

# Dell™ PowerEdge™ 2800 Systems Service-Only Parts Replacement Procedures

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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.

## Abbreviations and Acronyms

For a complete list of abbreviations and acronyms, see your *Installation and Troubleshooting Guide*.

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## Dell™ PowerEdge™ 2800 Systems Service-Only Parts Replacement Procedures

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## Before You Begin

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

The procedures in this document require that you remove the cover and work inside the system. While working inside the system, do not attempt to service the system except as explained in this document and in the *Installation and Troubleshooting Guide* and the *User's Guide* available on [support.dell.com](http://support.dell.com). Always follow the instructions closely, and ensure that you review all safety precautions in the *Product Information Guide*.

The *Installation and Troubleshooting Guide* contains information on system indicators, messages, and codes; system diagnostics; troubleshooting; parts removal and replacement procedures; and jumpers, switches, and connectors.

The *User's Guide* contains information on the System Setup program.

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## Recommended Tools

You may need the following items to perform the procedures in this section:

- 1 Key to the system keylock
  - 1 #2 Phillips screwdriver
  - 1 Wrist grounding strap
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## Servicing a Tower System

- 1 Before removing the cover and accessing parts within the system, you must place the tower system on its side with the system cover facing up.
  - 1 If stabilizer feet are attached, remove them or orient the system so that the feet extend over the edge of the work surface.
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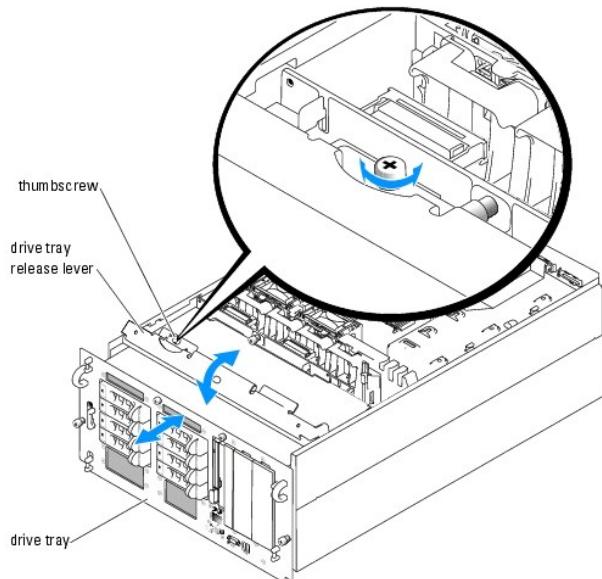
## SCSI Backplane Board

### Removing the SCSI Backplane Board

 **CAUTION:** Only trained service technicians are authorized to remove the system cover and access any of the components inside the system. See your *Product Information Guide* for complete information about safety precautions, working inside the computer, and protecting against electrostatic discharge.

1. If applicable, remove the bezel.
2. Turn off the system and attached peripherals, and disconnect the system from the electrical outlet and peripherals.
3. Remove the system cover.
4. Slide the drive tray to the maintenance position. See [Figure 1-1](#).
  - a. Using a #2 Phillips screwdriver, loosen the captive screw that secures the drive tray release lever to the chassis.
  - b. Rotate the drive tray release lever toward the front of the system.
  - c. While grasping both sides of the front panel, slide the drive tray forward as far as possible.

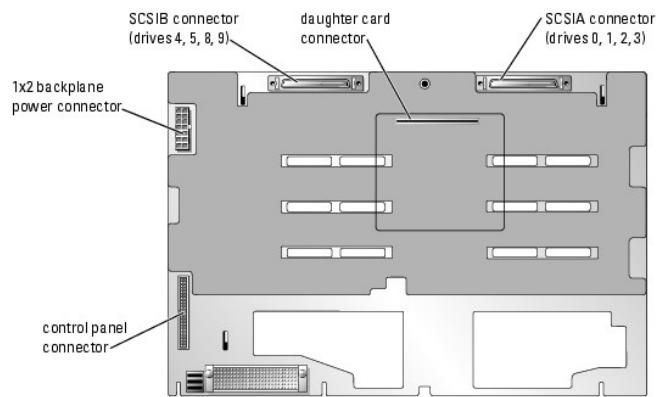
**Figure 1-1. Moving the Drive Tray to the Maintenance Position**



**NOTICE:** Note the relative position of each SCSI data cable if more than one cable is attached to the SCSI backplane

5. Disconnect the SCSI data cable(s) from the SCSI backplane. See [Figure 1-2](#).

**Figure 1-2. Connectors on Back of SCSI Backplane**



6. If applicable, disconnect the 1x2 backplane power cable from the SCSI backplane. See [Figure 1-2](#).

**NOTICE:** When disconnecting the control panel cable, hold the white pull-tab next to the control panel cable connector to prevent damage to the SCSI backplane or the cable itself.

7. To disconnect the control panel cable from the SCSI backplane, grasp the cable's white plastic pull-tab and pull the cable connector directly away from the backplane. For the location of the connector on the backplane, see [Figure 1-2](#).

**NOTICE:** To prevent damage to the drives and backplane, you must disengage or remove the SCSI drives from the system before removing the backplane.

**NOTICE:** If you completely remove the drives from the system, you must note the number of each drive and temporarily label them before removal, so you can replace them in the same locations.

8. Unlock and slide the SCSI hard drive(s) out of the system at least 5 cm (2 inches).
9. Slide the diskette/optical drive carrier out of the system at least 5 cm (2 inches), to disconnect the carrier from the backplane.
10. Remove the SCSI backplane:

- a. Lift the spring-loaded blue retention pin away from the front of the backplane, then slide the backplane upward.
  - b. When the backplane cannot slide upward any farther, pull the backplane toward the back of the system to remove it from the retention hooks.
11. If applicable, remove the daughter card from the SCSI backplane. See [Figure 1-2](#) for the location of the daughter card connector on the SCSI backplane.

## Installing a SCSI Backplane Board

1. If applicable, install the daughter card on the new backplane.
2. Install the new backplane:
  - a. Lower the backplane into the system and carefully feed the control cable through the opening in the backplane.  
Ensure that any other cables will not interfere or be damaged when installing the new backplane.
  - b. Align the backplane with the retention hooks on the chassis, then fit the backplane over the retention hooks.
  - c. Slide the backplane downward until the blue retention pin snaps into place.
3. Connect the control panel cable to the control panel connector on the SCSI backplane. See [Figure 1-2](#).  
To prevent disconnecting the cable from the control panel, deflect the end of the cable to connect it; do not pull on the cable itself.
4. If applicable, reconnect the 1x2 backplane power cable to the SCSI backplane. See [Figure 1-2](#).
5. Reconnect the SCSI data cable(s) to the backplane, being very careful to install them in their original locations.
6. Return the drive tray to the operating position.
  - a. While grasping both sides of the front panel, slide the drive tray toward the system board until it meets resistance.  
Ensure that cables are not trapped or damaged as you move the drive tray.
  - b. Rotate the drive tray release lever toward the back of the system.
  - c. Using a #2 Phillips screwdriver, tighten the captive screw that secures the drive tray release lever to the chassis.
7. Reinstall the SCSI hard drives in their original locations.
8. Replace the diskette/optical drive carrier.
9. Reinstall the cover.
10. If you removed the feet from a tower system, reinstall them now and place the system in an upright position.
11. Reconnect the system to the peripherals and electrical outlet, and turn on the system.
12. If applicable, reattach the bezel.

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## Control Panel Assembly

### Removing the Control Panel Assembly

**CAUTION:** Only trained service technicians are authorized to remove the system cover and access any of the components inside the system. See your *Product Information Guide* for complete information about safety precautions, working inside the computer, and protecting against electrostatic discharge.

1. If applicable, remove the bezel.
2. Turn off the system and attached peripherals, and disconnect the system from the electrical outlet and peripherals.
3. If the system is a rack system located low enough in the rack to prevent access to the underside of the system chassis, remove the system from the rack and place it on a work surface.

See "[Removing the System From the Rack](#)."

4. Remove the system cover.

**NOTICE:** Before removing SCSI hard drives from the system, you must note the number of each drive and temporarily label them before removal, so you can replace them in the same locations.

5. Remove the SCSI hard drives or filler panels from the center drive bay.

6. Slide the drive tray to the maintenance position. See [Figure 1-1](#).

- a. Using a #2 Phillips screwdriver, loosen the captive screw that secures the drive tray release lever to the chassis.
- b. Rotate the drive tray release lever toward the front of the system.
- c. While grasping both sides of the front panel, slide the drive tray forward as far as possible.

7. If the system is not installed in a rack, place the system on its side as shown in [Figure 1-3](#) or [Figure 1-4](#), with the front edge of the system overhanging the edge of the work surface.

**NOTICE:** A rack-configuration system is prone to tipping over if placed on its side.

8. Remove the control panel assembly.

See [Figure 1-3](#) or [Figure 1-4](#) for the relative location of the control panel assembly. If you are working on a system installed in a rack, the control panel assembly is located under the front edge of the drive tray.

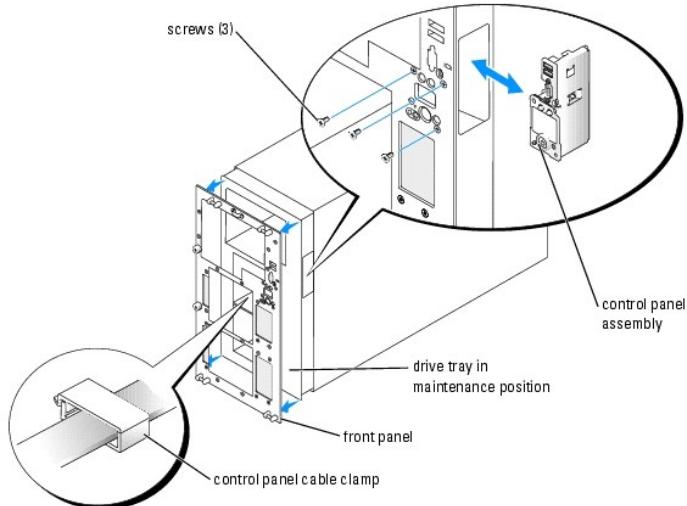
- a. From inside the center hard drive bay, open the control panel cable clamp on the floor of the drive tray.

**NOTICE:** When disconnecting the control panel cable, hold the white pull-tab next to the control panel cable connector to prevent damage to the SCSI backplane or the cable itself.

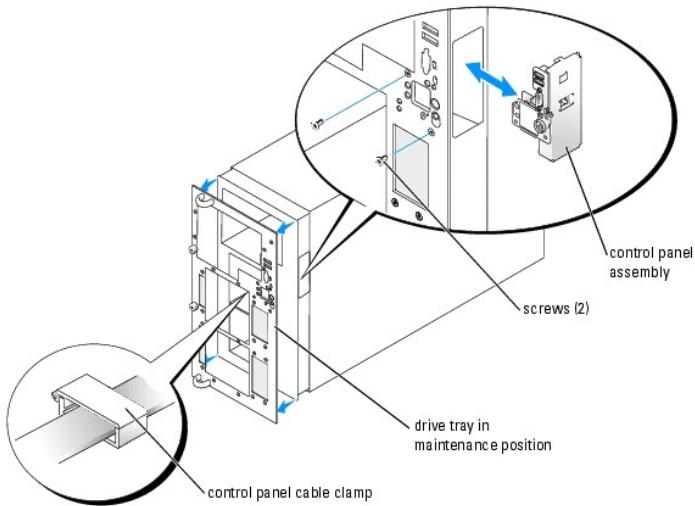
- b. Disconnect the control panel cable from the SCSI backplane. Grasp the cable's white plastic pull-tab and pull the cable connector directly away from the backplane. For the location of the connector on the backplane, see [Figure 1-2](#).
- c. Using a #2 Phillips screwdriver, remove the screws that secure the control panel assembly to the front panel. (Tower systems have three screws; rack systems use two screws.) See [Figure 1-3](#) or [Figure 1-4](#).
- d. Remove the control panel assembly from the system by sliding the control panel assembly toward the back of the chassis, then remove the assembly.

**NOTE:** While removing the control panel assembly, be careful not to damage the interface cable.

**Figure 1-3. Removing the Control Panel Assembly (Tower System)**



**Figure 1-4. Removing the Control Panel Assembly (Rack System)**



## Installing the Control Panel Assembly

1. Holding the new control panel assembly in one hand, feed the control panel cable into the opening in the system chassis.
2. Install the new control panel assembly in the system:
  - a. Align the assembly with the opening in the chassis.
  - b. Fit the assembly into the chassis, then slide it toward the system front panel.
  - c. While holding the assembly in position against the front panel, secure it with the Phillips screws. (Tower systems have three screws; rack systems use two screws.)
3. Secure the control panel cable in the clamp on the drive tray. See [Figure 1-3](#) or [Figure 1-4](#).
4. Connect the control panel cable to the SCSI backplane.  
To prevent disconnecting the cable from the control panel, deflect the end of the cable to connect it; do not pull on the cable itself.
5. If applicable, carefully lower the system to the horizontal position as shown in [Figure 1-1](#).
6. Return the drive tray to the operating position.
  - a. While grasping both sides of the front panel, slide the drive tray toward the system board until it meets resistance.  
Ensure that cables are not trapped or damaged as you move the drive tray.
  - b. Rotate the drive tray release lever toward the back of the system.
  - c. Using a #2 Phillips screwdriver, tighten the captive screw that secures the drive tray release lever to the chassis.
7. Reinstall the SCSI hard drives or filler panels in their original locations.
8. Reinstall the cover.
9. If you removed the feet from a tower system, reinstall them now, and place the system in an upright position.
10. If applicable, replace the system in the rack.
11. Reconnect the system to the peripherals and electrical outlet, and turn on the system.
12. If applicable, reattach the bezel.

## System Board

## Removing the System Board

**CAUTION:** Only trained service technicians are authorized to remove the system cover and access any of the components inside the system. See your *Product Information Guide* for complete information about safety precautions, working inside the computer, and protecting against electrostatic discharge.

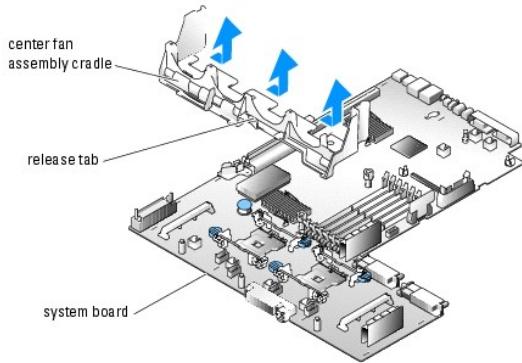
1. If applicable, remove the bezel.
2. Turn off the system and attached peripherals, and disconnect the system from the electrical outlet.
3. If the system is a tower system, place it on a work surface.
4. Open the system.
5. Slide the drive tray to the maintenance position. See [Figure 1-1](#).
  - a. Using a #2 Phillips screwdriver, loosen the captive screw that secures the drive tray release lever to the chassis.
  - b. Rotate the drive tray release lever toward the front of the system.
  - c. While grasping both sides of the front panel, slide the drive tray forward as far as possible.
6. Disconnect any cables attached to expansion cards in the expansion card cage.
7. Remove the expansion-card cage. See "Removing the Expansion-Card Cage" in the *Installation and Troubleshooting Guide*.
8. Remove the processor fans and center fan bracket. See "Removing a Processor Fan" and "Removing the Center Fan Bracket" in the *Installation and Troubleshooting Guide*.
9. Remove the memory module fans and back fan bracket. See "Removing a Memory Module Fan" and "Removing and Replacing the Back Fan Bracket" in the *Installation and Troubleshooting Guide*.
10. Remove the memory cooling shroud. See Figure 6-16 in the *Installation and Troubleshooting Guide*.
11. Remove the memory modules. See "System Memory" in the *Installation and Troubleshooting Guide*.
12. Unlock the power supplies from the system and slide them back 5 cm (2 inches). See "Power Supplies" in the *Installation and Troubleshooting Guide*.
13. Remove the processor(s). See "Processor" in the *Installation and Troubleshooting Guide*.
14. If applicable, remove the RAID key.

See Figure 7-7 in "Activating the Integrated RAID Controller" in the *Installation and Troubleshooting Guide*.

15. If applicable, remove the RAC card:
  - a. Deflect the four blue plastic standoffs away from the edges of the card, then lift the front edge of the card to disconnect the card from the system board.
  - b. Lift the card from the system.
16. If applicable, disconnect the parallel port cable from the system board.
17. Remove the center fan assembly cradle.

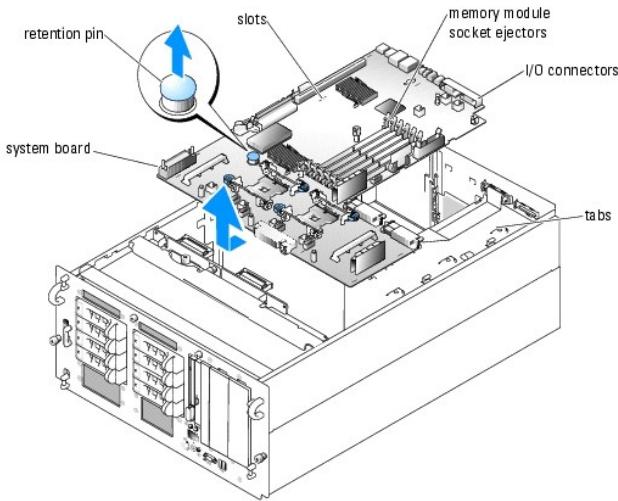
Lift the release tab, then slide the cradle toward the edge of the system board and lift the cradle out of the system. See [Figure 1-5](#).

**Figure 1-5. Removing the Center Fan Assembly Cradle**



18. To remove the system board:
  - a. Lift up the blue retention pin and slide the system board toward the front of the system to disengage the board from the retention tabs on the chassis. See [Figure 1-6](#).
  - b. Lift the system board out of the system.

**Figure 1-6. Removing the System Board**



## Installing the System Board

**CAUTION:** Only trained service technicians are authorized to remove the system cover and access any of the components inside the system. See your *Product Information Guide* for complete information about safety precautions, working inside the computer, and protecting against electrostatic discharge.

1. Unpack the new system board.
2. Holding the system board by its front edge and the memory module socket ejectors, carefully lower the system board into the chassis, making sure that the I/O connectors on the back edge of the board fit underneath the ledge on the inside of the chassis back panel.  
When the board is properly positioned, the tabs on the chassis will fit through the corresponding slots in the system board.
3. Slide the system board tray toward the back of the chassis until the retention pin snaps into place.
4. Replace the center fan assembly cradle.
5. If applicable, replace the RAC card. See "Installing a RAC Card" in the *Installation and Troubleshooting Guide*.
6. If applicable, replace the RAID key. See "Activating the Integrated RAID Controller" in the *Installation and Troubleshooting Guide*.
7. If applicable, reconnect the parallel port cable to the system board.

8. Slide the power supply(s) back into the system and secure them with the release levers.
  9. Replace the memory modules. See "Installing Memory Modules" in the *Installation and Troubleshooting Guide*.
  10. Replace the processor(s). See "Replacing a Processor" in the *Installation and Troubleshooting Guide*.
  11. Replace the back fan bracket and center fan bracket. See "Removing and Replacing the Back Fan Bracket" and "Replacing the Center Fan Bracket" in the *Installation and Troubleshooting Guide*.
  12. Replace the fans. See "Fans" in the *Installation and Troubleshooting Guide*.
  13. Replace the memory cooling shroud.
  14. Replace the expansion-card cage. See "Installing the Expansion-Card Cage" in the *Installation and Troubleshooting Guide*.
  15. If you disconnected any cables from the expansion cards, reconnect them now.
  16. Return the drive tray to the operating position.
    - a. While grasping both sides of the front panel, slide the drive tray toward the system board until it meets resistance.  
Ensure that cables are not trapped or damaged as you move the drive tray.
    - b. Rotate the drive tray release lever toward the back of the system.
    - c. Using a #2 Phillips screwdriver, tighten the captive screw that secures the drive tray release lever to the chassis.
  17. Reinstall the cover.
  18. If you removed the feet from a tower system, reinstall them now.
  19. Reconnect the system to the peripherals and electrical outlet, and turn on the system.
  20. If applicable, reattach the bezel.
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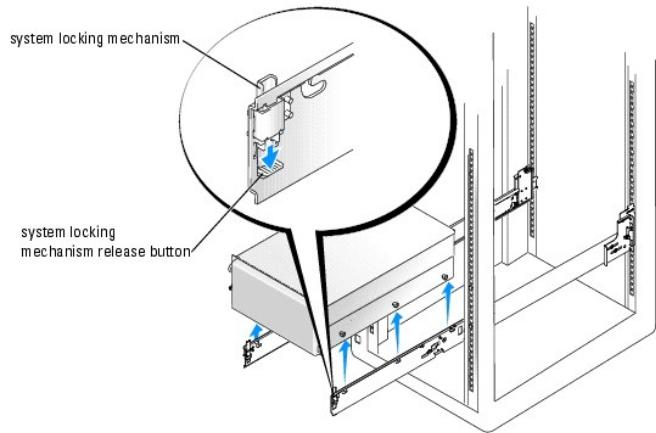
## Removing the System From the Rack

If you are removing the control panel from a system in the lowest rack location, follow these instructions to remove the system from the rack.

**⚠ CAUTION:** Removing a system from a position high up in the rack cabinet will require up to four people and may require a sturdy, elevated platform to stand on. A mechanical lifting platform or similar equipment of the proper capacity may also be useful. If you attempt to remove and lower the system without enough people to safely perform the task, you risk personal injury to yourself and to others and damage to the system.

1. Loosen the thumbscrews that secure the front panel to the front vertical rails (at the front of the rack cabinet).
2. Pull the system out of the rack on its slide assemblies until the slide assembly lock snaps into place at the fully extended position.
3. While pressing the system locking mechanism release button, pull the system forward to release the system from the rack rails. See [Figure 1-7](#).
4. Using two to four people, grasp the system at each corner and lift the system up and out of the slide assemblies. See [Figure 1-7](#).
5. The shoulder screws should lift out of the outermost slide section. If you have difficulty, make certain that the shoulder screws in the slide assembly are aligned with their opening on the top of the slide.
6. Place the system on a smooth work surface.

**Figure 1-7. Removing the System from a Rack**



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