Origin200™ CPU Upgrade Installation Instructions

Document Number 108-0172-001

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This equipment has been tested and found compliant with the limits for a Class A digital device, pursuant to Part 15 of the FCC rules. These limits are designed to provide reasonable protection against harmful interference when the equipment is operated in a commercial environment. This equipment generates, uses, and can radiate radio frequency energy and, if not installed and used in accordance with the instruction manual, may cause harmful interference to radio communications. Operation of this equipment in a residential area is likely to cause harmful interference in which case the user will be required to correct the interference at his own expense.

Attention

This product requires the use of external shielded cables in order to maintain compliance pursuant to Part 15 of the FCC Rules.

International Special Committee on Radio Interference (CISPR)

This equipment has been tested to and is in compliance with the Class A limits per CISPR publication 22, Limits and Methods of Measurement of Radio Interference Characteristics of Information Technology Equipment; Germany's BZT Class A limits for Information Technology Equipment; and Japan's VCCI Class 1 limits.

Canadian Department of Communications Statement

This digital apparatus does not exceed the Class A limits for radio noise emissions from digital apparatus as set out in the Radio Interference Regulations of the Canadian Department of Communications.

Attention

Le présent appareil numérique n'émet pas de perturbations radioélectriques dépassant les normes applicables aux appareils numériques de Classe A prescrites dans le Règlement sur le interferences radioélectriques établi par le Ministère des Communications du Canada.

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About the Upgrade

To install this upgrade you must verify that the Origin200® server has the latest PROM and operating system software revisions. Then, you remove the existing logic carrier, install the new logic carrier, and return the old logic carrier to Silicon Graphics® (or your local service provider).

The Origin200 CPU module, system board, and PCI backplane are all part of the logic carrier assembly. Individual components of the logic carrier cannot be replaced in the field. You must remove and replace the entire logic carrier assembly.

Who Should Perform This Upgrade

This upgrade should be installed only by Silicon Graphics-trained personnel.

What's Included In This Upgrade

This upgrade includes the items listed in Table i:

Table i Items Included With This Upgrade

Item	Silicon Graphics Part Number
Logic Carrier	013-1938-xxx
Disposable Wrist Strap	8050103
Software CD	813-0658-003 (as of this writing)
RMA Kit, containing shipping instructions, declaration forms, and labels	026-1250-xxx
This guide (*Origin200 CPU Upgrade Installation Instructions*)	108-0172-xxx

About This Guide

This guide is intended for Silicon Graphics-trained personnel. It contains the following chapters:

- Chapter 1, “Verifying and Installing Software,” describes how to check the PROM revision level and operating system software.
- Chapter 2, “Removing and Replacing the CPU (Logic Carrier),” describes how to perform the actual upgrade.
- Chapter 3, “Returning the Old Logic Carrier,” provides an overview of the steps to return the old logic carrier to Silicon Graphics.

Additional Documentation

You may wish to have one of the following documents available for reference:

- One of the following:
  - *Origin200 and Origin Vault Installation Instructions* (108-0153-xxx)
  - *Origin200 Owner’s Guide* (007-3415-xxx)
- *IRIX Admin: Software Installation and Licensing* (007-1364-070, or later)

Chapter 1

Verifying and Installing Software

This chapter describes how to verify that the correct PROM version and software (patches) are installed on the system.

If the system does not have the appropriate PROM and software revisions, you must use the CD to update the PROM (locate on the module system controller) and the operating system.

Note: Do not install the upgrade hardware before you verify and, if necessary, install the updated software. The system will not boot unless is has the correct PROM and software revisions.

1.1 Verifying the PROM Revision

As of this writing, you must have PROM revision 5.17 or later to use the new logic carrier and CPU module. Follow these steps to check the PROM version.

1. Log in to the system as root on the system console (ttyd1).
2. At a shell prompt, enter the following command

   `flash -V`

   You will see output similar to this:

   ```
   Info for prom at /hw/module/1/slot/MotherBoard/node/prom
     Prom version 5.17
   ```

If the PROM is not at revision 5.17 or later, you must install the software on the CD. Follow the steps in the next section (Section 1.2, “Verifying the Operating System Software”) to determine if you also have to install new software, then turn to Section 1.3, “Installing Required Software.”

1.2 Verifying the Operating System Software

As of this writing, the operating system must be IRIX 6.4.1 S2MP+OCTANE with kernel roll-up patch 1856 or later (such as 1978) in order to use the upgraded logic carrier and CPU module.

Note: Always check the Silicon Graphics patch server (patches.csd.sgi.com or http://patches.csd.sgi.com/) for the latest patch set. Patches change frequently, and new patches can render the revision information in this section obsolete.

Follow these steps to check the operating system software.

1. Log in to the system as root on the system console of the Origin200 server (if you have not done so already).
2. At a shell prompt, enter the following command

   `versions | egrep patch`

   If you see a reference to patchSG0001856 or patchSG0001978, you may not need to install any patches. However, if either patch 1856 or patch 1978 has not been installed, you must install software from the CD included with this upgrade.

Be aware that the CD may contain patches for other components of the operating system. Even if the required kernel roll-up patch is installed, the customer's system may still require additional patches contained on the CD.

1.3 Installing Required Software

If the PROM revision or operating system software is not at the minimum required level, you should install new versions of the appropriate software from the CD included with this upgrade. This software must be installed using the miniroot from either a local or remote CD-ROM drive.

Follow these steps to install the appropriate software from the CD:

1. Log in as root on the system console of the Origin200 server (if you have not done so already).
2. Locate a CD-ROM drive, either one directly attached to the Origin200 server, or a drive that is accessible across the network.
   - *IRIX Admin: Software Installation and Licensing.*
3. Insert the CD in the CD-ROM drive.
4. Halt the server. At a shell prompt, enter this command:

   # **`/etc/halt`**

   You see various messages as the operating system shuts down. When you see the following message, the system has shut down:

   ```
   Okay to power off the system now.

       Press any key to restart.
   ```

5. Press <**`Return`**>. The system runs diagnostics, after which you see the System Maintenance Menu:

   ```
   System Maintenance Menu
   ```

```
1) Start System
2) Install System Software
3) Run Diagnostics
4) Recover System
5) Enter Command Monitor

Option?
```

6. Select option 2 and follow the prompts to boot the miniroot.
7. Once in the miniroot, you see the installation software (*inst*) prompt. Select the software appropriate for the server you are upgrading. For complete information on using Inst and the miniroot, see *IRIX Admin: Software Installation and Licensing*.
8. Once you have selected the appropriate software, enter go to start the installation.
9. When the installation completes, reboot the system and verify that it is functioning properly (it boots, you can log in, networking functions properly, hardware is recognized, the PROM is at revision 5.17 or later, the patches are installed, and so forth).

If the system is functioning properly, you are ready to proceed to Chapter 2, “Removing and Replacing the CPU (Logic Carrier).”

Chapter 2

Removing and Replacing the CPU (Logic Carrier)

This chapter describes how to perform the upgrade.

Note: Do not install the upgrade hardware before you verify and, if necessary, install the updated software as described in Chapter 1, “Verifying and Installing Software.” The system will not boot unless is has the correct PROM and software revisions.

2.1 Tools Required to Remove and Replace the CPU Module/Logic Carrier

Tools required to remove and replace the logic carrier:

- #2 Phillips screwdriver
- grounding (wrist) strap, included with this upgrade

2.2 Preparing the System for Servicing

The procedures in this step apply to all subsequent service instructions in this chapter, except for replacing the module system controller.

Follow these steps to prepare the Origin200 server or Origin Vault expansion option for servicing:

1. Shut down the system.
2. Turn off the main power switch.
3. Disconnect all of the cables that are attached to the rear of the system (power, CrayLink Interconnect, Ethernet, SCSI, etc.).
4. Place the system on its side on a flat work surface.

   Caution: Two people are required to lift and move the chassis.

   - If the system is mounted in an equipment rack, remove it.
   - If the system is in a tower configuration, you may wish to place a thin, soft pad (such as a cloth or piece of cardboard) under the top edge of the system to keep the top-cap from becoming marred or scratched.
5. If the system is in a tower configuration, remove the left side panel.

6. Remove the chassis access cover, as shown in Figure 2-1.

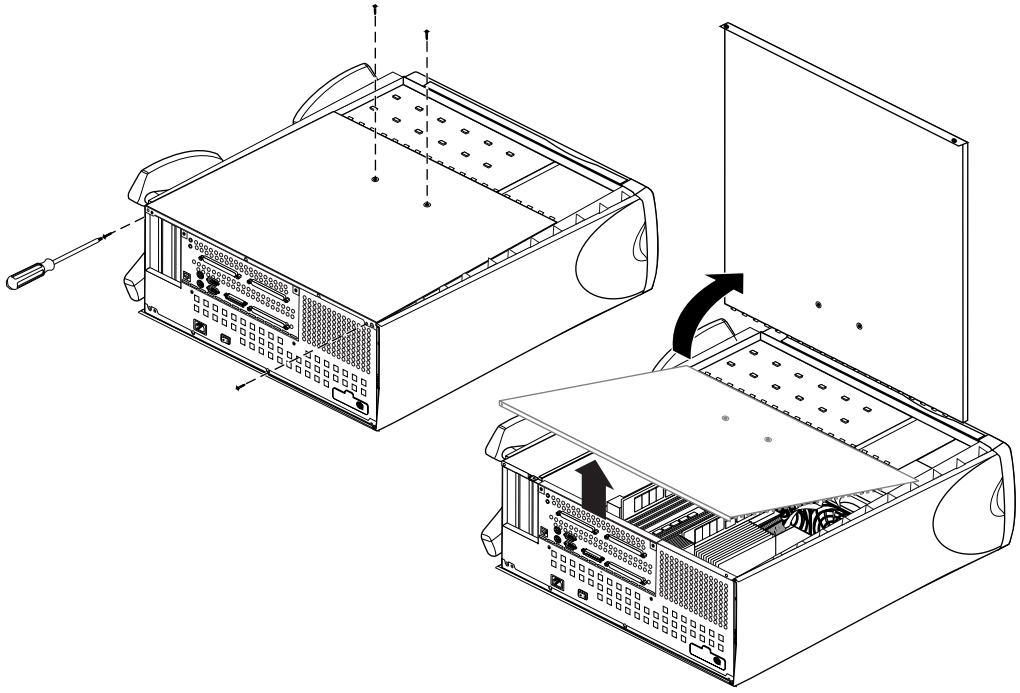

Figure 2-1 Removing the Chassis Access Cover

7. Attach one end of a grounding strap to your wrist and the other to a metal portion of the chassis.

Warning: **Whenever you work on internal components, always use a grounding (wrist) strap to prevent the flow of potentially damaging static electricity.**

You are now finished preparing the system for servicing. Proceed with the next step, "Removing the CPU Module/Logic Carrier."

2.3 Removing the CPU Module/Logic Carrier

Follow these steps to remove the logic carrier.

1. If you have not done so already, prepare the system for servicing as described in Section 2.2, "Preparing the System for Servicing."
2. If there are any PCI boards in the system, remove them.
3. If you have installed any third-party memory in the system, and you are returning the old logic carrier to Silicon Graphics (or your local support provider), remove those DIMMs. You will reinstall these DIMMs on the new logic carrier.

4. Using a #2 Phillips screwdriver, remove the sheet metal screw and captive fastener that secure the PCI plenum divider and lift the divider out of the system. See Figure 2-2.

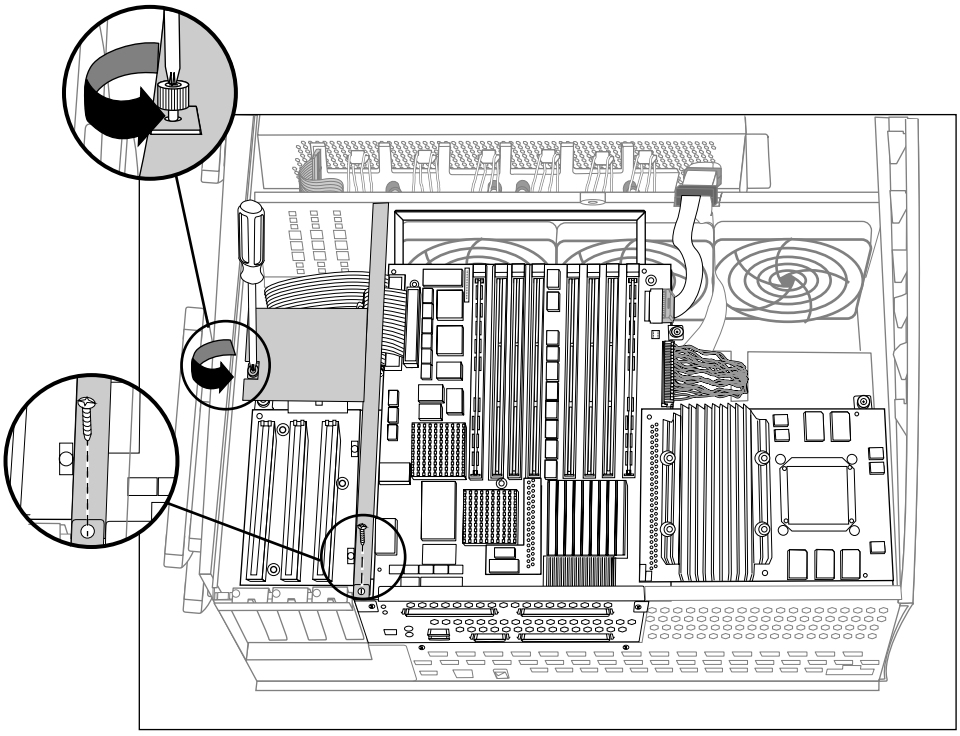

Figure 2-2 Unfastening the PCI Plenum Divider Sheetmetal

5. Lift the PCI plenum divider sheetmetal out of the system, as shown in Figure 2-3.

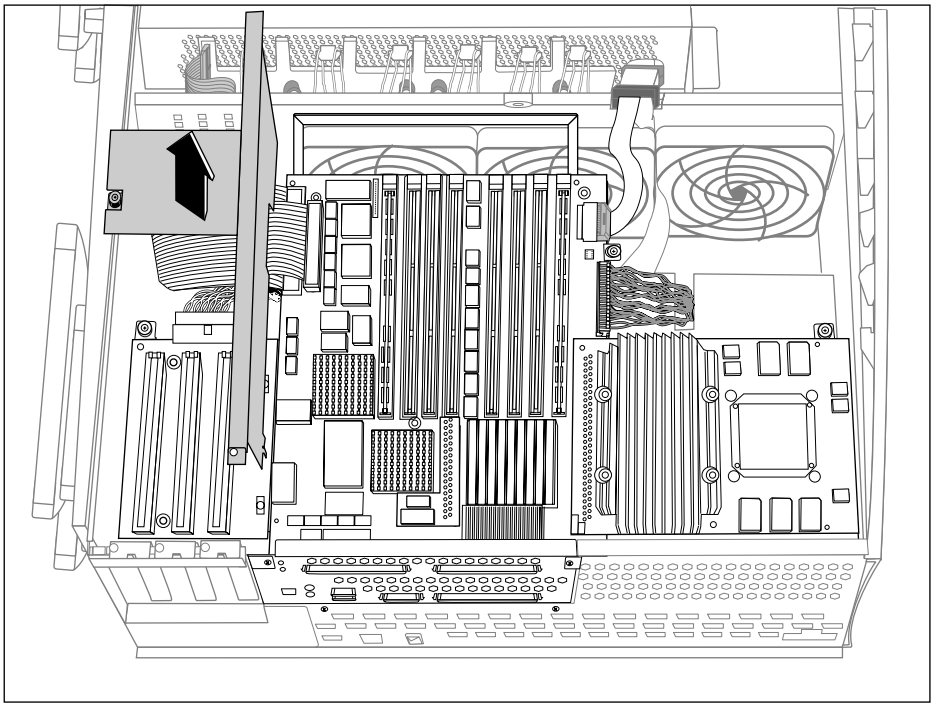

Figure 2-3 Removing the PCI Plenum Divider

6. Disconnect the cables that are attached to the logic carrier, as shown in Figure 2-4:
    - Detach the two SCSI cables.
    - Disconnect the power connector.
    - Remove the system controller cable.
    - Disconnect the PCI power cable.

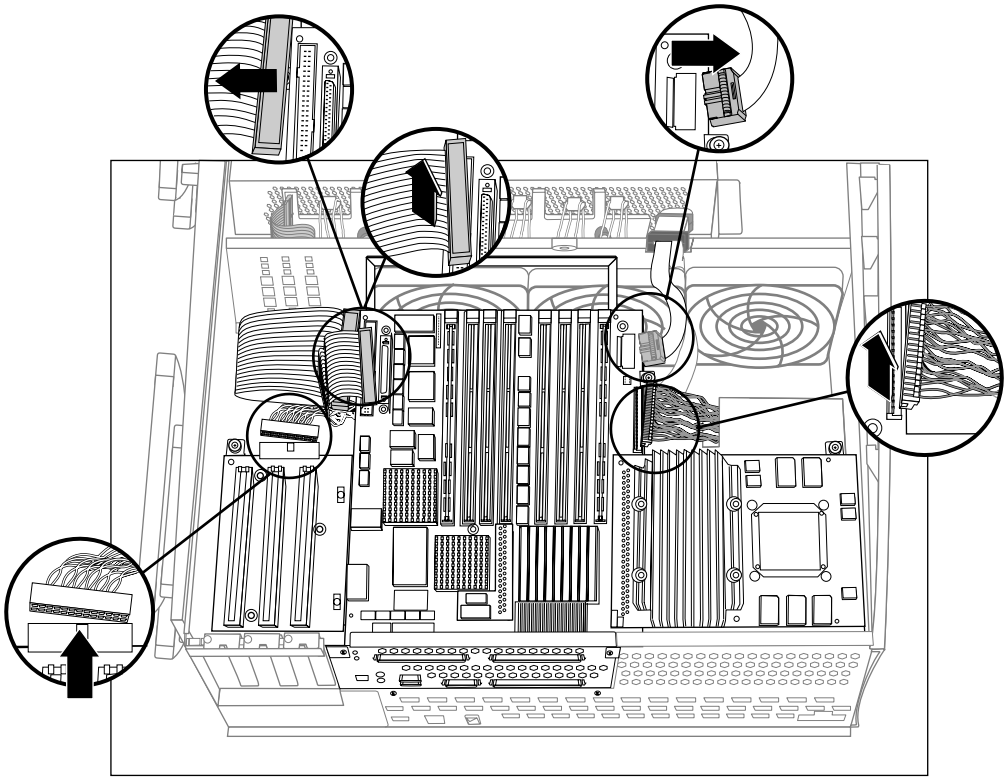

Figure 2-4 Disconnecting Cables from the Logic Carrier

7. Unfasten the captive screws and sheet metal screws that secure the logic carrier. See Figure 2-5.

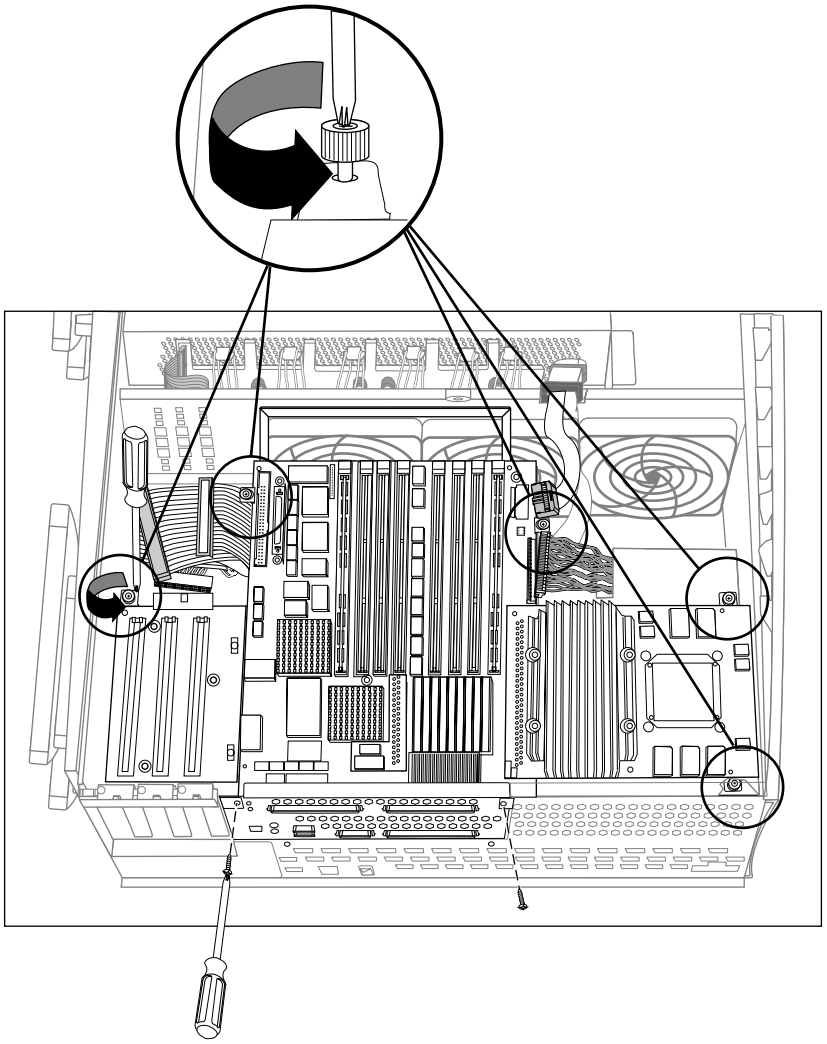

Figure 2-5 Unfastening the Logic Carrier

8. Lift the logic carrier out of the system, as shown in Figure 2-6.
    - Grasp the logic carrier handle with one hand and the connector panel with the other.
    - As you lift the logic carrier, tilt the side with the CPU daughter card up slightly higher than the side with the PCI backplane. Angling the logic carrier in this way makes it easier remove.

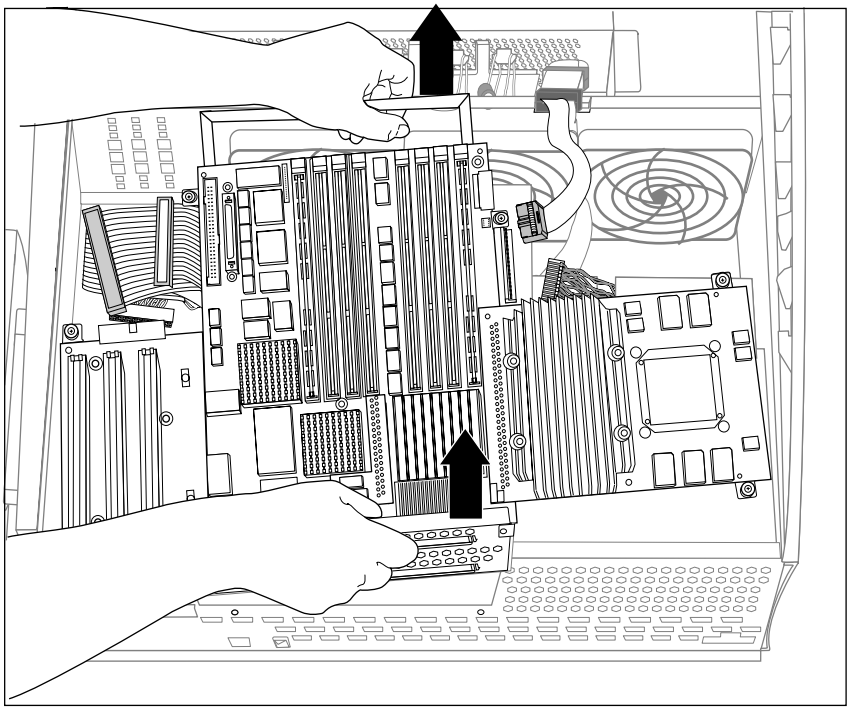

Figure 2-6 Removing the Logic Carrier

2.4 Installing a New CPU Module/Logic Carrier

Follow these steps to install a new logic carrier.

1. Lower the new logic carrier into the system, as shown in Figure 2-7.

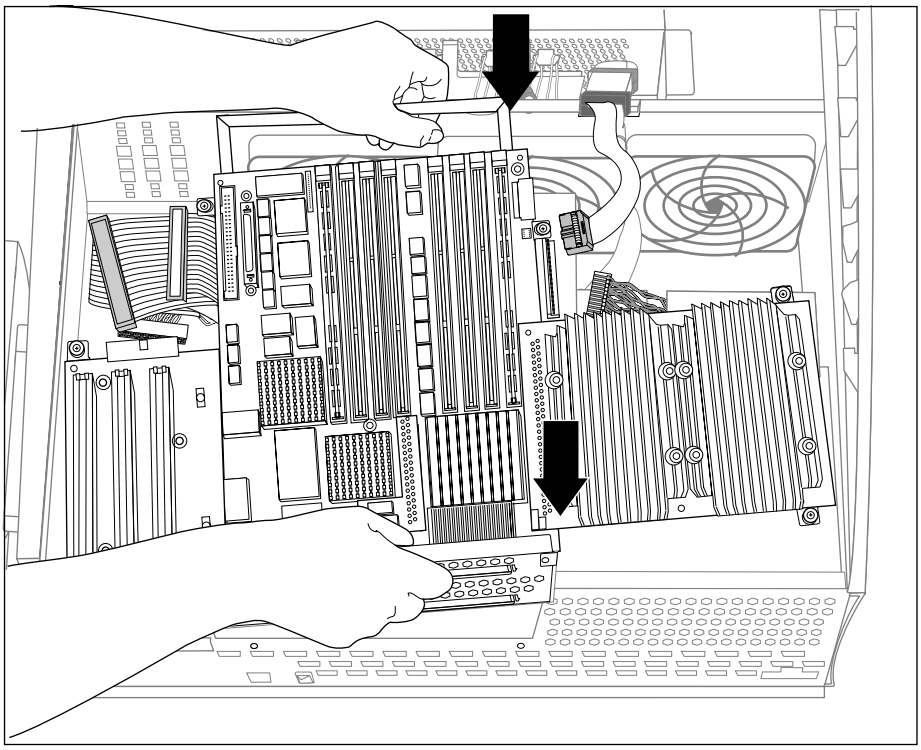

Figure 2-7 Lowering A Logic Carrier Into the System

2. Secure the logic carrier by tightening the captive fasteners and installing the sheet metal screws, as shown in Figure 2-8.

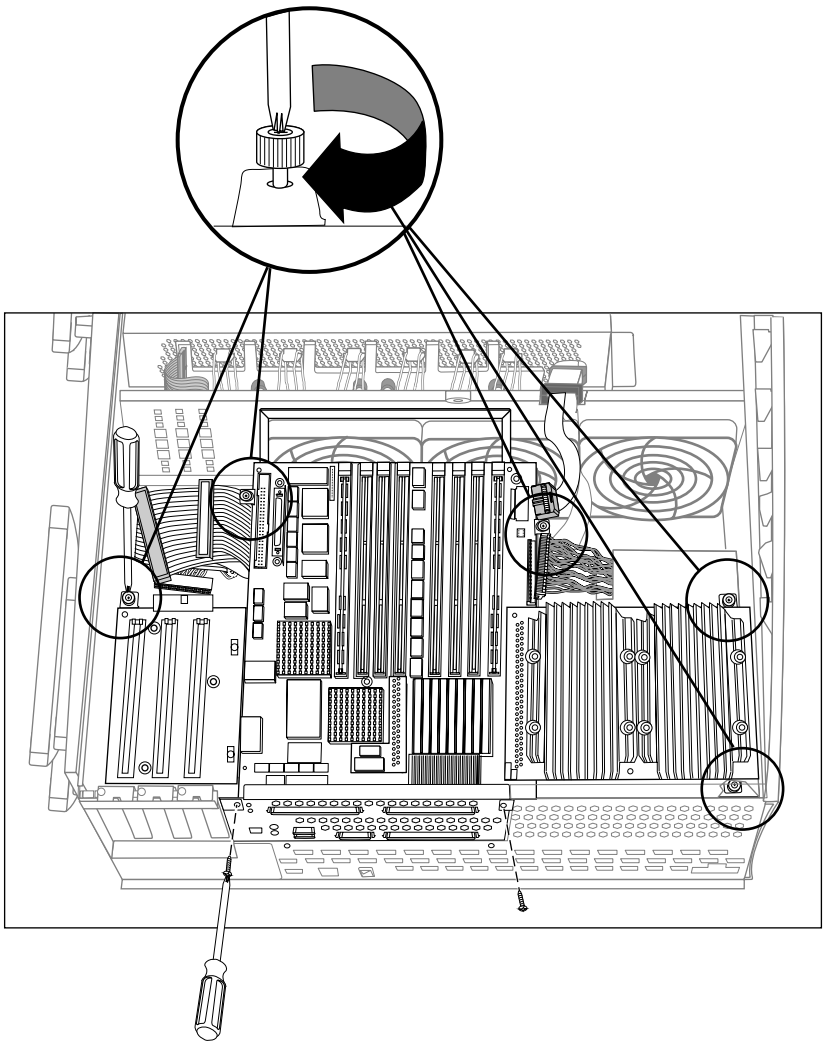

Figure 2-8 Fastening the Logic Carrier

3. Attach the power, SCSI, and system controller cables to the logic carrier, as shown in Figure 2-9.

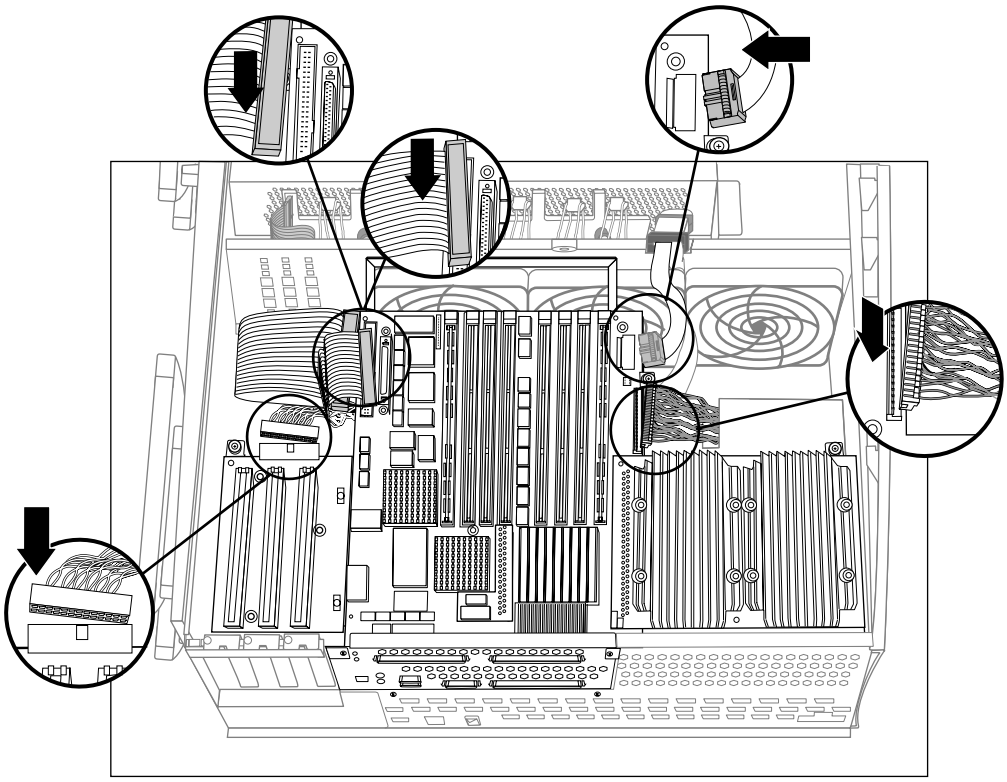

Figure 2-9 Attaching the Logic Carrier Cables

4. Install the PCI plenum divider sheet metal as shown in Figure 2-10.
    - Be extremely careful not to pinch the SCSI cables when installing the PCI plenum divider.
    - Make sure that the SCSI cables are not underneath the plenum divider captive screw.

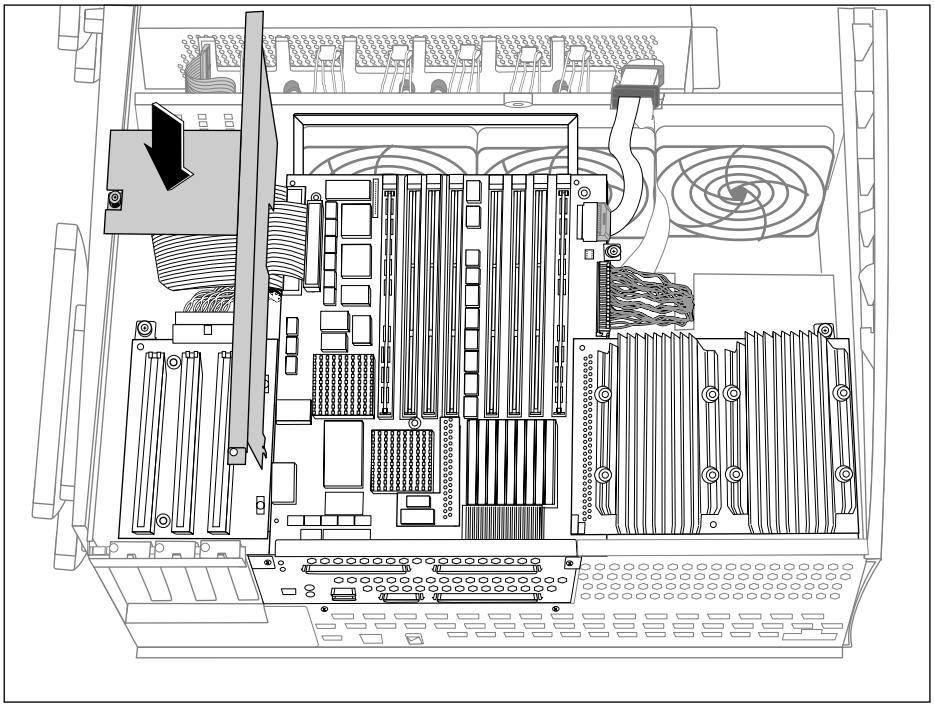

Figure 2-10 Installing the PCI Plenum Divider

5. Fasten the PCI plenum divider by tightening the captive screw and installing the sheet metal screw, as shown in Figure 2-11.

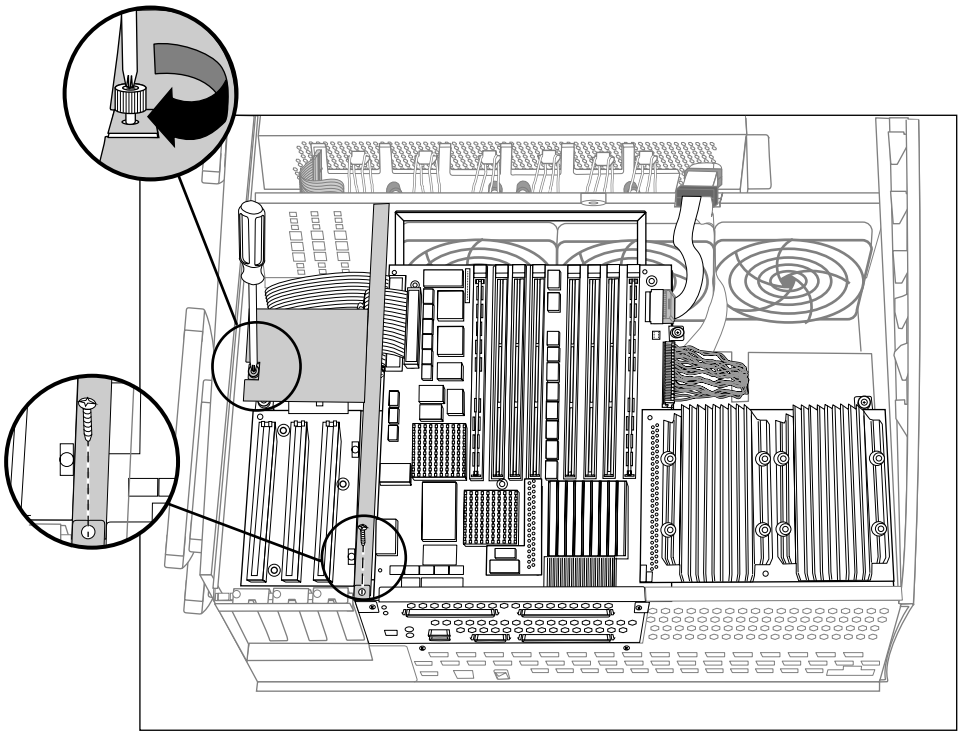

Figure 2-11 Fastening the PCI Plenum Divider

6. Reinstall any PCI option boards and third-party memory that were present in the system and return the server to working order.

You are finished installing the upgrade and are now ready to pack up the old logic carrier and send it back to Silicon Graphics. Turn to Chapter 3, “Returning the Old Logic Carrier.”

Chapter 3

Returning the Old Logic Carrier

When you are finished installing the upgrade, return the old logic carrier using the RMA kit (026-1250-001) included with this upgrade.

The RMA kit contains:

Table 3-1 Contents of RMA Kit 026-1250-001

Item	Part Number
Material Return Instructions	011-0346-001
RMA Return Address Label	011-0741-001
Commercial Invoice for Canadian Shipments	011-0742-001
U.S. Customs Declaration For Free Entry of Returned American Goods Form 3311	011-0743-001
List of International Shipping Contacts	011-0651-001

Follow the directions on the Material Return Instructions for filling out and affixing the RMA Return Address Label, filling out the Commercial Invoice and U.S. Customs Declaration (for International Shipments), and for placing the material and forms in the shipping container.

Be sure to pack the old logic carrier carefully, using the packing materials supplied with the new logic carrier.