Dell™ PowerEdge™ Systems

Processor Upgrade Installation Guide

处理器升级安装指南

Guide d'installation pour la mise à niveau du processeur

Anleitung zum Prozessor-Upgrade

プロセッサアップグレードインストールガイド

프로세서 업그레이드 설치 안내서

Guía de instalación para actualización de procesadores

Processor Upgrade Installation Guide

Notes, Notices, and Cautions

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

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

CAUTION: A CAUTION indicates a potential for property damage, personal injury, or death.

This document provides instructions about adding or replacing processors in your system. To take advantage of future options in speed and functionality, you can add secondary processors or replace processors in your system.

NOTICE: If the front of your system chassis is labeled with a "II," your system is upgradeable to the Dual-Core Intel® Xeon® 2.8 GHz Processor with 4 MB L2 cache. See **www.dell.com** and **support.dell.com** for information on processor availability and upgrade options for your system.

NOTICE: Before you add or replace a processor, check the latest system BIOS information on the Dell Support website at **support.dell.com**, and upgrade the BIOS if necessary.

Each processor and its associated cache memory are contained in a pin-grid array (PGA) package that is installed in a ZIF socket on the system board. The following subsection describes how to install or replace the processor in either the primary or secondary processor sockets.

NOTE: In a single processor system, the processor must be installed in the primary processor socket.

NOTE: See your *Installation and Troubleshooting Guide* for detailed instructions on removing or replacing components.

Adding or Replacing a Processor

NOTICE: The secondary processor must be the same speed as the primary processor (if applicable).

In addition to the ZIF socket for the primary processor on the system board, other ZIF sockets might be present to accommodate secondary processors.

The following items are included in the processor upgrade kit:

- Processor
- Heat sink (if applicable)
- Thermal grease

Your upgrade kit may also include a cooling fan.

CAUTION: Before you perform this procedure, read the safety instructions in your *Product Information Guide*.

1 Remove the bezel (if applicable).

2 Turn off the system, including any attached peripherals, and disconnect the AC power from the electrical outlet.

3 Open the system.

4 Remove the processor cooling fans (if applicable).

5 Remove the center fan bracket or lift up and remove the memory module shroud (if applicable).

NOTICE: The processor and heat sink can become extremely hot. Allow the processor sufficient time to cool before handling.
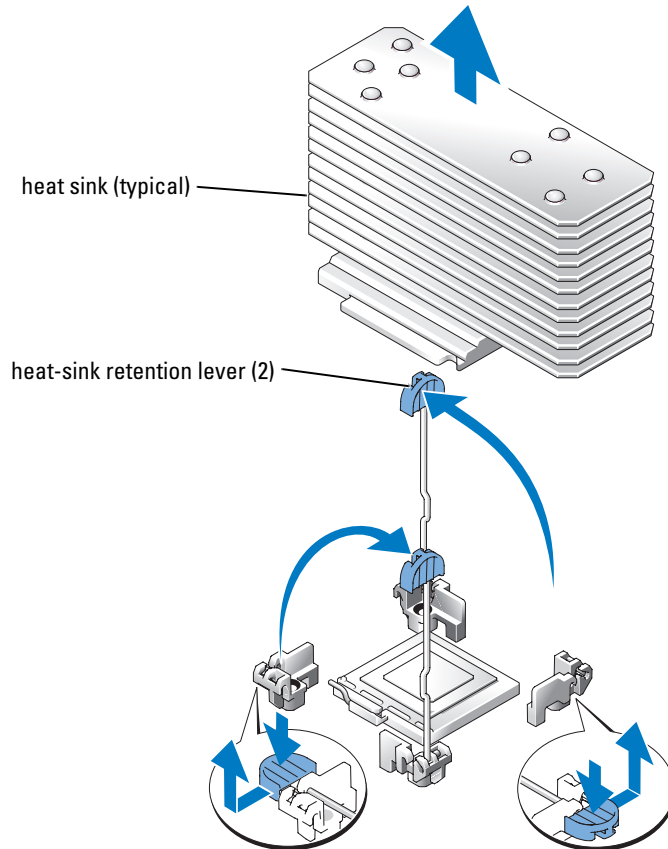
NOTICE: When you remove the heat sink, the possibility exists that the processor might adhere to the heat sink and be removed from the socket. It is recommended that you remove the heat sink while the processor is still warm.

6 If you are installing an additional processor:

    a Locate the secondary processor socket.

    b Press the tab on the end of one of the heat-sink retention levers to disengage the lever, then lift the lever 90 degrees.

    c Repeat step b for the remaining heat-sink retention lever.

    d Go to step 7.
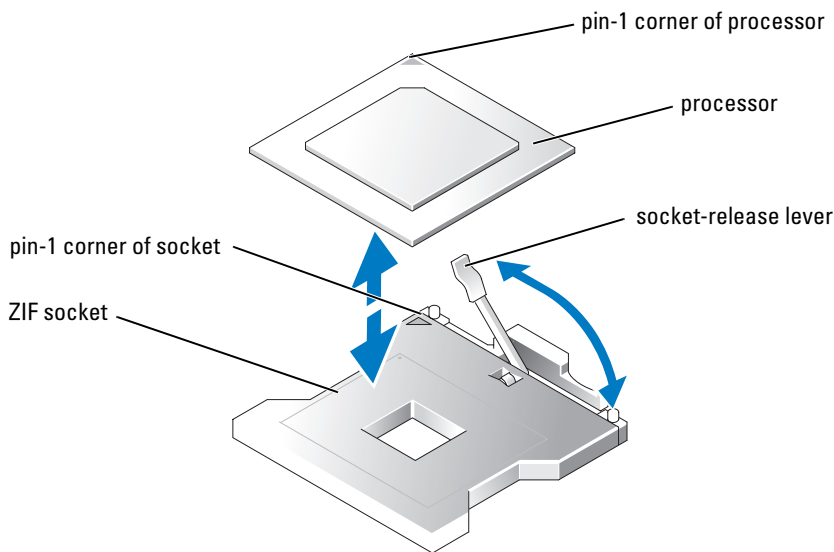
If you are upgrading an existing processor:

    a Press the tab on the end of one of the heat-sink retention levers to disengage the lever, then lift the lever 90 degrees. See Figure 1-1.

Figure 1-1.   Removing and Installing the Heat Sink

heat sink (typical)

heat-sink retention lever (2)

b Wait 30 seconds for the heat sink to loosen from the processor.

c Open the other heat-sink retention lever.

d If the heat sink has not separated from the processor, carefully rotate the heat sink in a clockwise, then counterclockwise, direction until it releases from the processor. Do not pry the heat sink off the processor.

e Lift the heat sink off of the processor and set the heat sink upside down so as not to contaminate the thermal grease.

f Pull the socket-release lever straight up until the processor is released from the socket. See Figure 1-2.

Figure 1-2. Removing and Installing the Processor

g Lift the processor out of the socket and leave the release lever up so that the socket is ready for the new processor.

7 Unpack the new processor.

If any of the pins on the microprocessor appear bent, see "Getting Help" in your *Installation and Troubleshooting Guide* for instructions about obtaining technical assistance.

8 Align the pin-1 corner of the processor with the pin-1 corner of the ZIF socket. See Figure 1-2.

✐ **NOTE:** Identifying the pin-1 corners is critical to positioning the processor correctly.

Identify the pin-1 corner of the processor by locating the tiny gold triangle on one corner of the processor. Place this corner in the same corner of the ZIF socket identified by a corresponding triangle.

9 Install the processor in the socket.

⊘ **NOTICE:** Positioning the processor incorrectly can permanently damage the processor and the system when you turn it on. When placing the processor in the socket, be sure that all of the pins on the processor enter the corresponding holes. Be careful not to bend the pins.

   a Ensure that the release lever on the processor socket is positioned all the way up.

   b With the pin-1 corners of the processor and socket aligned, set the processor lightly in the socket, ensuring that all pins are matched with the correct holes in the socket.

     When the processor is positioned correctly, it drops down into the socket with minimal pressure.

     ✐ **NOTE:** Because the system uses a ZIF processor socket, do not use force, which could bend the pins if the processor is misaligned.

   c When the processor is fully seated in the socket, rotate the socket release lever back down until it snaps into place, securing the processor.

10 Install the heat sink.

   a If you are upgrading an existing processor, use a clean lint-free cloth to remove the existing grease from the heat sink.

     ✐ **NOTE:** Use the heat sink that you removed in step 6.

     If you are installing an additional processor, locate the new heat sink in the processor upgrade kit.

   b Apply thermal grease evenly to the top of the processor.

   c Place the heat sink onto the processor. See Figure 1-1.

   d Close one of the two heat-sink retention levers until it locks. See Figure 1-1.

   e Repeat for the other heat-sink retention lever.

11 Reinstall the center fan bracket or replace the memory module shroud (if applicable).

12 If you have added an additional processor, install the processor cooling fan(s) for the new processor.

13 Replace the processor cooling fans (if applicable).

14 Close the system.

15 Reconnect your system and peripherals to their electrical outlets, 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.

16 Press <F2> to enter the System Setup program, and check that the processor information matches the new system configuration.

    See your *User's Guide* for instructions about using the System Setup program.

17 Run the system diagnostics to verify that the new processor operates correctly.

    See "Running the System Diagnostics" in your *Installation and Troubleshooting Guide* for information about running the diagnostics and troubleshooting processor problems.

18 Replace the bezel (if applicable).