Series CD-ROM, on the Cisco Products disc.

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Service and Upgrade Prerequisites

Before you begin to upgrade the CIP2, review the electrostatic discharge (ESD)-prevention guidelines in this section to avoid damaging the equipment. This section also lists the parts and tools you will need to perform the upgrade.

Preventing Electrostatic Discharge Damage

ESD damage, which can occur when electronic cards or components are improperly handled, results in complete or intermittent failures. Each processor module contains a printed circuit card that is fixed in a metal carrier. Electromagnetic interference (EMI) shielding, connectors, and a handle are integral components of the carrier. Although the metal carrier helps to protect the card from ESD, use an ESD-preventive wrist or ankle strap whenever you handle any electronic system component. Attach the ESD-preventive wrist strap between you and the carrier.

Required Tools and Parts

You need the following tools and parts to upgrade a CIP2. If you need additional equipment, contact a customer service representative for ordering information.

- Number 2 Phillips or a 3/16-inch flat-blade screwdriver
- DRAM upgrade products—MEM-CIP-64M= or MEM-CIP-128M=
- ESD-preventive wrist strap or other device for preventing ESD damage

Upgrading DRAM on the CIP2

This section includes procedures to perform an upgrade of DRAM SIMMS on the CIP2. DRAM SIMMs must be removed or installed in the field by a Cisco-certified maintenance provider *only*.



Caution Improper handling of the bus and tag and ESCON channel cables and interface adapters can cause significant problems for other devices on the same channel as the CIP2. Mainframe processors can, in some circumstances, be rendered inoperable due to system crashes caused by improper cable handling. We strongly recommend that only Cisco-certified maintenance providers connect and disconnect channel cables between the router and the mainframe, and perform maintenance procedures on the CIP2.

The procedures in this section include the following:

- Removing a CIP2, page 3
- Removing and Replacing DRAM SIMMs, page 6
- Installing a CIP2, page 8
- Attaching the ESCON Cable to the Host Channel, page 10

Removing a CIP2

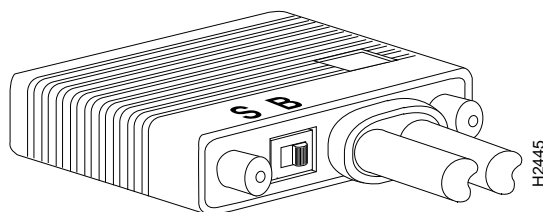
Follow these steps to remove a CIP2:

- Step 1** Attach an ESD-preventive wrist strap between you and the chassis.
- Step 2** If you have a Parallel Channel Adapter (PCA), vary offline the addresses assigned to the CIP2. For instructions on how to vary offline, refer to your operating system's documentation.
- Step 3** Shut down the interfaces on the CIP2 using the **shutdown** command. For the ESCON interface on ESCON Channel Adapter (ECA), this will prevent logouts from occurring on the router console when the optical-fiber cable is removed.
- Step 4** The select/bypass switch marked *S* (for select mode) and *B* (for bypass mode) is located on the rear of the PCA connector. (See Figure 7.) The select/bypass switch is required to allow the cable to be separated from the PCA without "opening" the select-out loop. If you have a PCA, place the select/bypass switch in bypass mode. (See Figure 1.)



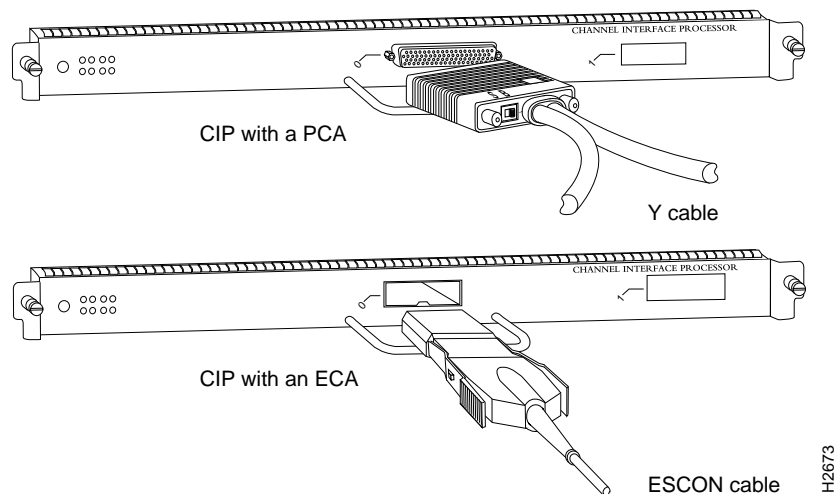
Caution To prevent halting or otherwise affecting the mainframe operating system, verify that the select/bypass switch is in bypass mode before you remove the PCA connector from the CIP2.

Figure 1 Select/Bypass Switch on Rear of PCA Connector (CAB-PCA-Y), Bypass Mode Shown



- Step 5** Disconnect the Y cable from each PCA and the ESCON cable from each ECA. (See Figure 2.) *Do not disconnect the V-type cables from the Y cable.* To disconnect the Y cable from the PCA, it might be necessary to temporarily remove any strain relief used to support the V-type bus and tag cables, which are quite heavy. It should not be necessary to disconnect the V-type cables from the Y cable. Make certain that you replace all strain relief when you reconnect the Y cable to the PCA connector.

Figure 2 Disconnecting Cables from the CIP2



- Step 6** Use the appropriate screwdriver to loosen both the captive installation screws on the CIP2 or interface processor filler. (See Figure 3a on page 5.)
- Step 7** Place your thumbs on the ends of each of the ejector levers and simultaneously pull them both outward, away from the interface port (in the opposite direction from that shown in Figure 3c on page 5) to release the carrier from the slot. This action also releases the CIP2 bus connector from the backplane.
- Step 8** Grasp the handle with one hand and pull the CIP2 straight out of the slot, keeping your other hand under the carrier to guide it. Keep the carrier parallel to the backplane. Avoid touching the card or any connector pins.



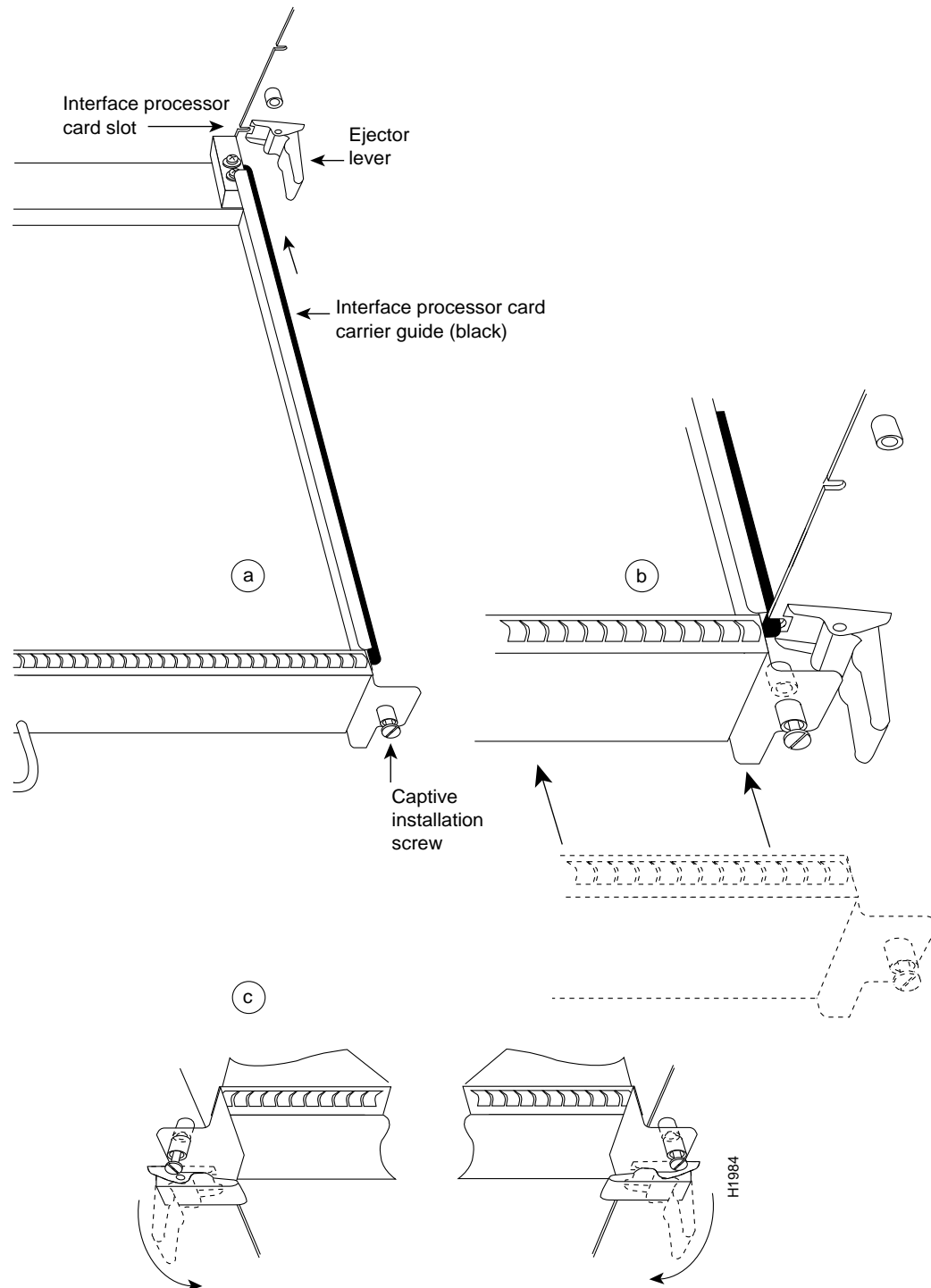
Caution Always use the ejector levers when installing or removing interface processor modules. A module that is partially seated in the backplane will cause the system to halt and subsequently crash, and shoving or slamming the interface processor into the slot can damage the backplane and pins.

- Step 9** Place the removed CIP2 on an antistatic mat or foam pad (or in an antistatic bag if you need to return the CIP2 to the factory for any reason).



Caution To prevent overheating the chassis, if the interface processor slot will remain empty during the following upgrade procedures, install an interface processor filler to keep dust out of the chassis and to maintain proper airflow through the interface processor compartment.

Figure 3 CIP2 Removal and Replacement (Horizontal Orientation Shown)



Removing and Replacing DRAM SIMMs

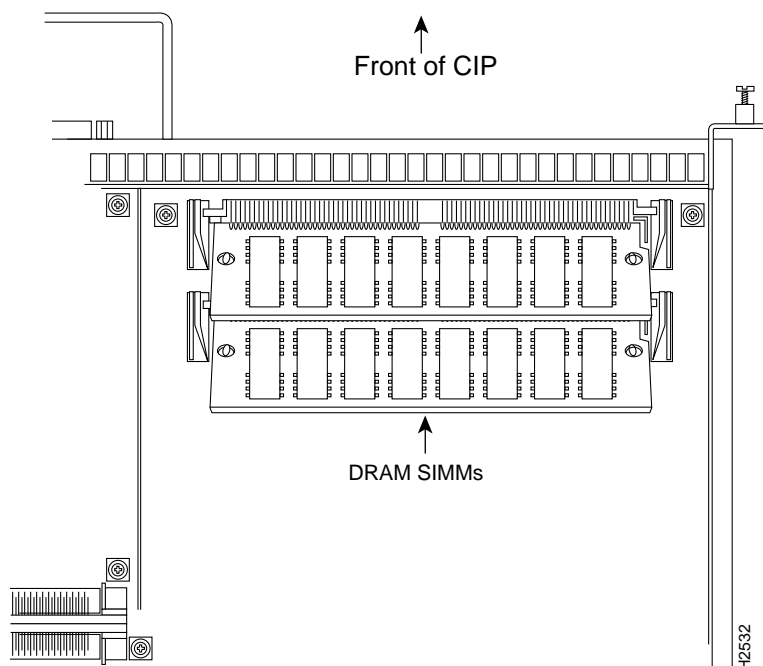
CIP2s are shipped with 32 MB of DRAM. Depending on memory requirements, you might need to upgrade the amount of DRAM by replacing the DRAM SIMMs on the CIP2. To upgrade the DRAM on a CIP2, use either MEM-CIP-64M(=) or MEM-CIP-128M(=). DRAM SIMMs must be upgraded or replaced in the field by a Cisco-certified maintenance provider *only*.

Following is the procedure for replacing DRAM SIMMs.

Note If you have a Y cable attachment for bus and tag, vary offline the host channel to which the PCA is attached and place the select/bypass switch on the Y cable in bypass mode. (See Figure 1 on page 3.) For instructions on how to vary offline, refer to your operating system's documentation.

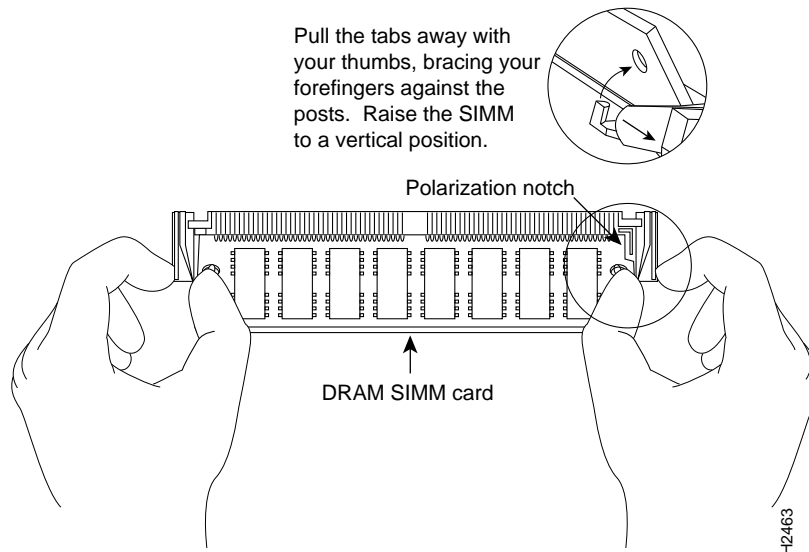
- Step 1** Attach an ESD-preventive wrist strap between you and the chassis.
- Step 2** Disconnect all cables from the CIP2 and remove it from the chassis using the procedure in the section "Removing a CIP2" on page 3.
- Step 3** Place the CIP2 on a flat surface (preferably an antistatic mat or foam), turn it so it is in the position shown in Figure 4, and locate the DRAM SIMMs.
- Step 4** Reattach the ESD-preventive wrist strap between you and the CIP2 carrier or the antistatic mat or foam. (We recommend that you attach the ESD-preventive wrist strap to the CIP2 carrier.)

Figure 4 Orientation of DRAM SIMMs on the CIP2 (Partial Overhead View)



- Step 5** Remove the SIMM by pulling outward on the connectors to unlatch it, as shown in Figure 5. Be careful not to break the holders on the SIMM connector.
- Step 6** Carefully lift the SIMM out of the SIMM socket.

Figure 5 Removing and Replacing DRAM SIMMs



- Step 7** Using the SIMM orientation shown in Figure 5, position the new SIMM so that the polarization notch is located at the right end of the SIMM socket.
- Step 8** Insert the new SIMM by sliding the end with the metal fingers into the SIMM connector socket at approximately a 45-degree angle to the system card. Gently rock the SIMM back into place until the latch on either side snaps into place. Do not use excessive force or the connector could break.



Caution To prevent damage, do not push on the center of the SIMMs. Handle each SIMM with care.

- Step 9** Repeat steps 4 through 6 for the second SIMM.
- Step 10** Reinstall the CIP2 in the chassis using the procedure in the section “Installing a CIP2” on page 8.

If error messages relating to memory are displayed once power to the chassis is turned back on, or the CIP2 card is installed in a chassis that is already on, repeat steps 1 through 8, taking care to firmly reseat each SIMM in its socket.

This completes the procedure for replacing DRAM SIMMs.

Installing a CIP2

Follow these steps to install the CIP2 in the router:

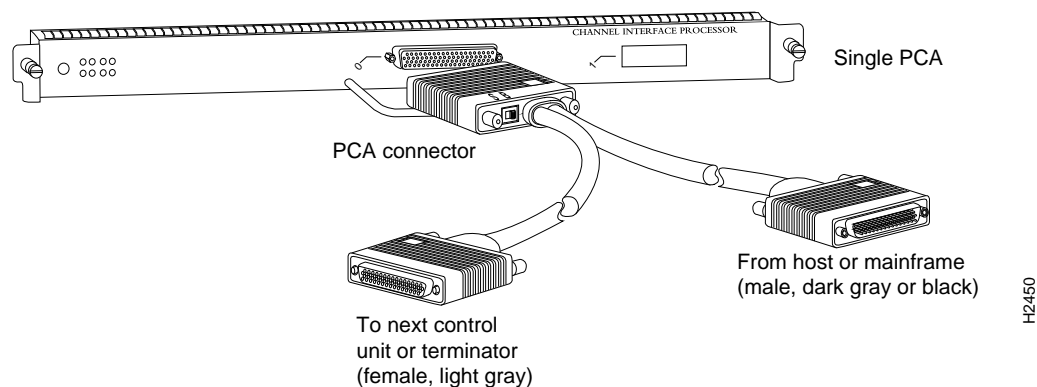
- Step 1** Attach an ESD-preventive wrist strap between you and the chassis.
- Step 2** Hold the CIP2 handle with one hand and placing your other hand under the carrier to support the CIP2, guide it into the slot. Avoid touching the motherboard, adapters, or pins.
- Step 3** Place the back of the CIP2 in the slot and align the notches along the edges of the carrier with the grooves in the slot. (See Figure 3a on page 5.)
- Step 4** Keep the carrier parallel to the backplane and carefully slide the CIP2 into the slot until the back of the faceplate touches the ejector levers, then *stop*. (See Figure 3b on page 5.)



Caution Always use the ejector levers when installing or removing interface processor modules. A module that is partially seated in the backplane will cause the system to halt and subsequently crash, and shoving or slamming the interface processor into the slot can damage the backplane and pins.

- Step 5** Using the thumb and forefinger of each hand to pinch each ejector lever, simultaneously push both ejector levers inward (toward the interface ports) until they snap into place and are parallel to the faceplate. (See Figure 3c on page 5.)
- Step 6** Use a screwdriver to tighten the two captive screws on the interface processor faceplate. (See Figure 3a on page 5.) This prevents the interface processor from becoming partially dislodged from the backplane and ensures proper EMI shielding. (These screws must be tightened to meet EMI specifications.)
- Step 7** If you have a PCA, reattach the PCA connector of the Y cable. (See Figure 6.)

Figure 6 Attaching the Y Cable to the PCA Connector—V-Type Cables Not Shown



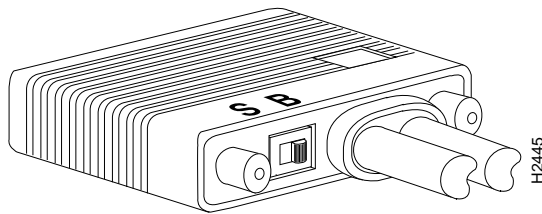
Note If there are only ECAs attached to your CIP2, proceed to the section “Attaching the ESCON Cable to the Host Channel” on page 10.

- Step 8** Place the select/bypass switch in select mode. (See Figure 7.) The select/bypass switch marked *S* (for select mode) and *B* (for bypass mode) is located on the rear of the PCA connector. (See Figure 7.) The select/bypass switch is required to allow the cable to be separated from the PCA without “opening” the select-out loop.



Caution To prevent halting or otherwise affecting the mainframe operating system, verify that the select/bypass switch is in bypass mode before you remove the PCA connector from the CIP2.

Figure 7 Select/Bypass Switch on Rear of PCA Connector (CAB-PCA-Y), Bypass Mode Shown



- Step 9** Using the **no shutdown** command, turn on the CIP2 interfaces; otherwise, errors will occur.
- Step 10** Vary online the addresses assigned to the PCA. For instructions on how to vary online, refer to the documentation for your operating system.

Note All other V-type bus and tag cables that were attached to the Y cable should still be attached. If strain relief was removed in order to disconnect the Y cable and remove the CIP2, make certain that all strain relief is replaced after you reconnect the Y cable.

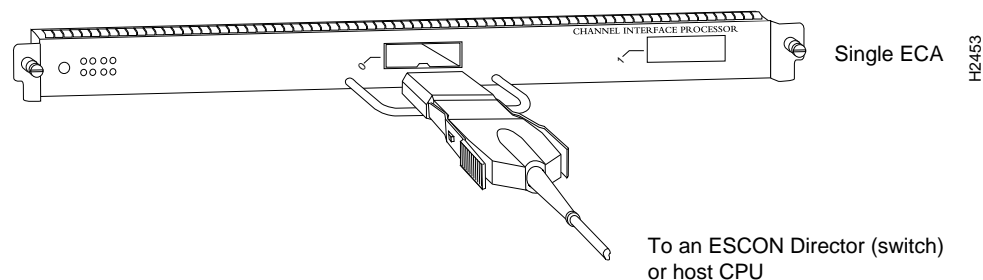
The CIP2 installation is complete for CIP2s with PCAs. For CIP2s with ECAs, proceed to the section “Attaching the ESCON Cable to the Host Channel” on page 10. If you have no ECAs, proceed to the section “Checking the DRAM Upgrade” on page 11.

Attaching the ESCON Cable to the Host Channel

Following is the procedure for attaching the ECA to the host channel:

- Step 1** If necessary or not already done, vary offline the host channel to which the ECA will be attached. (Vary offline the addresses assigned to the ECA.) For instructions on how to vary offline, refer to the documentation for your operating system.
- Step 2** Attach an ESCON cable between the ECA and the host channel or ESCON Director. (See Figure 8.)

Figure 8 Attaching an ESCON Cable to the ECA Connector



- Step 3** Vary the host channel online. (Vary online the addresses assigned to the ECA.) For instructions on how to vary online, refer to the documentation for your operating system.
 - Step 4** Using the **no shutdown** command, turn on the CIP2 interfaces; otherwise, errors will occur.
- This completes the procedures for upgrading DRAM on the CIP2 motherboard.

Checking the DRAM Upgrade

After you upgrade DRAM, reinstall the CIP2, and reattach cables, verify system operation by observing the LED states and the console display. When the system has reinitialized all interfaces, the enabled LED on the CIP2 (and on all other interface processors) should go on. The console screen will also display a message as the system discovers each interface during its reinitialization.

When you remove and replace interface processors, the system provides status messages on the console screen. These messages are for information only.

Verify that the CIP2 is installed correctly as follows:

Step 1 While the system reinitializes each interface, observe the messages on the console display and verify that the system discovers the CIP2 as follows:

- After you replaced the CIP2, the system should recognize the interface and place it in the same state (up or down) it was in before you removed the CIP2.
- If the router fails to boot, displays an error message, or fails to recognize the CIP2, remove the CIP2 and reboot.

Step 2 When the reinitialization is complete, verify that the enabled LED on the CIP2 goes on and remains on. If it does, proceed to Step 5. If it does not, proceed to the following step.

Step 3 If the enabled LED on the CIP2 fails to go on, the CIP2 card edge connector might not be fully seated in the backplane. Proceed as follows:

- Loosen the captive installation screws, then firmly push the ejector levers inward (toward the interface port) until both are parallel to the CIP2 faceplate.
- Tighten the captive installation screws.
- After the system reinitializes the interfaces, the enabled LED on the CIP2 should go on.

If it does not, proceed to Step 4. If it does, proceed to Step 5.

Step 4 If the enabled LED still fails to go on, remove the CIP2 and try installing it in another available interface processor slot.

- If the enabled LED goes on when the CIP2 is installed in the new slot, there could be a failed backplane port in the original interface processor slot.
- If the enabled LED still does not go on, *do not proceed with the installation*. Contact a Cisco service center to report the faulty equipment and obtain further instructions. (Instructions for obtaining additional technical assistance are provided in the note on the last page of this document.)

Step 5 Use the **show interfaces** or **show controllers cbus** EXEC commands to verify the status of the interface. (For complete descriptions of the **show** commands, refer to the appropriate configuration and command reference publications for your version of Cisco IOS software.)

If an error message is displayed on the console terminal, refer to the *System Error Messages* publication for error message definitions. If you need troubleshooting information specific to your router, refer to the troubleshooting chapter in the appropriate router hardware publication that shipped with your router. If you need more general troubleshooting information, refer to the *Troubleshooting Internetworking Systems* publication.

All of these publications are available on the Cisco Connection Documentation, Enterprise series CD-ROM, or as printed copies.

If you are still unable to resolve the problem, refer to the note on the last page of this publication for information on obtaining technical assistance and support.

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