Dell™ Systems

Microprocessor Upgrade Installation Guide

微处理器升级安装指南

Guide d'installation pour la mise à niveau du microprocesseur

Installationsanleitung für Mikroprozessor-Upgrades

マイクロプロセッサアップグレード取り付けガイド

마이크로프로세서 업그레이드 설치 안내서

Guía de instalación para actualización de microprocesadores

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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.

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This document provides instructions for adding or replacing a microprocessor. To take advantage of future options in speed and functionality, you can upgrade the microprocessor in your system.

The microprocessor 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 replace the microprocessor.

Replacing the Microprocessor

The following items are included in the microprocessor upgrade kit:

- A microprocessor
- A heat sink with cooling fan

CAUTION: See your *System Information Guide* for complete information about safety precautions, working inside the computer, and protecting against electrostatic discharge.

1. Turn off the system, including attached peripherals, and disconnect the system from the electrical outlet.
2. Remove the cover (see "Removing the Cover" in your *Installation and Troubleshooting Guide*).
3. Lay the system on its right side, as viewed from the front of the system.

CAUTION: The microprocessor and heat sink can become extremely hot. Be sure the microprocessor has had sufficient time to cool before handling.

NOTICE: Do not operate the system without the heat sink installed. The heat sink is required to maintain proper thermal conditions.

NOTICE: After removing the heat sink, place it upside down on a flat surface to prevent the thermal interface material on the heat sink from being damaged or contaminated. The microprocessor can overheat if the thermal interface is damaged.

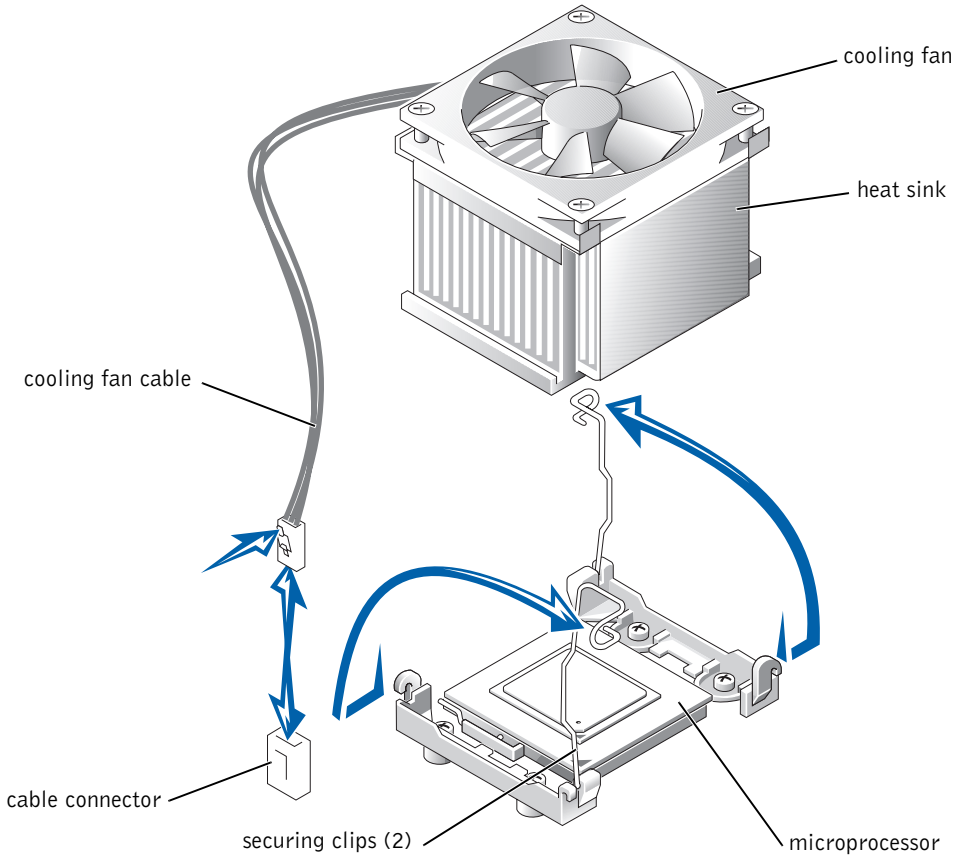
NOTICE: The microprocessor fan and heat sink are constructed together as a single assembly. Do not attempt to remove the fan from the heat sink.

4. Remove the heat sink from the existing microprocessor (see Figure 1-1):
   a. Disconnect the cooling fan cable from the fan connector on the system board.
   b. Press down on the heat-sink securing clips to release the clips from the retaining tabs on the ZIF socket.

c Swing the securing clips to the fully open position.

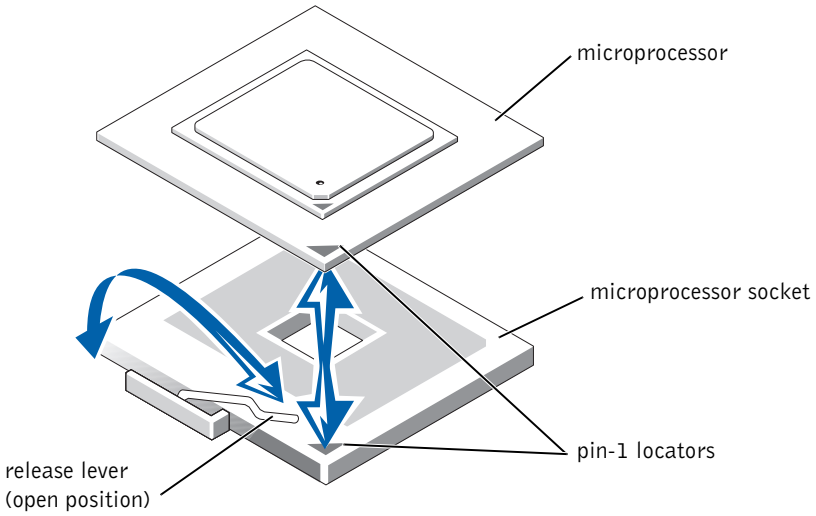
d Lift the heat sink away from the microprocessor.

Figure 1-1. Removing and Replacing the Microprocessor Heat Sink



5 Pull the microprocessor socket release lever upward to the fully open position (see Figure 1-2).

Figure 1-2. Removing and Replacing the Microprocessor



NOTICE: Be careful not to bend any of the pins when removing the microprocessor. Bending the pins can permanently damage the microprocessor.

6 Lift the microprocessor out of the socket and leave the release lever in the open position so that the socket is ready for the new microprocessor (see Figure 1-2).

7 Unpack the new microprocessor.

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

8 Ensure that the microprocessor socket release lever is in the fully open position.

9 Align pin 1 on the microprocessor (see Figure 1-2) with pin 1 on the microprocessor socket.

NOTE: No force is needed to install the microprocessor in the socket. When the microprocessor is aligned correctly, it should drop into the socket.

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

10 Install the microprocessor in the socket (see Figure 1-2).

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

12 Install the heat sink:

- **a** Place the microprocessor heat sink on top of the microprocessor (see Figure 1-1).
- **b** Swing the heat-sink securing clips to the closed position.
- **c** Press down on the heat-sink securing clips to secure the heat sink to the ZIF socket.

NOTICE: The cooling fan must be connected for the microprocessor to maintain proper thermal conditions.

13 Connect the fan cable to the fan connector on the system board.

To identify system board connectors, see "Jumpers and Connectors" in your *Installation and Troubleshooting Guide*.

14 Stand the system upright.

15 Install the cover (see "Installing the Cover" in your *Installation and Troubleshooting Guide*).

16 Reconnect the system to its electrical outlet and turn the system on, including any attached peripherals.

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

17 Confirm that the top line of the system data area in the System Setup program correctly identifies the installed microprocessor (see "Using the System Setup Program" in your *User's Guide*).

18 Exit the System Setup program.

19 Run the system diagnostics to verify that the new microprocessor is operating correctly.

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