

Dell™ Systems

# 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.

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You can upgrade your processor to take advantage of future options in speed and functionality. 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.

## Replacing the Processor

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

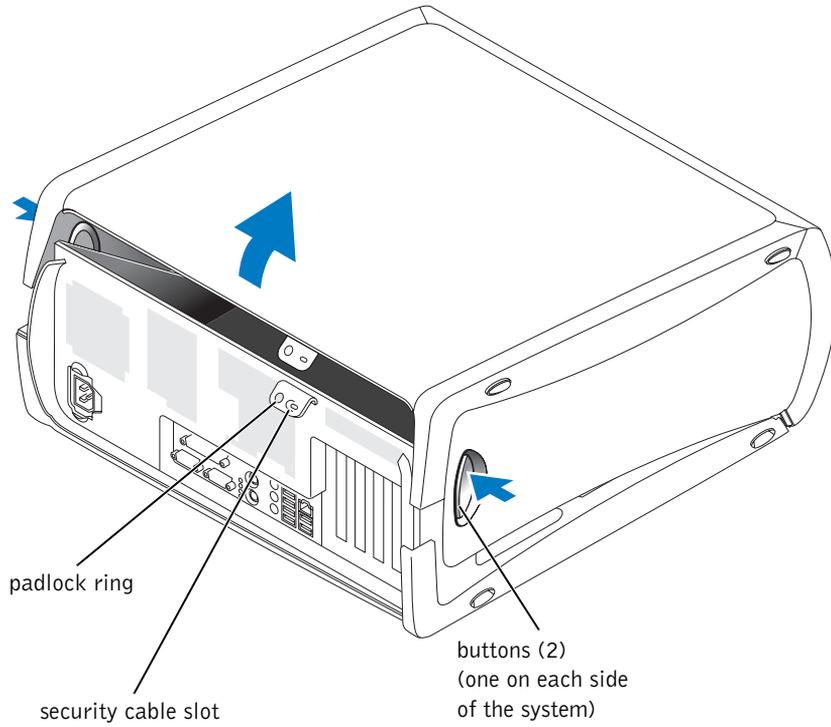
 **CAUTION:** The processor and heat sink can get very hot during normal operation. Ensure that they have had sufficient time to cool before you touch them.

- 1 Turn off the system and attached peripherals, and disconnect the system from the electrical outlet.
- 2 Press the power button to ground the system board.
- 3 If you have installed a padlock through the padlock ring on the back panel, remove the padlock.
- 4 Lay the system on its side as shown in Figure 1-1.

 **NOTICE:** Ensure that sufficient space exists to accommodate the open cover—at least 30 cm (1 ft) of desktop space.

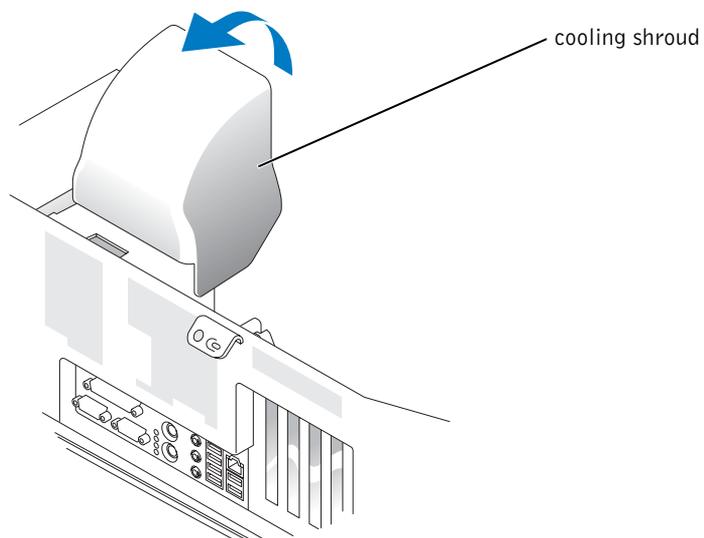
- 5 Open the system by pushing the buttons on both ends and lifting the cover open. See Figure 1-1.

**Figure 1-1. Opening the System**



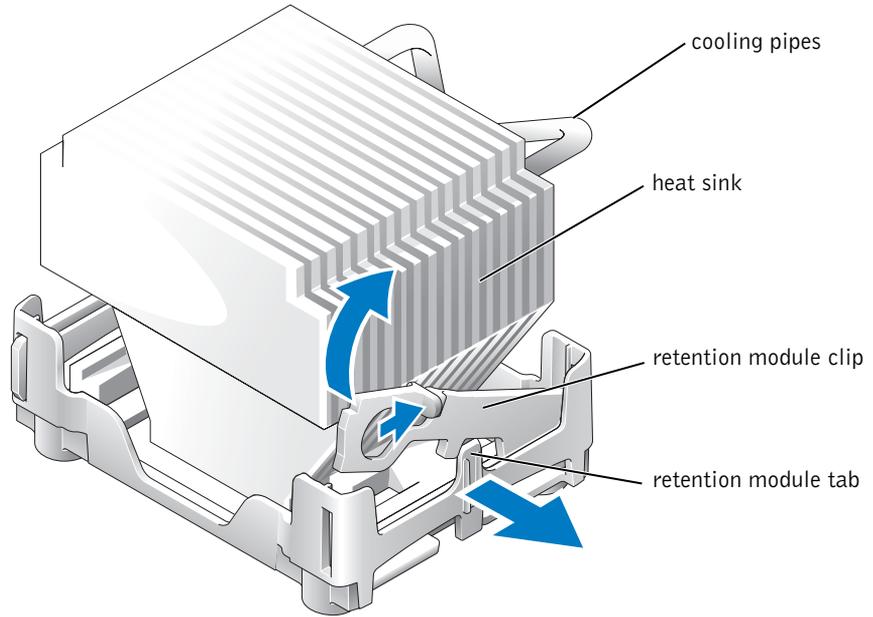
- 6 Rotate the processor cooling shroud up to access the processor and heat sink. See Figure 1-2.

**Figure 1-2. Rotating the Processor Cooling Shroud**



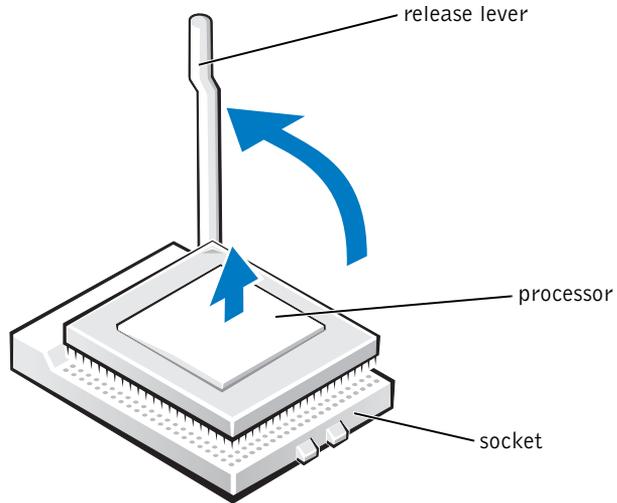
- 7** Remove the processor heat sink. See Figure 1-3.
  - a** Remove one retention module clip by pressing the tab on the clip and lifting the retention module clip up.
  - b** While pulling the retention module tab out, lift the heat sink away from the processor.

**Figure 1-3. Removing the Heat Sink**



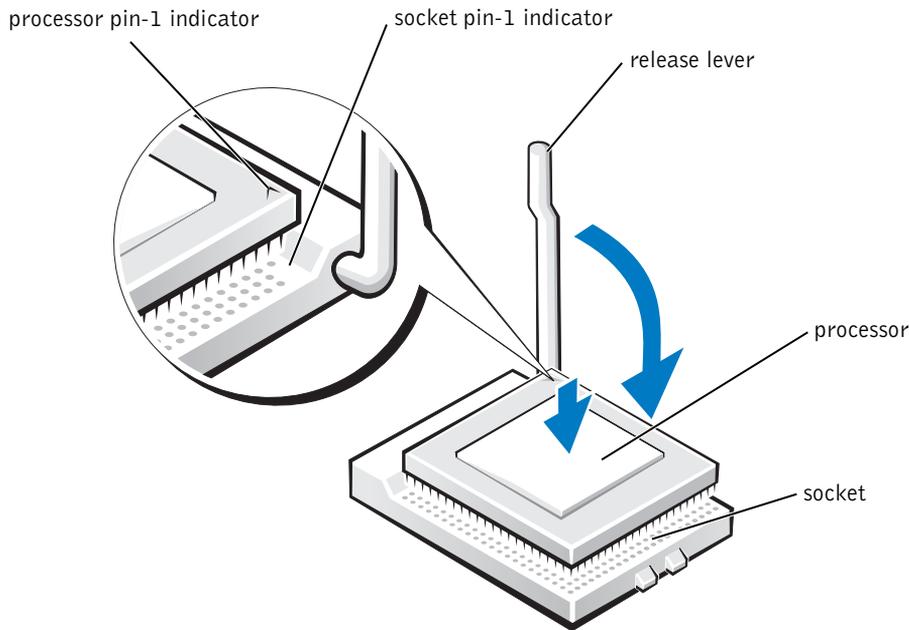
- 8 Pull the processor socket release lever straight up until the processor is released. See Figure 1-4.

**Figure 1-4. Removing the Processor**



- ➔ **NOTICE:** Be careful not to bend any of the pins when you remove the processor from the socket. Bending the pins can permanently damage the processor.
- 9 Remove the processor from the socket and leave the release lever in the release position so that the socket is ready for the new processor.
- 10 Align pin 1 (the imprinted corner) of the processor and pin 1 of the socket. See Figure 1-5.
- ➔ **NOTICE:** Processor pins are delicate. To avoid damage, ensure that the processor aligns properly with the socket, and do not use excessive force when you install the processor.
- 11 Carefully set the processor in the socket and press it down lightly to seat it.
- 12 Rotate the release lever back toward the system board until it snaps into place, securing the processor.

**Figure 1-5. Installing the Processor**



- 13 Remove the thermal grease protective cover from the heat sink.
- ➔ **NOTICE:** If your heat sink has cooling pipes, orient the heat sink so that the cooling pipes are toward the memory modules to prevent damage to system board components.

- 14** Place one end of the heat sink under the retention module tab on the side opposite the removed clip, and lower the heat sink onto the processor until the heat sink snaps securely in the retention module. See Figure 1-3.
- 15** Replace the retention module clip by pressing in on the tab and lowering that end of the clip into the retention module. See Figure 1-3.
- 16** Rotate the processor cooling shroud down. See Figure 1-2.
- 17** Close the system cover:
  - a** Pivot the cover down and into position. See Figure 1-1.
  - b** Press down on the cover to close it.
- 18** If you are using a padlock to secure your system, install the padlock.
- 19** Reconnect the system to the electrical outlet, and turn on the system and attached peripherals.