Dell™ PowerEdge™ Systems

MICROPROCESSOR UPGRADE GUIDE

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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.

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Dell™ PowerEdge™ Systems Microprocessor Upgrade Guide

WARNING: The power supplies in the PowerEdge 4300 computer system may produce high voltages and energy hazards, which can cause bodily harm. Only trained service technicians are authorized to remove the computer cover and access any of the components inside the computer.

This document provides procedures for upgrading the Intel® Pentium® II microprocessors with either Intel Pentium II or Pentium III microprocessors in the following Dell PowerEdge systems:

- PowerEdge 1300
- PowerEdge 2300
- PowerEdge 4300
- PowerEdge 4350

Installing one or more microprocessors in your server involves the following major activities (each major step has its own procedures in the subsections that follow):

- Before you begin (preliminary steps include verifying the basic input/output system (BIOS) revision and saving the current configuration data)
- Accessing the system board (procedures are given for each of the four supported PowerEdge servers)
- Installing the upgrade microprocessor
- Installing the cooling shroud (if applicable)
- Reassembling and checking the system

The upgrade procedure requires a #2 Phillips screwdriver. In addition, you should use a wrist grounding strap for electrostatic discharge (ESD) protection. Read the safety instructions in the following section.

The contents of your kit will vary, depending on the PowerEdge system and the number of microprocessors you are installing. Each kit will have one or more new Pentium II or Pentium III microprocessor(s), diskettes containing the Resource Configuration Utility (RCU), BIOS, embedded server management (ESM) firmware,

and diagnostics. Also included, for some s ystem models, is a cooling shroud and mounting hardware.

Precautionary Measures

Before you perform any of the procedures in this document, take a few moments to read the following warning for your personal safety and to prevent damage to the computer system from ESD.

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 5 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.**

   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 .

If your system has two microprocessors installed, the secondary microprocessor must be the same type and have the same operating frequency as the primary microprocessor. For example, if the system you are installing has a 500-MHz Pentium III primary microprocessor, the secondary microprocessor must also be a 500-MHz Pentium III microprocessor.

CAUTION: Do not attempt to operate a system with one Pentium II microprocessor and one Pentium III microprocessor. Damage to one or both of the microprocessors and/or the system board may occur.

CAUTION: If your system supports more than two microprocessors but you are only installing one microprocessor, the remaining microprocessor connectors must have a terminator card.

Before You Begin

Before shutting down your system, perform these preliminary steps:

- Record the system configuration screens.
- Verify that the BIOS revision supports the microprocesso r.
- Use the RCU diskette (provided in the kit) to save the RCU configuration settings (see your *User's Guide* for complete information).

Record the System Configuration

View the system configuration screens in the System Setup program and make a record of the settings.

Checking the System BIOS Revision

Enter the System Setup program and check the system BIOS revision:

- For the PowerEdge 1300, the BIOS revision must be A02 or higher
- For the PowerEdge 2300, the BIOS revision must be A07 or higher
- For the PowerEdge 4300, the BIOS revision must be A04 or higher
- For the PowerEdge 4350, the BIOS revision must be A01 or higher

NOTE: Continue with this procedure only if your system has a BIOS revision lower than previously specified.

If a BIOS diskette is included with your kit, update your BIOS with the version contained on that diskette by performing the following steps . The correct version of the BIOS may also be on the *Dell OpenManage™ Server Assistant* CD version 4.1.1 or higher.

1. Insert the BIOS diskette provided in the upgrade kit into the diskette drive.
2. Reboot the system.
3. After the system completes the boot routine, follow the instructions on the screen.
4. After the `BIOS has been successfully installed` message appears on the screen, remove the BIOS diskette from the diskette drive and follow the instructions on the screen to reboot the system.

Saving RCU Configuration Settings

Use the RCU to save the current system configuration settings by performing the following steps:

1. Insert the RCU diskette into the diskette drive and reboot the system.
2. When the welcome screen appears, press <Enter>.

   The main menu appears.
3. Select **Step 5: Save and Exit**, and then follow the online instructions to save the current system configuration information .

NOTE: The RCU recognizes the 450-MHz (when available) and 500-MHz microprocessors. Use the RCU on the Dell OpenManage Server Assistant CD, version 4.1.1 or higher.

Accessing the System Board

Accessing the system board of a PowerEdge system involves the following steps (see your system *Installation and Troubleshooting Guide* for specific instructions if needed):

1. Disconnecting power and peripheral cables
2. Removing the covers
3. Removing the front bezel (not necessary for PowerEdge 1300)
4. Rotating the power supply (for PowerEdge 1300 only)

Installing the Upgrade Microprocessors

To upgrade to the Pentium II or Pentium III microprocessor, you need to remove the existing Pentium II microprocessors, replace the guide brackets, and then install the new microprocessor modules.

Removing the Microprocessors

This procedure applies to all four PowerEdge server models (1300, 2300, 4300, and 4350). For complete details, see your *Installation and Troubleshooting Guide* for your server.

To remove the current Pentium II microprocessors from the system board, perform the following steps.

WARNING: The microprocessor and heat sink assembly can get extremely hot during system operations. Be sure that it has had sufficient time to cool before touching it.

WARNING: When handling the microprocessor and heat sink assembly, take care to avoid sharp edges on the heat sink.

1. Unscrew and remove the two large thumbscrew-type retention pins that secure the microprocessor to the system board.
2. Press the microprocessor's release latches inward until they snap into position (see Figure 1).

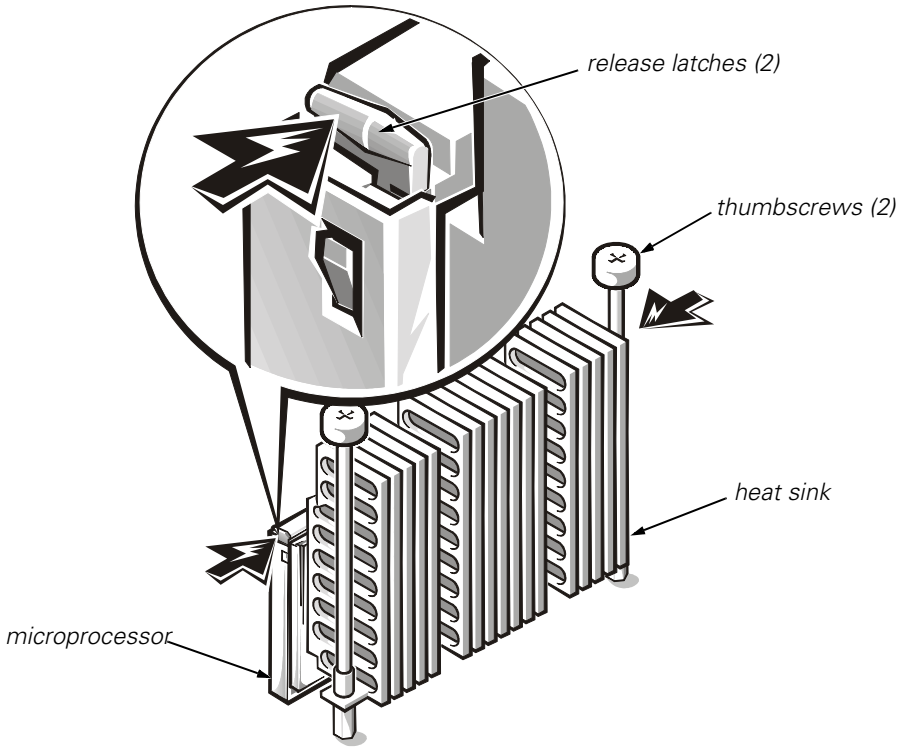

Figure 1. Microprocessor Removal

3. Grasp the microprocessor assembly firmly, and pull it away from the guide bracket assembly.

   You must use up to 15 pounds of force to disengage the microprocessor from the connector.

Replacing the Guide Brackets

This procedure applies to all four PowerEdge server models (1300, 2300, 4300, and 4350).

To remove the guide bracket assembly, perform the following steps:

1. Remove any terminator card installed in the guide bracket .
2. Remove any microprocessor assembly installed in the guide bracket.
3. Using a #2 Phillips screwdriver, loosen the four captive nuts that secure the guide bracket assembly to the system board (see Figure 2).

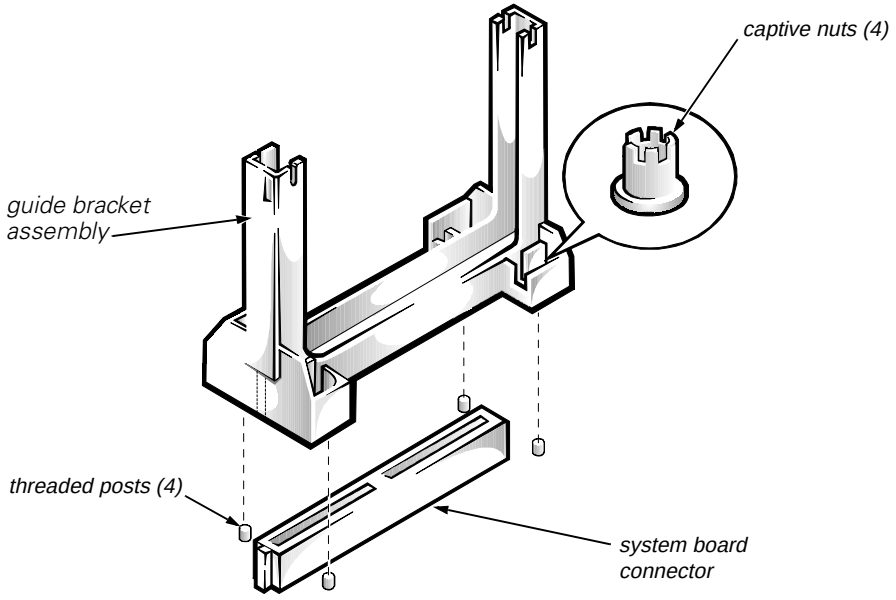

Figure 2. Removing the Guide Bracket Assembly

4. Lift up the assembly to remove it from the four threaded posts.

To install the new guide bracket assembly, perform the following steps:

1. Position the guide bracket over the four threaded posts (see Figure 3). You can install the guide bracket only one way (the captive nuts will not align with the threaded posts if installed incorrectly).

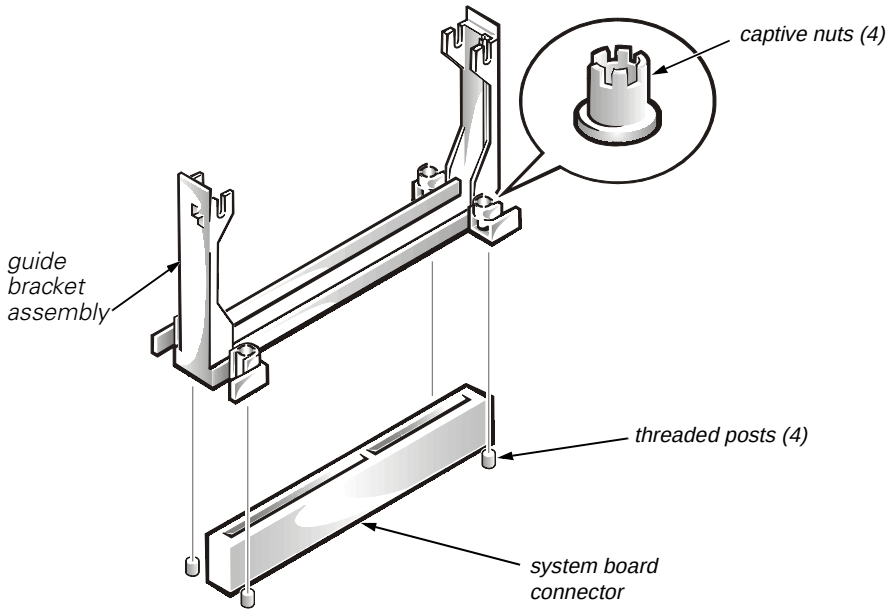

Figure 3. Installing the New Guide Bracket Assembly

2. Tighten the four captive nuts using a #2 Phillips screwdriver.

Installing the Upgrade Microprocessor

CAUTION: Do not attempt to operate a system with one Pentium II microprocessor and one Pentium III microprocessor. Damage to one or both of the microprocessors and/or the system board may occur.

CAUTION: If your system supports more than two microprocessors but you are only installing one microprocessor, the remaining microprocessor connectors must have a terminator card.

To install the upgrade microprocessor, perform the following steps:

1. Insert the new microprocessor into the system board connector (see Figure 4). Press the microprocessor firmly into its connector until it is fully seated and the latches snap into place.

   You must use up to 25 pounds of force to fully seat the microprocessor in its connector.

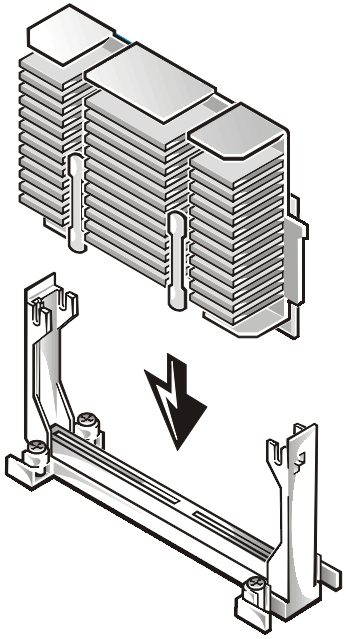

Figure 4. Installing the Microprocessor

2. If necessary, change the appropriate microprocessor speed jumper setting on the system board.

3. Set the microprocessor speed jumper for the installed microprocessor's rated internal speed.

   For the PowerEdge 1300 System:

   For a 450-megahertz (MHz) Intel Pentium III microprocessor, a jumper plug should be installed on the pins labeled "450MHZ."

   For a 500-MHz Intel Pentium III microprocessor, a jumper plug should be installed on the pins labeled "500MHZ."

   For the PowerEdge 2300, 4300, and 4350 Systems:

   For a 450-MHz Intel Pentium III microprocessor, a jumper plug should be installed on the pins labeled "450MHZ."

   For a 500-MHz Intel Pentium III microprocessor, a jumper plug should be installed on the pins labeled " RSVD1."

Installing the Cooling Shroud (for PowerEdge 1300 and 2300 Only)

Cooling shrouds *must* be installed when installing Pentium II or Pentium III microprocessors in the PowerEdge 1300 and 2300 servers.

To install a cooling shroud in a PowerEdge 1300 system, perform the following steps:

1. Carefully position the shroud into place with the square opening over the bulkhead fan and the top of the shroud's other end resting over the microprocessors, as shown in Figure 5.

2. Gently squeeze the tabs to compress the latch as you lower the shroud on the microprocessor's heat sink and allow it to securely snap into place on the heat sink(s).

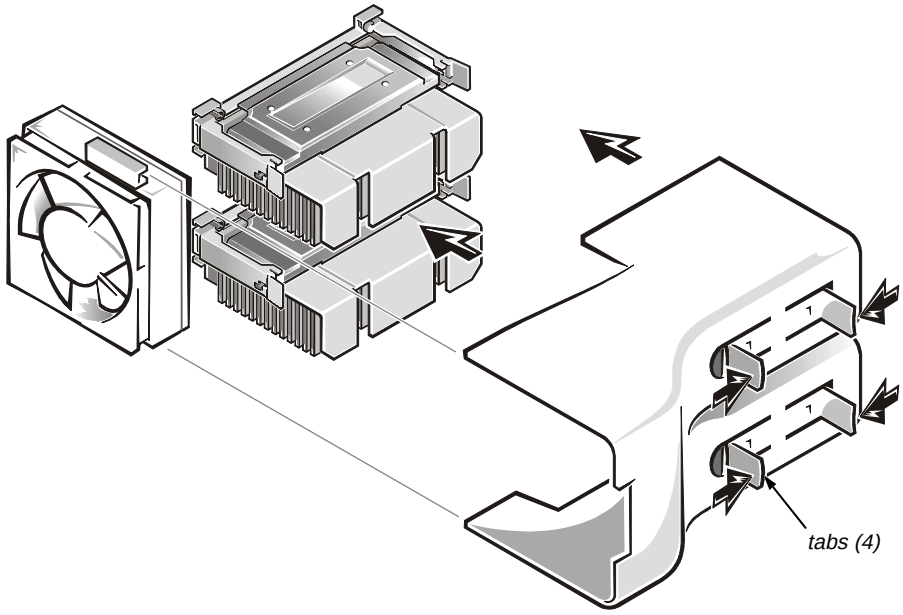

Figure 5. Installing the Cooling Shroud Assembly (PowerEdge 1300)

See "Reassembling and Checking the System" found later in this guide for reassembly and final checkout instructions.

To install a cooling shroud in a PowerEdge 2300 system, perform the following steps:

1. Carefully position the shroud into place with the square opening over the bulkhead fan and the top of the shroud's other end resting over the microprocessor's heat sink, as shown in Figure 6.

2. Secure two large thumbscrew retention screws (provided in the kit) through the shroud and into the threaded studs on the system board as shown in Figure 6.

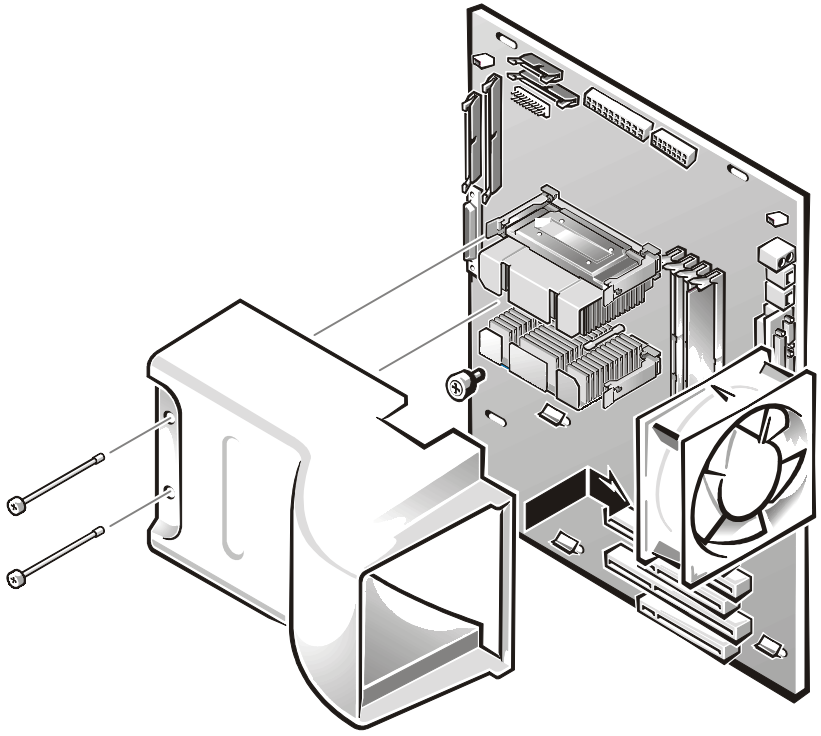

Figure 6. Installing the Cooling Shroud Assembly (PowerEdge 2300)

See the next section, "Reassembling and Checking the System" for reassembly and final checkout instructions.

Reassembling and Checking the System

To reassemble the system and perform verification checks, perform the following steps:

1. Rotate the power supply back into position, making sure that the securing tab snaps into place (for PowerEdge 1300 systems only).

2. Close the computer panel doors (for PowerEdge 4350 systems only) or replace the covers and front bezel, 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 microprocessor and automatically changes the system configuration information in the System Setup

program. If you installed a second microprocessor, the following message is displayed:

```
Second processor detected
```

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.
```

3. Enter the System Setup program and confirm that the top line in the system data area correctly identifies the installed microprocessor(s). By default, the serial number of Pentium III microprocessors are not displayed. Se e the procedures in "Using the System Setup Program" in your *User's Guide* for accessing and modifying entries in the System Setup screens .

4. 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 your network administrator for information on resetting the chassis intrusion detector.

5. Run the Dell Diagnostics to verify that the new microprocessor is operating correctly.

   See your *User's Guide* and your computer *Installation and Troubleshooting Guide* for additional information on running the Dell Diagnostics and troubleshooting any problems that may occur.

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