
Silicon Graphics® O2™ and Silicon Graphics® Octane™ R12000 CPU Upgrade Information

This booklet provides information about installing an R12000 or R12000A CPU and any necessary software in an O2 or Octane system. This upgrade is applicable only to systems with an R10000 or R12000 CPU already installed.



Caution: These instructions supersede those found in the *O2 Workstation Owner's Guide* and the *Octane Workstation Owner's Guide*. If you're upgrading an O2, it's especially important that you complete the replacement of the CPU support prior to installing the R12000A module or your CPU will be damaged during its installation

Checking Your Shipment

Included in this shipment are the following items:

- 6.5.x¹ Overlay CD
- Wrist strap
- Reversible screwdriver
- R12000 or R12000A CPU processor module
- CPU support (P/N 050-0347-002) for use with the O2 R12000A only
- Upgrade label

¹The Overlay version of IRIX 6.5 software that you received with this shipment. Overlay software is labeled "IRIX 6.5.x," "x" referring to the current numbered version of the software, for example 6.5.3. Base software is referred to as IRIX 6.5.

Installing the Software

Make sure you install the software before installing the hardware. You must have IRIX 6.5 base software installed to be able to install the Overlay IRIX 6.5.x software. For this upgrade, use the IRIX Overlay CD that shipped with this R12000 CPU hardware.

Note: IRIX 6.5 base software does not ship with the processor upgrade. Contact your local sales representative to order the base IRIX 6.5.

To check your workstation's IRIX version, from the Toolchest > Desktop, open a UNIX shell.

At the prompt, enter

```
uname -aR
```

To install the software, follow the instructions in the software installation booklet that came with your CDs.

Installing the Hardware

For instructions on installing the R12000 processor, refer to the appropriate document:

- To install the R12000 in an O2, follow the instructions for replacing the R10000 CPU module in the *O2 Workstation Owner's Guide*, Chapter 5, "Ordering, Removing, and Installing Replacement Parts". This information is also found in Chapter 5 in the online *O2 Workstation Hardware Reference Guide*.
- To install the R12000A in an O2, see the instructions in the following section, "Installing the R12000A in an O2".
- To install the R12000 or R12000A processor in an Octane, see the *Octane Workstation Owner's Guide*, Chapter 2, "Installing and Removing the CPU and Memory".

When you have completed the CPU installation, see "Attaching the Upgrade Label" on page 16.

Installing the R12000A in an O2

To replace an R10000 or R12000 CPU module with an R12000A CPU module, follow these steps.

To remove the R10000 or the R12000 CPU module, you must first remove the plastic face plate of the system module and the PCI tray.

1. If you haven't already done so, turn off the workstation, remove the power cable, and remove the system module from the chassis.
2. Remove the plastic face plate from the system module:
 - Use a Phillips screwdriver to remove five screws on the rear and two screws on the underside, in the locations shown (Figure 1). Keep the two screws from the underside separate. When reinstalling the faceplate you must use the same screws.

Caution: On the underside, remove only two screws. Do not remove the third screw that attaches the lever to the face plate.

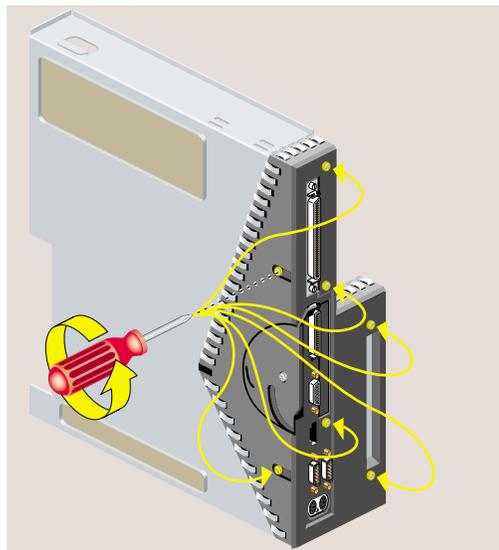


Figure 1 Removing Seven Screws From the Face Plate

3. Remove the faceplate by grasping it where the plastic comes to a “V” and pulling it outward (Figure 2).

There is a filler panel covering the I/O port which falls away as you remove the face plate.

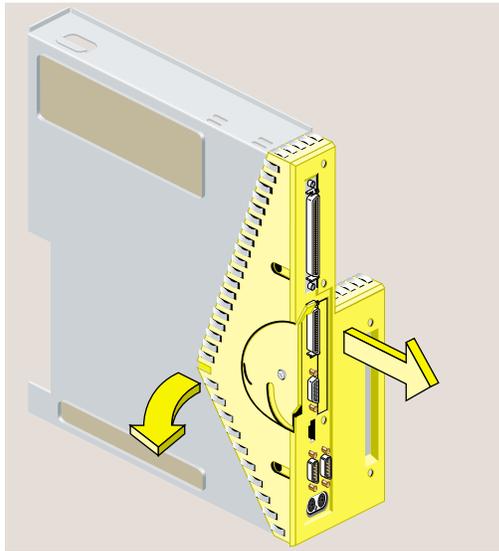


Figure 2 Removing the Face Plate From the System Module

4. Release the PCI tray from the system module as follows. *If a PCI board is installed in the tray, do not remove it from the tray. However you need to disconnect any cables attached to the PCI board.*
 - Insert a screwdriver in the small opening shown in Figure 3. Use a twisting motion to release the PCI connector from the slot on the system module. Then use an up and down motion to release the PCI tray.
 - Pull the PCI tray straight up to remove it and set it aside.

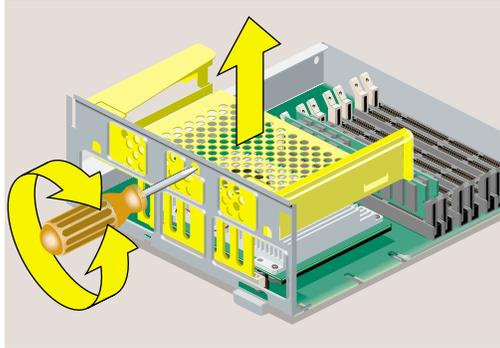


Figure 3 Releasing the PCI tray From the System Module

5. Before touching any of the components, ground yourself to a metal part of the chassis. Attach the wrist strap as follows: (Figure 4)
 - Wrap the first two folds of the wrist strap around your wrist.
 - Peel the liner from the copper foil at the opposite end.
 - Attach the copper foil to the chassis.

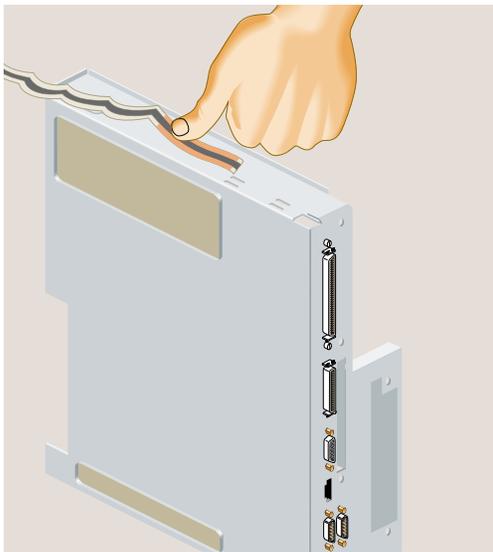


Figure 4 Attaching the Wrist Strap

6. Locate the R10000 or R12000 CPU module. It is protected by a metal heat sink (Figure 5). *Do not remove the heat sink.*
7. Use a Phillips screwdriver to remove four screws from the locations shown in Figure 5.

Caution: Do not remove the four hex screws. Do not remove the two screws that secure the fan.

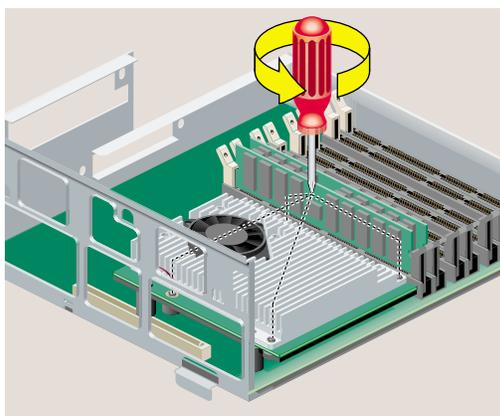


Figure 5 Removing the Screws From the R10000 or R12000 CPU Module

8. Grasp the CPU module on both sides and gently rock it out (Figure 6). Do not exaggerate the rocking motion, or you will bend the pins. Set the CPU module aside.

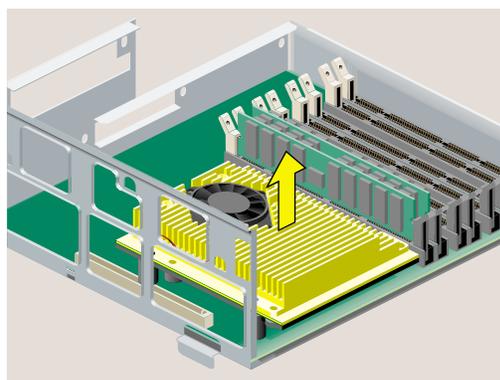


Figure 6 Removing the R10000 or R12000 CPU Module

9. Use the Phillips screwdriver to remove the top two screws securing the clear plastic CPU support to the system module (Figure 7).

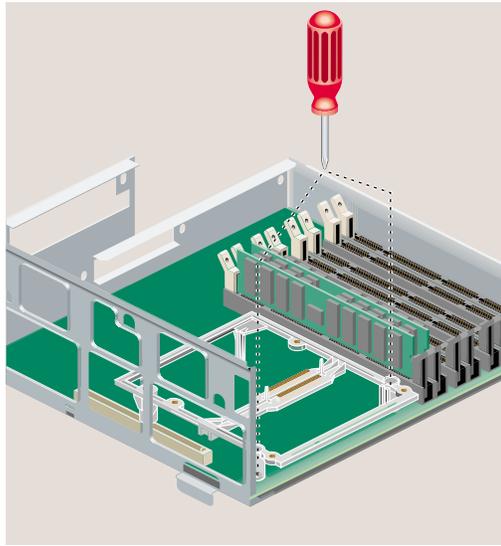


Figure 7 Removing the Top Screws from the CPU Support

10. Turn over the system module and use the Phillips screwdriver to remove the third screw securing the CPU support in place (Figure 8).

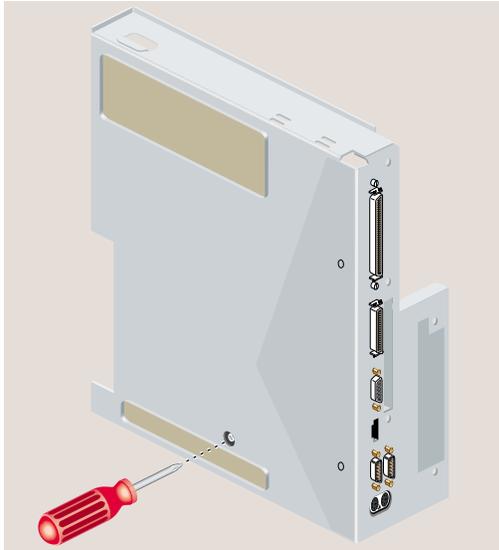


Figure 8 Removing the Bottom Screw from the CPU Support

Note: If the system module does not have a hole in the sheet metal to access this screw, call your nearest SGI Customer Support Call center and report the nature of the problem.

11. Remove the CPU support and set it aside.

12. Insert the new CPU support in the system module as shown in Figure 9. The new CPU support can be distinguished from its predecessor by its gray color or by the part number 050-0347-002 embellished on it.
13. Reinsert the two screws from the top to secure the CPU support into place.

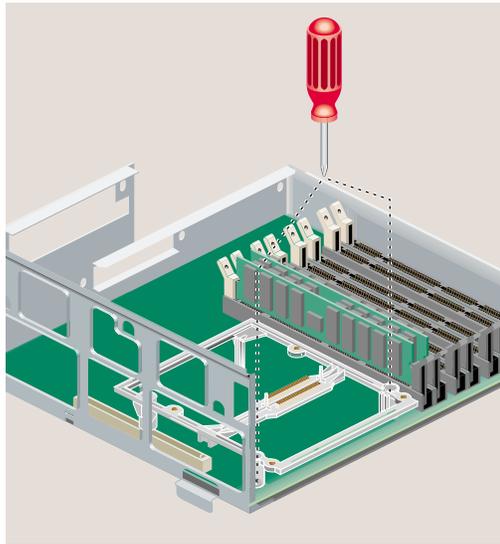


Figure 9 Installing the New CPU Support in the System Module

14. Reinsert the bottom screw to secure the CPU support into place as shown in Figure 10.

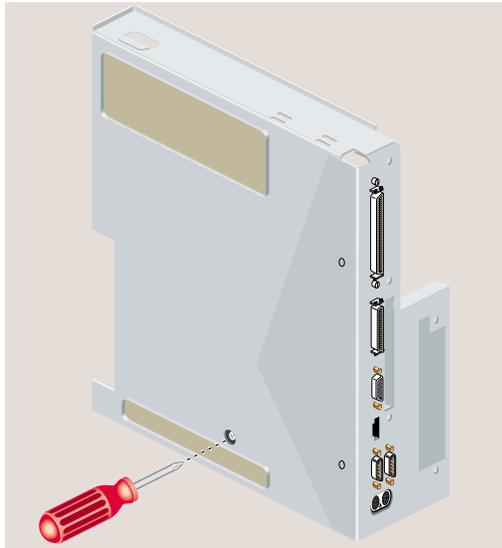


Figure 10 Reinstalling the Bottom CPU Support Screw

15. Install the replacement R12000A CPU module as shown in Figure 11.
- Align the screw holes on the CPU module with the screw holes on the CPU support. Make sure it is positioned correctly before pressing down.
 - Press down gently on the CPU module until it is securely seated.
 - Insert and tighten the four Phillips screws in the locations shown.

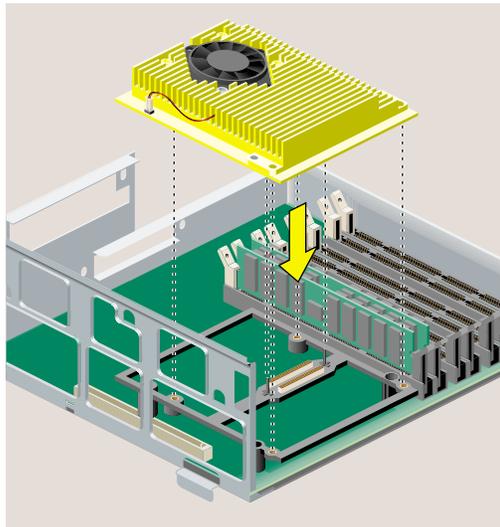


Figure 11 Securing the R12000A CPU Module

16. Remove the wrist strap.

17. Replace the PCI tray in the system module as follows:

- Lower the PCI tray, engaging it on the metal rear panel of the system module (Figure 12).
- Insert the PCI connector beneath the tray into the slot on the system module.
- Once the connector is aligned, push down firmly until it is completely seated.

Note: If the PCI tray is not completely seated, the system module will not slide back into the chassis.

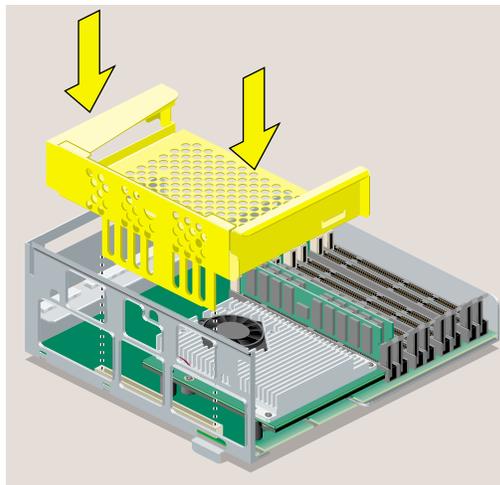


Figure 12 Replacing the PCI Tray in the R12000A System Module

18. Replace the faceplate by sliding it onto the system module, while at the same time lifting slightly at the “V” to snap it in place (Figure 13).

When properly seated, the underside of the faceplate is flush to the module and the screw holes are aligned.

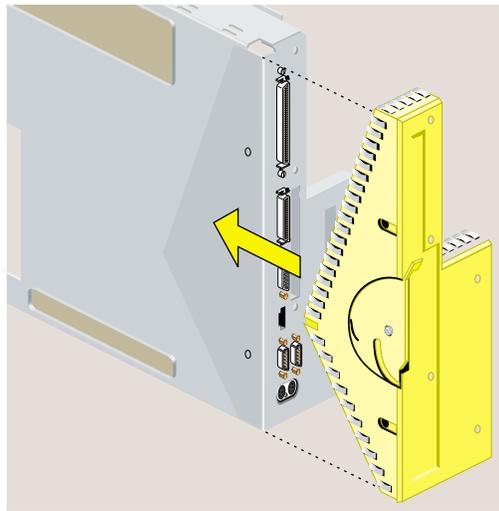


Figure 13 Replacing the Face Plate

19. Align the screw holes on the faceplate with the screw holes on the system module. Use a Phillips screwdriver to insert and tighten two screws on the underside in the locations shown (Figure 14).
20. Replace the filler panel over the I/O opening on the inside of the module. It snaps into place. If it doesn't seem to fit, turn it 180 degrees and try again.

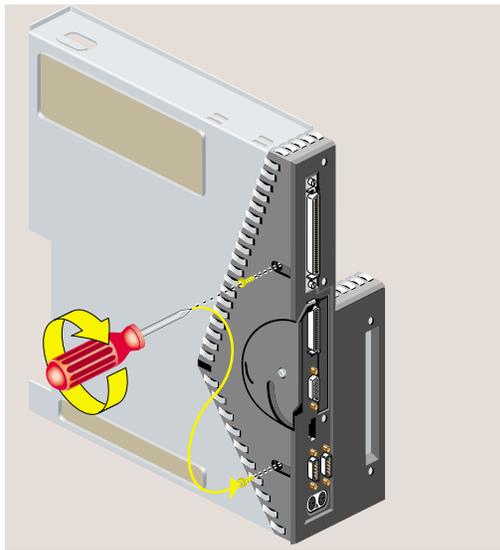


Figure 14 Replacing Two Screws on the Underside

21. Use a Phillips screwdriver to insert and tighten five screws in the locations shown in Figure 15.

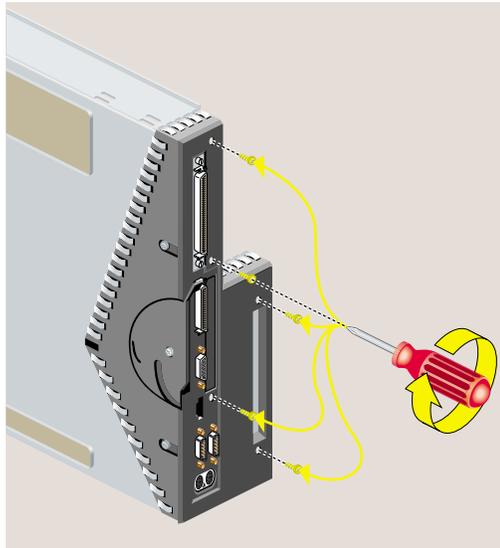


Figure 15 Replacing Five Screws on the Face Plate

22. See the section, "Reinstalling the System Module," in Chapter 5, "Ordering, Removing, and Installing Replacement Parts," in either the *O2 Workstation Hardware Reference Guide* or the *O2 Workstation Owner's Guide*.
23. Ship the original CPU module to Silicon Graphics in the container that held the replacement CPU module.

Attaching the Upgrade Label

Attach the Octane upgrade label to the system label on the back of the workstation.
Attach the O2 upgrade label near the system label on the bottom of the workstation.

Troubleshooting

If your workstation does not boot after installing the CPU, reread the CPU installation instructions. Check to make sure the new CPU is correctly seated. If you mistakenly installed the new R12000 CPU before installing the software, follow these steps (refer to your owner's guide for instructions):

24. Remove the new CPU module.
25. Reinstall the old CPU module.
26. Install the software.
27. Remove the old CPU module.
28. Install the new CPU module.

If you need further help to troubleshoot the installation, see your owner's guide. If necessary, contact your local authorized service provider.

Silicon Graphics® O2™ and
Silicon Graphics® Octane® R12000 CPU
Upgrade Information

Document Number 007-3725-002

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For regulatory and compliance information, see your *O2 Workstation Owner's Guide* or *OCTANE Workstation Owner's Guide*.

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