



Dell Precision™ WorkStation Systems

**ADDING OR REPLACING
A PROCESSOR**

Notes, Cautions, and Warnings

Throughout this guide, blocks of text may be accompanied by an icon and printed in bold type or in italic type. These blocks are notes, cautions, and warnings, and they are used as follows:



NOTE: A NOTE indicates important information that helps you make better use of your computer system.



CAUTION: A CAUTION indicates either potential damage to hardware or loss of data and tells you how to avoid the problem.



WARNING: A WARNING indicates the potential for bodily harm and tells you how to avoid the problem.

Information in this document is subject to change without notice.

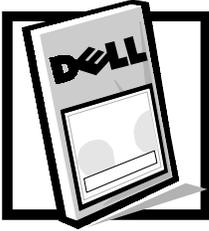
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Dell Precision™ WorkStation Systems — Adding or Replacing a Processor

This document provides instructions for replacing the single-edge contact cartridge 2 (SECC2) package on Dell Precision WorkStation 210 and 410 systems. An SECC2 package contains the system's microprocessor and cache circuitry. The SECC2 package and heat sink are replaced as a single assembly.

Microprocessor Upgrades

To take advantage of options in speed and functionality, you can add a second processor or replace either the primary or secondary processor.



CAUTION: The second processor must be of the same type and speed as the first processor.

Each processor and its associated level-2 (L2) cache memory are contained in an SECC2 package that is installed in a dedicated connector on the system board. In systems with only one processor, a terminator card is installed in the secondary processor connector. The following sections describe how to install or replace an SECC2 package in either the primary or secondary processor connector.

Precautionary Measures

Before you remove the computer cover, perform the following steps in the sequence indicated.



CAUTION: Do not attempt to service the computer system yourself, except as explained in this guide and elsewhere in Dell™ documentation. Always follow installation and service instructions closely.



CAUTION: To help avoid possible damage to the system board, wait 15 to 30 seconds after turning off the system before removing a component from the system board or disconnecting a peripheral device from the computer.

1. Turn off your computer and any peripherals.
2. Ground yourself by touching an unpainted metal surface on the chassis, such as the metal around the card-slot openings at the back of the computer, before touching anything inside your computer. It is highly recommended that a wrist grounding strap be used in this operation.

While you work, periodically touch an unpainted metal surface on the computer chassis to dissipate any static electricity that might harm internal components .

3. Disconnect your computer and peripherals from their power sources. Also, disconnect any telephone or telecommunication lines from the computer.

Doing so reduces the potential for personal injury or shock.

In addition, take note of these safety guidelines when appropriate:

- When you disconnect a cable, pull on its connector or on its strain-relief loop, not on the cable itself. Some cables have a connector with locking tabs; if you are disconnecting this type of cable, press in on the locking tabs before disconnecting the cable. As you pull connectors apart, keep them evenly aligned to avoid bending any connector pins. Also, before you connect a cable, make sure both connectors are correctly oriented and aligned.
- Handle components and cards with care. Don't touch the components or contacts on a card. Hold a card by its edges or by its metal mounting bracket. Hold a component such as a microprocessor chip by its edges, not by its pins.

Removing the SECC2 Package and Heat Sink Assembly

To remove the SECC2 package and heat sink assembly, perform the following steps:

1. Remove the computer cover.



NOTE: For instructions, see the appropriate chapter on removing the cover in the Service Manual for your system.

2. Rotate the power supply out of the way.
3. Remove the airflow shroud by squeezing both pairs of tabs on the top of the shroud and then lifting it out of the chassis, as shown in Figure 1-1.



WARNING: The SECC2 package and heat sink assembly can get extremely hot. To avoid burns, be sure the assembly has had sufficient time to cool before you touch it.

4. Free and lift out the SECC2 package.

Gently push out (as indicated by the arrows in Figure 1-1) on the top of the guide bracket to separate the brackets as you simultaneously lift up on the SECC2 package.

You must use up to 15 pounds (lb) of force to disengage the SECC2 package from its connector.

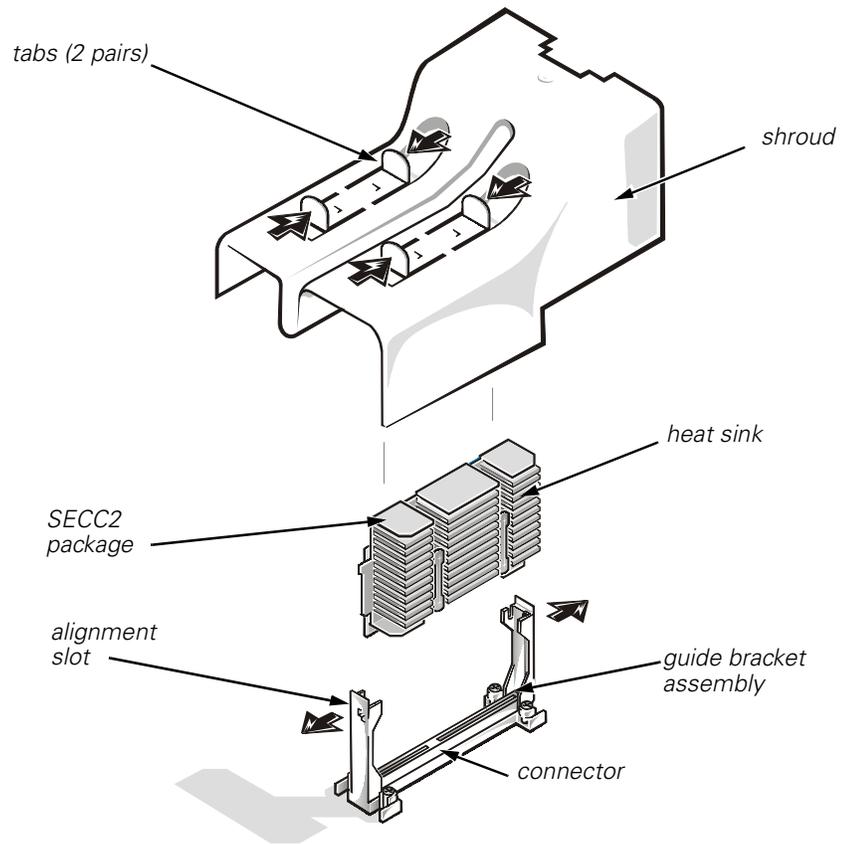


Figure 1-1. SECC2 Package Removal and Insertion

Installing the SECC2 Package and Heat Sink Assembly

An SECC2 package with attached heat sink is included in your microprocessor upgrade kit.

Use the following procedure to add or replace an SECC2 package.



NOTES: Dell recommends that only trained service technicians perform this procedure.

If you completed the steps in "Removing the SECC2 Package and Heat Sink Assembly," skip to step 4 of this procedure.



1. Remove the computer cover.

NOTE: For instructions, see to the appropriate chapter on removing the cover in the Service Manual for your system.

2. Rotate the power supply out of the way.
3. Remove the airflow shroud by squeezing both pairs of tabs on the top of the shroud and then lifting it out of the chassis, as shown in Figure 1-1.



WARNING: The SECC2 package and heat sink assembly can get extremely hot. To avoid burns, be sure the assembly has had sufficient time to cool before you touch it.

4. If you are adding a second processor to a single-processor system, remove the terminator card from the secondary SECC2 package connector (labeled "SLOT1_SEC").
5. Insert the new SECC2 package assembly into the connector:
 - a. Orient the assembly with the heat sink facing the left side of the chassis (when viewed from the front).
 - b. Press the SECC2 package firmly into its connector until it is fully seated and secured in the guide bracket (see Figure 1-1).

You must use up to 25 lb of force to fully seat the SECC2 package assembly in its connector.



6. If necessary, change the processor speed jumper setting.

NOTE: For instructions concerning jumper settings, see the appropriate chapter in the Service Manual for your system.

7. Replace the airflow shroud:
 - a. Place the airflow shroud over the processor(s).
 - b. Fit the mouth of the shroud into the alignment slot on the left side of the fan and between the fan and the power supply bracket on the right.
 - c. Squeeze both pairs of tabs on the top of the shroud and lower it until the clips on the bottom of the shroud engage with the top (s) of the processor heat sink(s).
8. Rotate the power supply back into position, making sure that the securing tab snaps into place.

9. Replace the computer cover, and reconnect your computer and peripherals to their power sources and turn them on.

As the system boots, it detects the presence of the new processor and automatically changes the system configuration information in the System Setup program.



NOTE: After you remove and replace the cover, the chassis intrusion detector causes the following message to be displayed at the next system start-up:

ALERT! Cover was previously removed.

10. Enter the System Setup program, and confirm that the system data area correctly identifies the type and number of installed processor(s).



NOTE: For instructions on using the System Setup program, see the Service Manual for your system.

11. While in the System Setup program, reset the chassis intrusion detector by changing **Chassis Intrusion** to **Not Detected**.



NOTE: If a setup password has been assigned by someone else, contact the network administrator for information on resetting the chassis intrusion detector.

12. If you installed a second processor and your system is running Microsoft® Windows NT® 4.0, reinstall the operating system.

See your Windows NT documentation for instructions.

When you reinstall Windows NT 4.0, the operating system detects the second processor.

13. Run the Dell Diagnostics to verify that the new processor is operating correctly.

See your *Diagnostics and Troubleshooting Guide* for information on running the diagnostics and troubleshooting any problems that may occur.



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