Dell Latitude 5420/E5420/E5420m Owner's Manual

Regulatory Model P15F
Regulatory Type P15F001

Notes, Cautions, and Warnings

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

CAUTION: A CAUTION indicates potential damage to hardware or loss of data if instructions are not followed.

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

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Working on Your Computer 1

Before Working Inside Your Computer

Use the following safety guidelines to help protect your computer from potential damage and to help to ensure your personal safety. Unless otherwise noted, each procedure included in this document assumes that the following conditions exist:

- You have performed the steps in Working on Your Computer.
- You have read the safety information that shipped with your computer.
- A component can be replaced or--if purchased separately--installed by performing the removal procedure in reverse order.

WARNING: Before working inside your computer, read the safety information that shipped with your computer. For additional safety best practices information, see the Regulatory Compliance Homepage at www.dell.com/regulatory_compliance.

CAUTION: Many repairs may only be done by a certified service technician. You should only perform troubleshooting and simple repairs as authorized in your product documentation, or as directed by the online or telephone service and support team. Damage due to servicing that is not authorized by Dell is not covered by your warranty. Read and follow the safety instructions that came with the product.

CAUTION: To avoid electrostatic discharge, ground yourself by using a wrist grounding strap or by periodically touching an unpainted metal surface, such as a connector on the back of the computer.

CAUTION: Handle components and cards with care. Do not 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 processor by its edges, not by its pins.

CAUTION: When you disconnect a cable, pull on its connector or on its pull-tab, not on the cable itself. Some cables have connectors with locking tabs; if you are disconnecting this type of cable, press in on the locking tabs before you disconnect the cable. As you pull connectors apart, keep them evenly aligned to avoid bending any connector pins. Also, before you connect a cable, ensure that both connectors are correctly oriented and aligned.

NOTE: The color of your computer and certain components may appear differently than shown in this document.

To avoid damaging your computer, perform the following steps before you begin working inside the computer.

1. Ensure that your work surface is flat and clean to prevent the computer cover from being scratched.
2. Turn off your computer (see *Turning Off Your Computer*).
3. If the computer is connected to a docking device (docked) such as the optional Media Base or Battery Slice, undock it.

CAUTION: To disconnect a network cable, first unplug the cable from your computer and then unplug the cable from the network device.

4. Disconnect all network cables from the computer.
5. Disconnect your computer and all attached devices from their electrical outlets.
6. Close the display and turn the computer upside-down on a flat work surface.

NOTE: To avoid damaging the system board, you must remove the main battery before you service the computer.

7. Remove the main battery (see *Battery*).
8. Turn the computer top-side up.
9. Open the display.
10. Press the power button to ground the system board.

CAUTION: To guard against electrical shock, always unplug your computer from the electrical outlet before opening the display.

CAUTION: Before touching anything inside your computer, ground yourself by touching an unpainted metal surface, such as the metal at the back of the computer. While you work, periodically touch an unpainted metal surface to dissipate static electricity, which could harm internal components.

11. Remove any installed ExpressCards or Smart Cards from the appropriate slots.

Recommended Tools

The procedures in this document may require the following tools:

- Small flat-blade screwdriver

- #0 Phillips screwdriver
- #1 Phillips screwdriver
- Small plastic scribe
- Flash BIOS update program CD

Turning Off Your Computer

CAUTION: To avoid losing data, save and close all open files and exit all open programs before you turn off your computer.

1. Shut down the operating system:

   - In Windows Vista :

     Click **Start** , then click the arrow in the lower-right corner of the **Start** menu as shown below, and then click **Shut Down**.

   - In Windows XP:
     Click **Start** → **Turn Off Computer** → **Turn Off** . The computer turns off after the operating system shutdown process is complete.
2. Ensure that the computer and all attached devices are turned off. If your computer and attached devices did not automatically turn off when you shut down your operating system, press and hold the power button for about 4 seconds to turn them off.

After Working Inside Your Computer

After you complete any replacement procedure, ensure you connect any external devices, cards, and cables before turning on your computer.

CAUTION: To avoid damage to the computer, use only the battery designed for this particular Dell computer. Do not use batteries designed for other Dell computers.

1. Connect any external devices, such as a port replicator, battery slice, or media base, and replace any cards, such as an ExpressCard.
2. Connect any telephone or network cables to your computer.

CAUTION: To connect a network cable, first plug the cable into the network device and then plug it into the computer.

3. Replace the battery.
4. Connect your computer and all attached devices to their electrical outlets.
5. Turn on your computer.

Battery

2

Removing the Battery

1. Follow the procedures in *Before Working On Your Computer*.
2. Slide the release latches to unlock the battery.

3. Remove the battery from the computer.

Installing the Battery

1. Slide the battery back into the computer.
   The release latches automatically click into the lock position.
2. Follow the procedures in *After Working Inside Your Computer*.

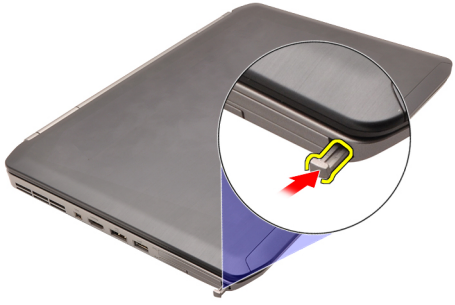
PC Card

3

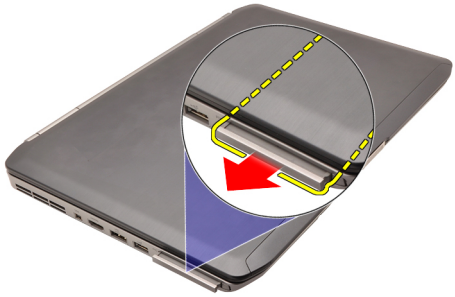
Removing the PC Card

1. Follow the procedures in *Before Working On Your Computer*.
2. Press in on the PC latch to release the latch.

3. Press in on the PC latch to release the PC card.



4. Slide the PC card out of the computer.



Installing the PC Card

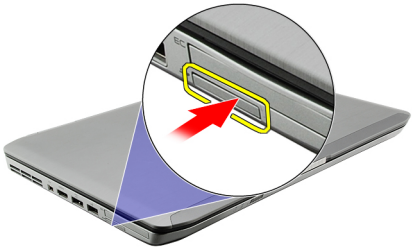
1. Push the PC latch to lock it.
2. Push the PC card to its slot until it clicks.
3. Follow the procedures in *After Working Inside Your Computer*.

Secure Digital (SD) Card

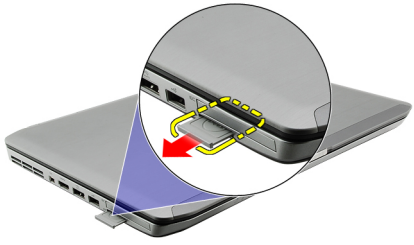
4

Removing The Secure Digital (SD) Card

1. Follow the procedures in *Before Working On Your Computer*.
2. Push in on the SD card.



3. Slide the SD card out of the computer.



Installing The Secure Digital (SD) Card

1. Slide the SD card into its slot until it clicks into place.
2. Follow the procedures in *After Working Inside Your Computer*.

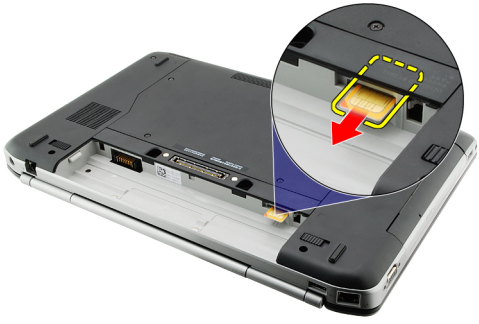
Subscriber Identity Module (SIM) Card

5

Removing the Subscriber Identity Module (SIM) Card

1. Follow the procedures in *Before Working On Your Computer*.
2. Remove the *battery*.
3. Press and release the SIM card located on the battery wall.

4. Slide the SIM card from the computer.



Installing the Subscriber Identity Module (SIM) Card

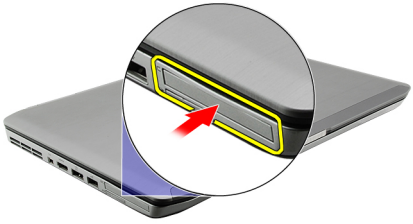
1. Insert the SIM card into the slot.
2. Replace the *battery*.
3. Follow the procedures in *After Working Inside Your Computer*.

ExpressCard

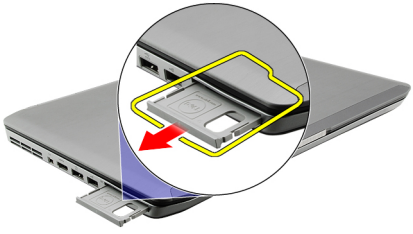
6

Removing the ExpressCard

1. Follow the procedures in *Before Working On Your Computer*.
2. Push in on the ExpressCard.



3. Slide the ExpressCard out of the computer.



Installing the ExpressCard

1. Insert the ExpressCard into the slot until it clicks into place.
2. Follow the procedures in *After Working Inside Your Computer*.

Back Panel

7

Removing the Back Panel

1. Follow the procedures in *Before Working On Your Computer*.
2. Remove the *battery*.
3. Remove the screws that secure the back panel.

4. Slide and remove the back panel toward the front of the computer .

Installing the Back Panel

1. Slide the back panel towards the back of the computer.
2. Tighten the screws to secure the back panel.
3. Replace the *battery*.
4. Follow the procedures in *After Working Inside Your Computer*.

Keyboard Trim

8

Removing the Keyboard Trim

1. Follow the procedures in *Before Working On Your Computer*.
2. Remove the *battery*.
3. Pry up the keyboard trim from the bottom edge.

4. Pry up the keyboard trim from the top edge.

5. Remove the keyboard trim from the computer.

Installing the Keyboard Trim

1. Align the keyboard trim with the tabs on the top of the palm rest.
2. Press along the top edge to latch on the tabs.
3. Work your way around the sides and bottom edge of the keyboard trim.
4. Press the keyboard trim down along all the edges until it clicks into place.
5. Replace the *battery*.
6. Follow the procedures in *After Working Inside Your Computer*.

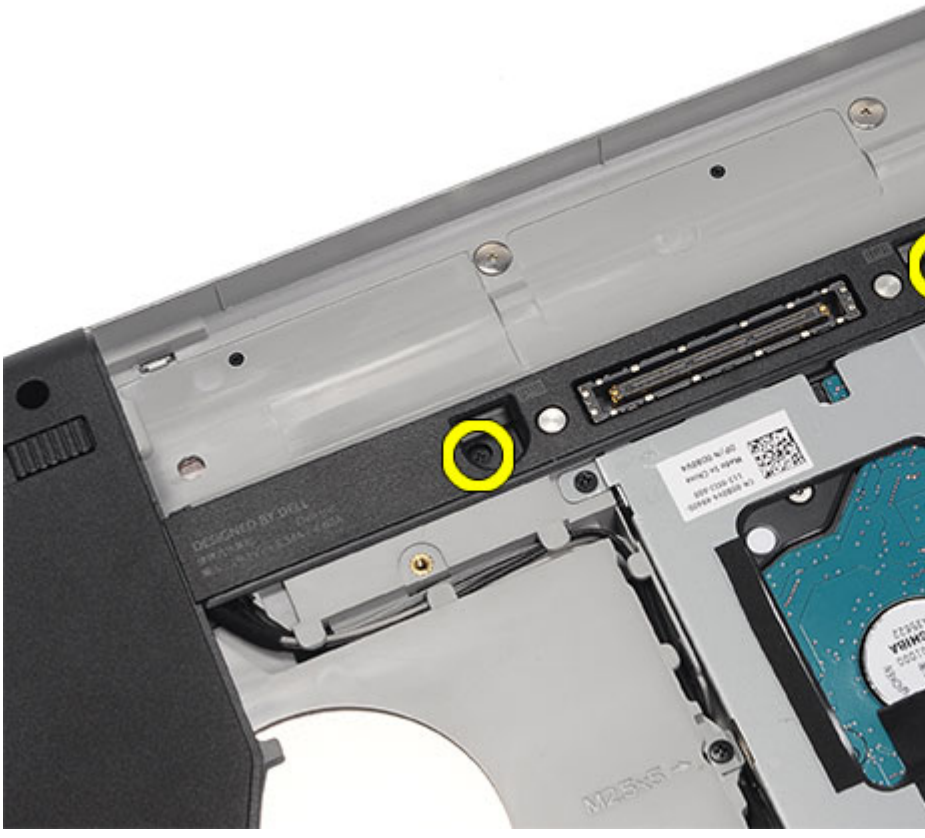
Keyboard

9

Removing the Keyboard

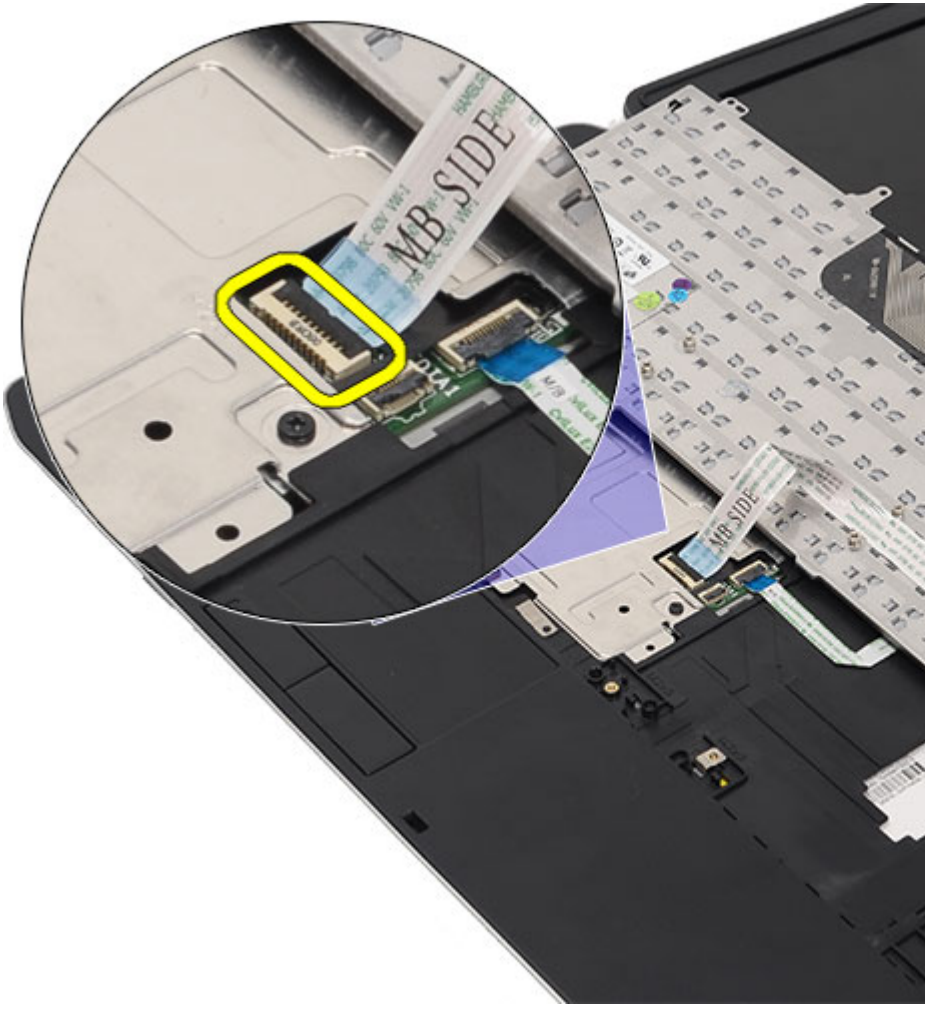
1. Follow the procedures in *Before Working On Your Computer*.
2. Remove the *battery*.
3. Remove the *keyboard trim*.
4. Remove the screws that secure the keyboard to the front of the computer.

5. Flip the computer and remove the screws that secure the keyboard to the computer.

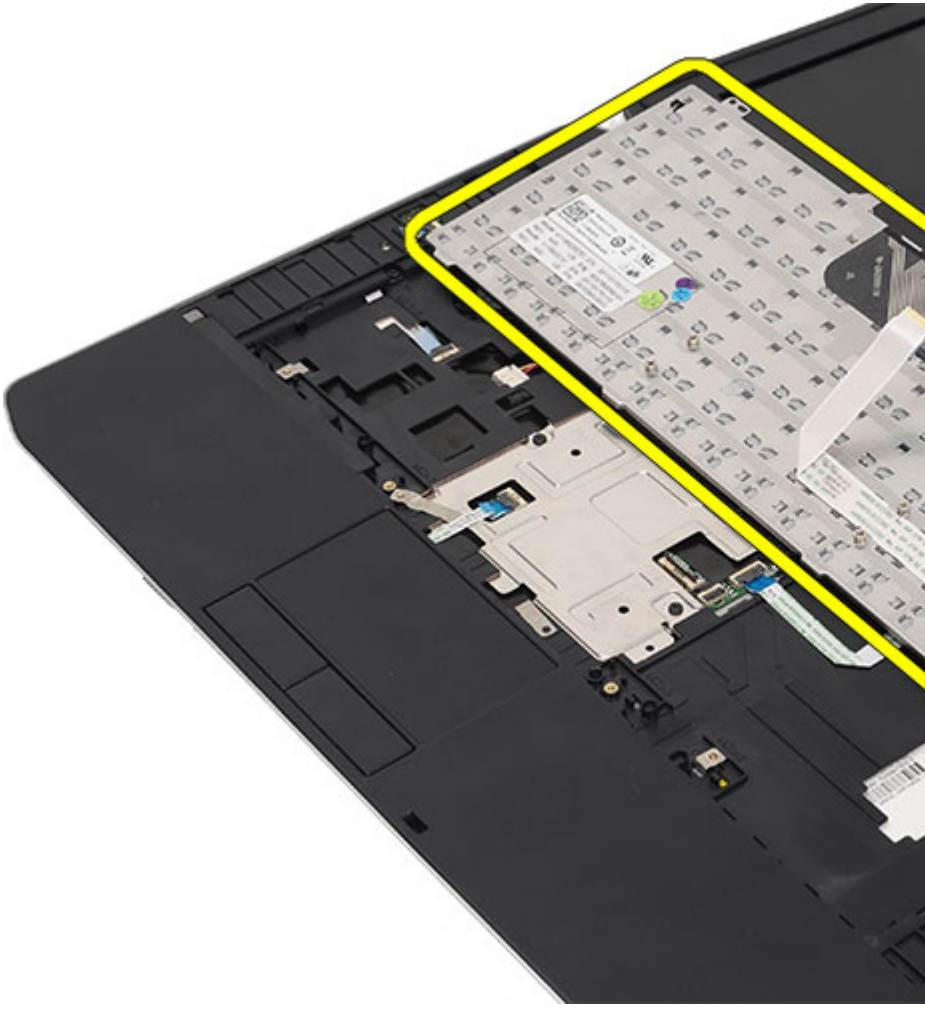


6. Flip the keyboard.

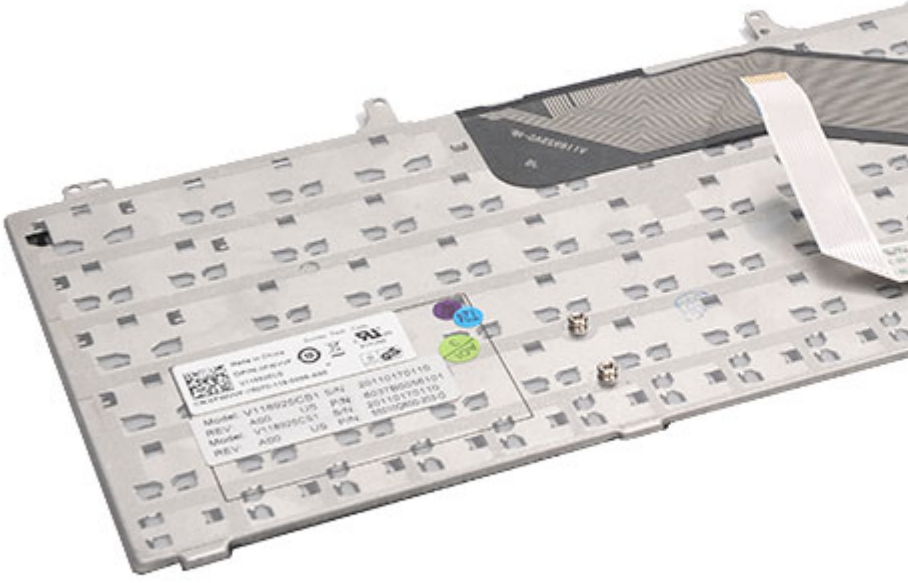
7. Disconnect the keyboard data cable from the computer.



8. Remove the keyboard from the computer.



9. Disconnect and remove the cable from the keyboard.



Installing the Keyboard

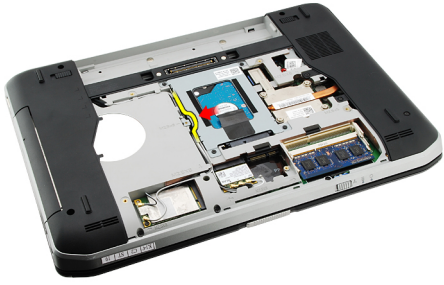
1. Connect the keyboard-data cable to the system board.
2. Connect the keyboard data cable to the back of the keyboard.
3. Replace the tape to secure the keyboard data cable to the back of the keyboard.
4. Replace the keyboard on the palm rest to align with the screw holes.
5. Tighten the keyboard screws.
6. Flip the keyboard and tighten the screws.
7. Replace the *keyboard trim*.
8. Replace the *battery*.
9. Follow the procedures in *After Working Inside Your Computer*.

Optical Drive 10

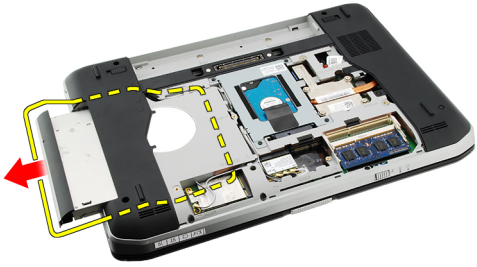
Removing the Optical Drive

1. Follow the procedures in *Before Working On Your Computer*.
2. Remove the *battery*.
3. Remove the *back panel*.
4. Remove the screw that secures the optical drive to the computer.

5. Push the screw tab away from the computer to release the optical drive from the drive bay.



6. Remove the optical drive from the computer.



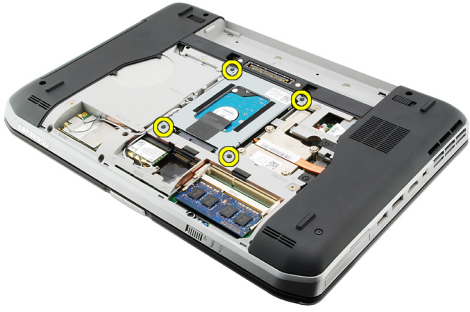
Installing the Optical Drive

1. Slide the optical drive into the drive bay on the right side of the computer.
2. Tighten the screw on the back of the computer to secure the optical drive.
3. Replace the *back panel*.
4. Replace the *battery*.
5. Follow the procedures in *After Working Inside Your Computer*.

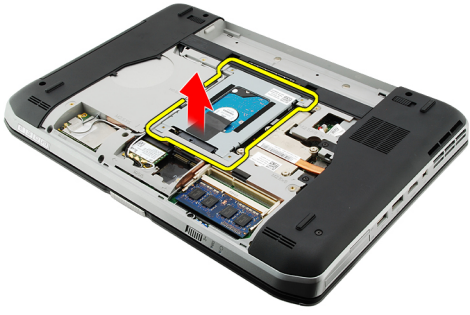
Hard Drive 11

Removing the Hard Drive

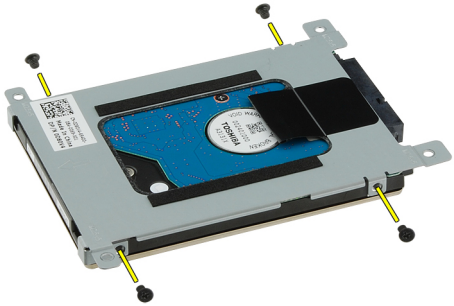
1. Follow the procedures in *Before Working On Your Computer*.
2. Remove the *battery*.
3. Remove the *back panel*.
4. Remove the screws that secure the hard-drive bracket to the computer.



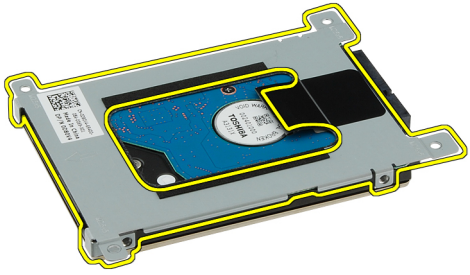
5. Use the tab to pull the hard-drive bracket upward and remove it from the computer.



6. Remove the hard-drive bracket screws.



7. Disconnect the bracket from the hard drive.



8. Disconnect the hard-drive connector from the hard drive.

Installing the Hard Drive

1. Reconnect the hard-drive connector to the hard drive.
2. Attach the hard-drive bracket to the hard drive.
3. Tighten the hard-drive bracket screws to ensure that the bracket is correctly aligned and holding the hard drive.
4. Slide the hard drive into the bay towards the connector on the system board.
5. Tighten the screws to secure the hard drive.
6. Replace the *back panel*.
7. Replace the *battery*.
8. Follow the procedures in *After Working Inside Your Computer*.

Wireless Local Area Network (WLAN) Card

12

Removing the Wireless Local Area Network (WLAN) Card

1. Follow the procedures in *Before Working On Your Computer*.
2. Remove the *battery*.
3. Remove the *back panel*.
4. Disconnect the antenna cables from the WLAN card.

5. Remove the screw that secures the WLAN card to system board.

6. Remove the WLAN card.

Installing The Wireless Local Area Network (WLAN) Card

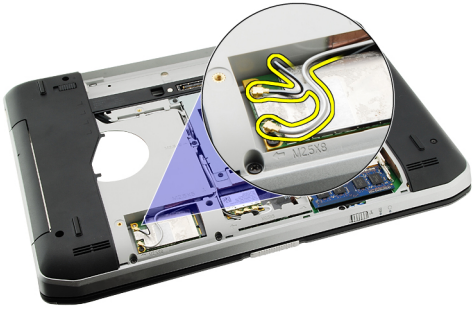
1. Slide the WLAN card into its slot.
2. Tighten the screw to secure the WLAN card to the computer.
3. Connect the antenna cables according to the color code on the WLAN card.
4. Replace the *back panel*.
5. Replace the *battery*.
6. Follow the procedures in *After Working Inside Your Computer*.

Wireless Wide Area Network (WWAN) Card

13

Removing the Wireless Wide Area Network (WWAN) Card

1. Follow the procedures in *Before Working On Your Computer*.
2. Remove the *battery*.
3. Remove the *back panel*.
4. Disconnect the antenna cables from the WWAN card.



5. Remove the screw that secures the WWAN card to the system board.

6. Remove the WWAN card.

Installing The Wireless Wide Area Network (WWAN) Card

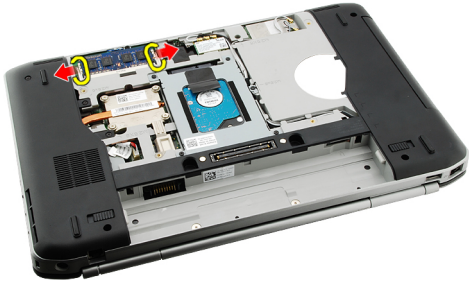
1. Slide the WWAN card into its slot.
2. Tighten the screw to secure the WWAN card to the computer.
3. Connect the antenna cables according to the color code on the WWAN card.
4. Replace the *back panel*.
5. Replace the *battery*.
6. Follow the procedures in *After Working Inside Your Computer*.

Memory

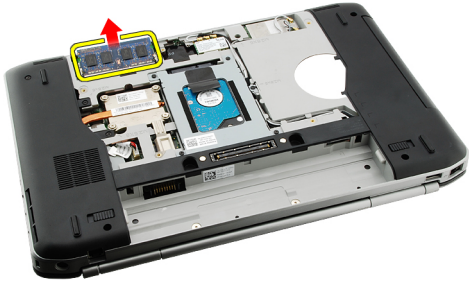
14

Removing the Memory Module

1. Follow the procedures in *Before Working On Your Computer*.
2. Remove the *battery*.
3. Remove the *back panel*.
4. Pry the retention clips away from the memory module.



5. Remove the memory module from the computer.



Installing the Memory Module

1. Insert the memory module into the slot in the computer.
2. Press down the memory module until the retention clips secure the memory module.
3. Replace the *back panel*.
4. Replace the *battery*.
5. Follow the procedures in *After Working Inside Your Computer*.

CPU Door

15

Removing the CPU Door

1. Follow the procedures in *Before Working On Your Computer*.
2. Remove the *battery*.
3. Remove the *back panel*.
4. Remove the screws that secure the CPU door to the computer.

5. Remove the CPU door.

Installing the CPU Door

1. Slide the CPU door downwards and towards the back of the computer.
2. Tighten the screws to secure the CPU door.
3. Replace the *back panel*.
4. Replace the *battery*.
5. Follow the procedures in *After Working Inside Your Computer*.

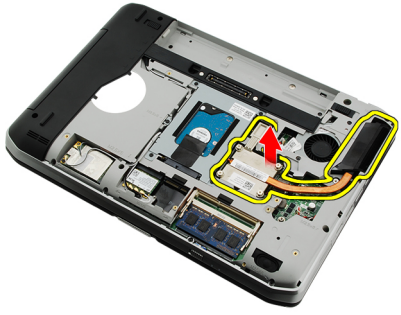
Heat Sink

16

Removing The Heat Sink

1. Follow the procedures in *Before Working On Your Computer*.
2. Remove the *battery*.
3. Remove the *back panel*.
4. Remove the *CPU door*.
5. Loosen the screws on the heat sink.

6. Lift the heat sink and remove it from the computer.



Installing the Heat Sink

1. Tighten the screws as per the numerical sequence on the heat sink module.

Ensure that the heat sink is correctly aligned and seated over the processor.

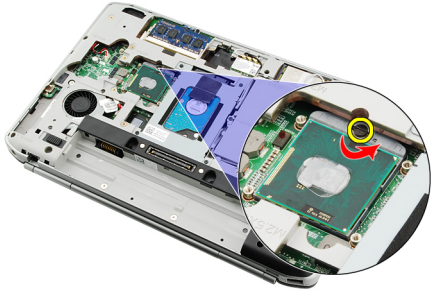
2. Replace the *CPU door*.
3. Replace the *back panel*.
4. Replace the *battery*.
5. Follow the procedures in *After Working Inside Your Computer*.

Processor

17

Removing the Processor

1. Follow the procedures in *Before Working On Your Computer*.
2. Remove the *battery*.
3. Remove the *back panel*.
4. Remove the *CPU door*.
5. Remove the *heat sink*.
6. Rotate the processor-cam screw in counter-clockwise direction.



7. Remove the processor.

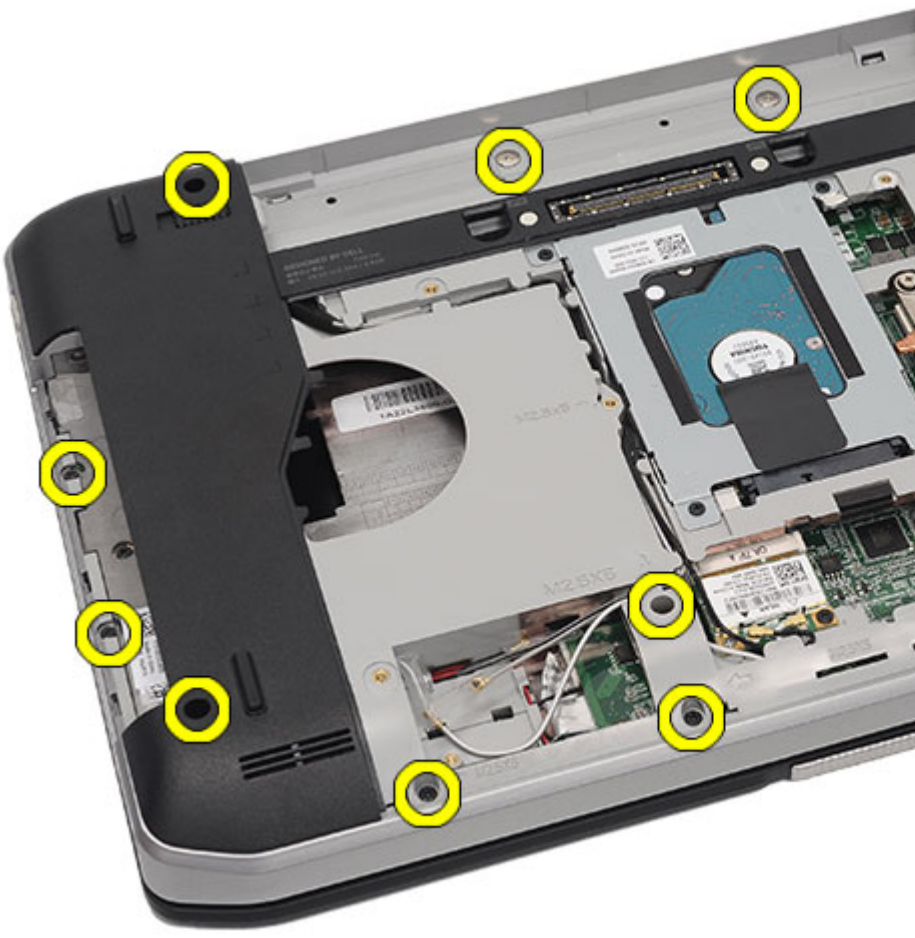
Installing the Processor

1. Insert the processor into the processor socket.
2. Replace the *heat sink*.
3. Replace the *CPU door*.
4. Replace the *back panel*.
5. Replace the *battery*.
6. Follow the procedures in *After Working Inside Your Computer*.

Palm Rest 18

Removing the Palm Rest

1. Follow the procedures in *Before Working On Your Computer*.
2. Remove the *battery*.
3. Remove the *back panel*.
4. Remove the *keyboard trim*.
5. Remove the *keyboard*.
6. Remove the *optical drive*.
7. Remove the *CPU door*.
8. Remove the screws from the bottom of the computer.



9. Flip the computer and remove the screws from the back of the computer.

10. Disconnect the following cables from the computer:

    - power button cable
    - fingerprint cable
    - touchpad cable

11. Lift up the left edge of the palm rest assembly.

12. Release the tabs on the right edge of the palm rest assembly.

13. Remove the palm rest assembly from the computer.

Installing the Palm Rest

1. From the left edge of the palm rest, press the palm rest downwards on all the edges on the computer.
2. Press down on all edges to ensure that the tabs are engaged.
3. Connect the following cables to the system board:
    - power button cable
    - fingerprint cable

- touchpad cable

4. Tighten the screws to secure the palm rest.
5. Flip the computer over and tighten the screws to secure the palm rest.
6. Replace the *CPU door*.
7. Replace the *keyboard*.
8. Replace the *keyboard trim*.
9. Replace the *optical drive*.
10. Replace the *back panel*.
11. Replace the *battery*.
12. Follow the procedures in *After Working Inside Your Computer*.

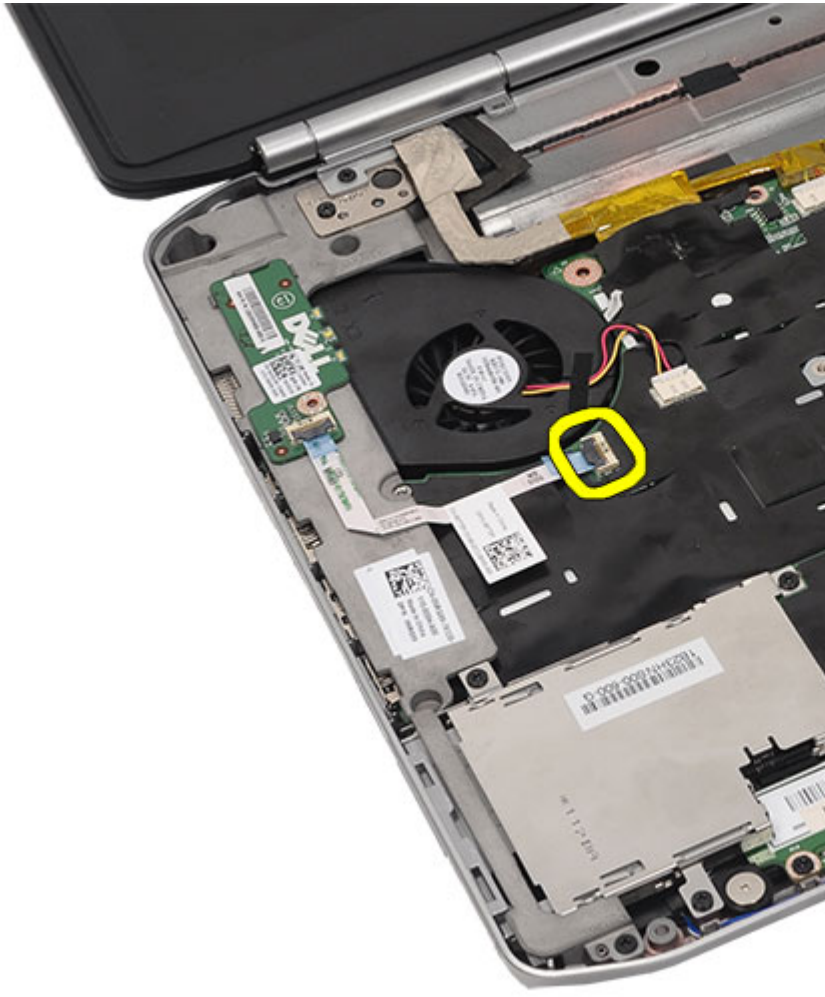
LED Board

19

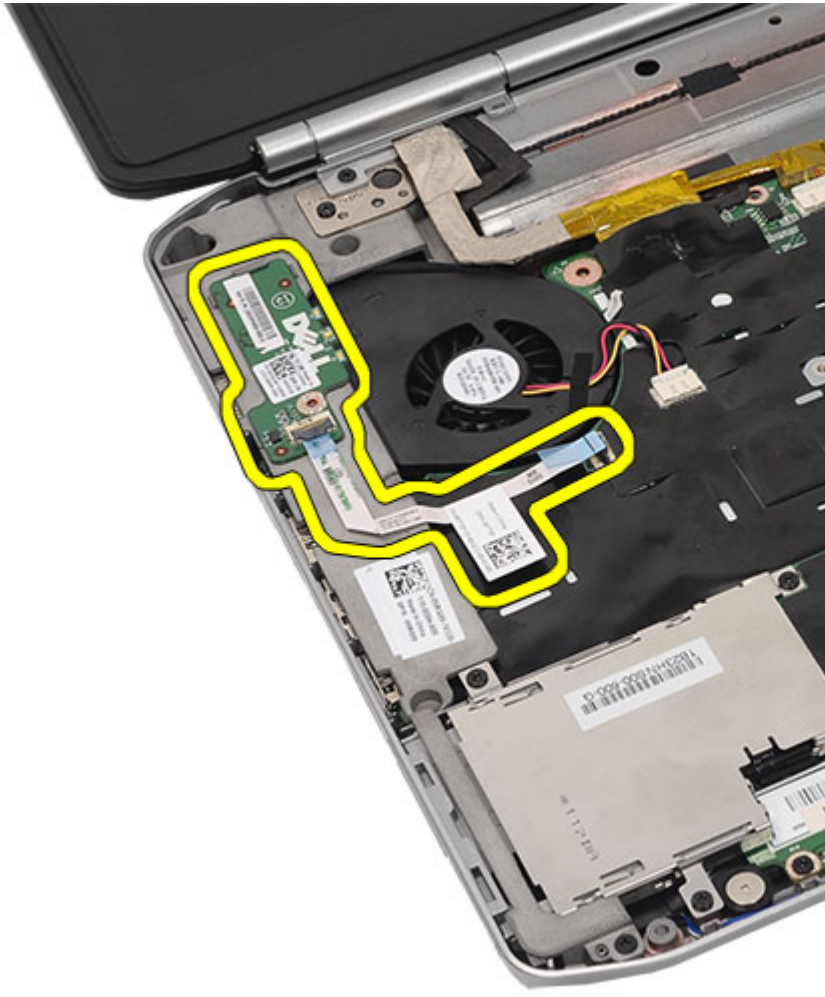
Removing the LED Board

1. Follow the procedures in *Before Working On Your Computer*.
2. Remove the *battery*.
3. Remove the *back panel*.
4. Remove the *keyboard trim*.
5. Remove the *keyboard*.
6. Remove the *optical drive*.
7. Remove the *CPU door*.
8. Remove the *palm rest*.
9. Remove the screw that secures the LED board to the computer.

10. Disconnect the LED board cable from the system board connector.



11. Remove the LED board.



Installing the LED Board

1. Insert the LED board on the left bracket.
2. Connect the cable to the system board.
3. Tighten the screw to secure the LED board.
4. Replace the *palm rest*.
5. Replace the *CPU door*.
6. Replace the *keyboard*.
7. Replace the *keyboard trim*.
8. Replace the *optical drive*.
9. Replace the *back panel*.
10. Replace the *battery*.
11. Follow the procedures in *After Working Inside Your Computer*.

ExpressCard/Smart Card/PCMCIA Module 20

Removing the ExpressCard/Smart Card/PCMCIA Module

1. Follow the procedures in *Before Working On Your Computer*.
2. Remove the *battery*.
3. Remove the *back panel*.
4. Remove the *keyboard trim*.
5. Remove the *keyboard*
6. Remove the *optical drive*.
7. Remove the *CPU door*.
8. Remove the *palm rest*.
9. Remove the screws that secure the ExpressCard/Smart Card/PCMCIA module to the computer.

10. Disconnect the cage from the system board connector.

11. Remove the ExpressCard/Smart Card/PCMCIA module.

Installing the ExpressCard/Smart Card/PCMCIA Module

1. Attach the connector on the back of the ExpressCard/Smart Card/ PCMCIA module, to the connector on the system board.
2. Tighten the screws to secure the ExpressCard/Smart Card/PCMCIA module.
3. Replace the *palm rest*.
4. Replace the *CPU door*.
5. Replace the *keyboard trim*.
6. Replace the *keyboard*.
7. Replace the *optical drive*.
8. Replace the *back panel*.
9. Replace the *battery*.
10. Follow the procedures in *After Working Inside Your Computer*.

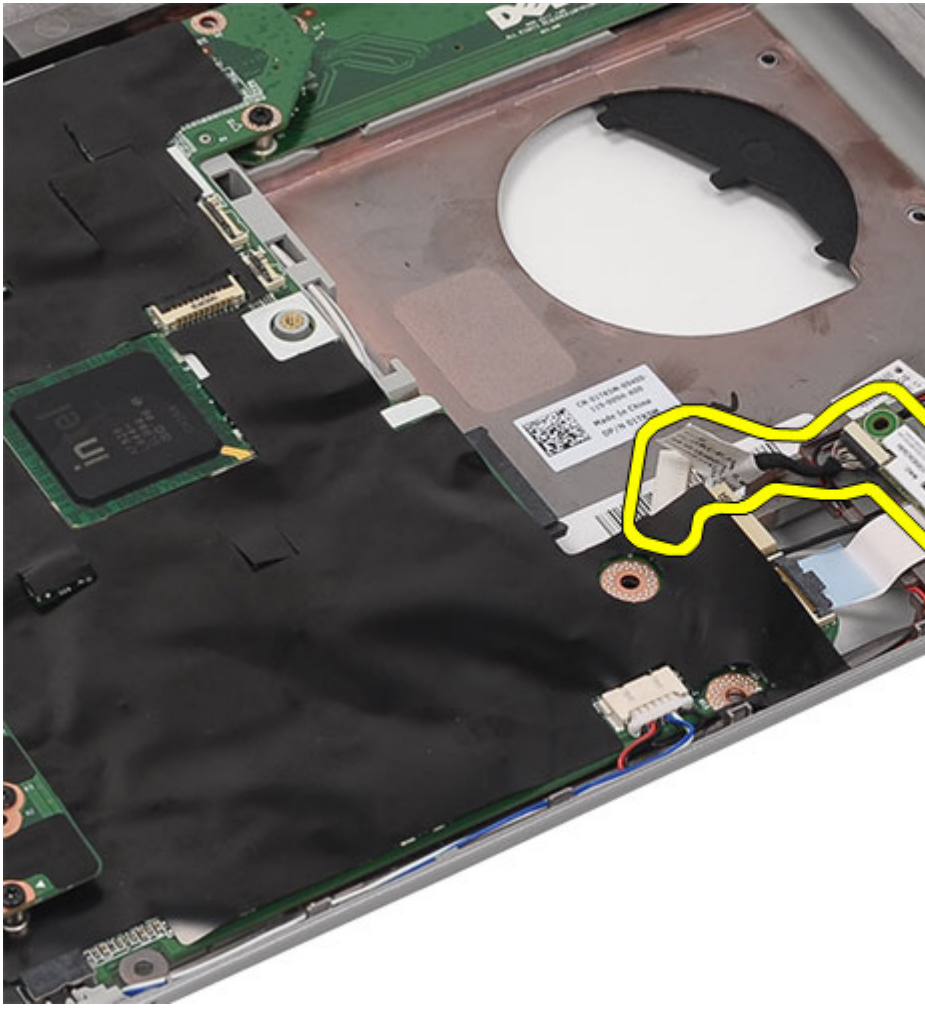
Bluetooth Card 21

Removing the Bluetooth Card

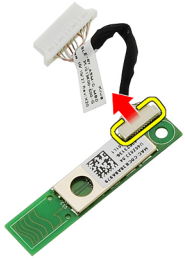
1. Follow the procedures in *Before Working On Your Computer*.
2. Remove the *battery*.
3. Remove the *back panel*.
4. Remove the *keyboard trim*
5. Remove the *keyboard*.
6. Remove the *optical drive*.
7. Remove the *CPU door*.
8. Remove the *palm rest*.
9. Disconnect the Bluetooth cable from the system board.

10. Remove the screw that secures the Bluetooth card.

11. Remove the Bluetooth card.



12. Disconnect the Bluetooth cable from the Bluetooth card.



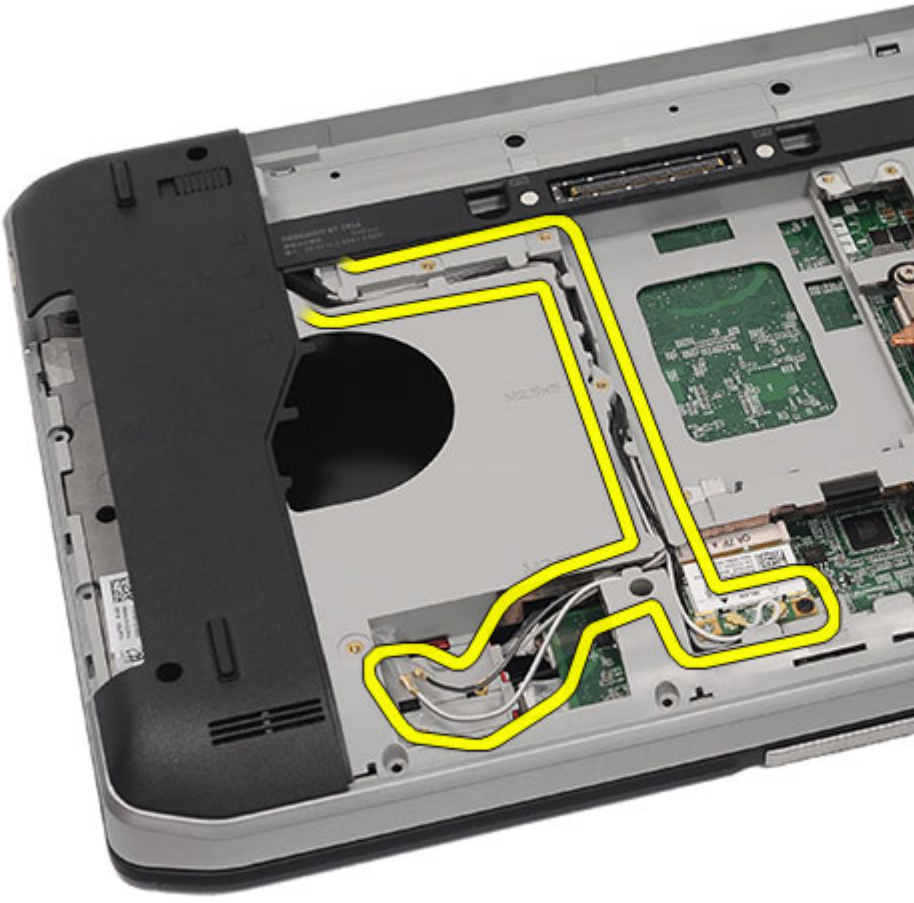
Installing the Bluetooth Card

1. Connect the Bluetooth cable to the Bluetooth module.
2. Place the Bluetooth module in the computer.
3. Connect the Bluetooth cable to the system board.
4. Replace the *palm rest*.
5. Replace the *CPU door*.
6. Replace the *keyboard*.
7. Replace the *keyboard trim*.
8. Replace the *optical drive*.
9. Replace the *back panel*.
10. Replace the *battery*.
11. Follow the procedures in *After Working Inside Your Computer*.

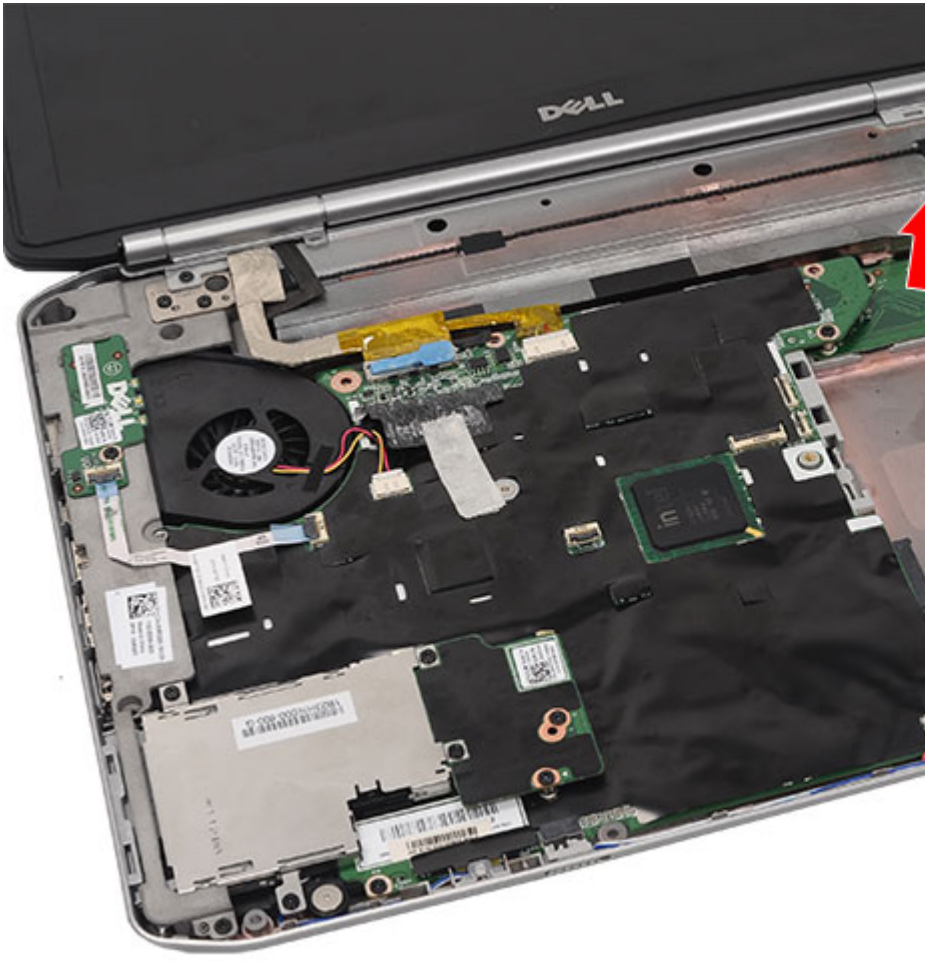
Display Assembly 22

Removing the Display Assembly

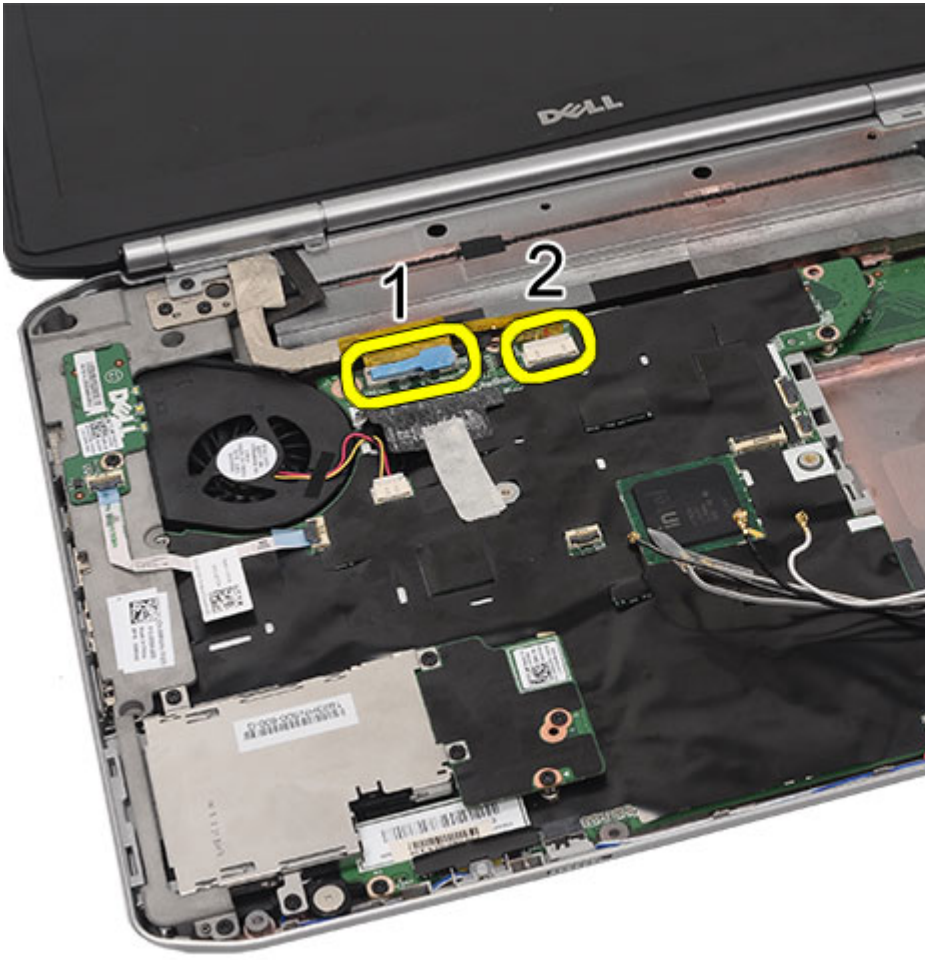
1. Follow the procedures in *Before Working On Your Computer*.
2. Remove the *battery*.
3. Remove the *back panel*.
4. Remove the *keyboard trim*.
5. Remove the *keyboard*.
6. Remove the *optical drive*.
7. Remove the *hard drive*.
8. Remove the *CPU door*.
9. Remove the *palm rest*.
10. Disconnect the antenna cables connected to the WLAN/WWAN cards.



11. Remove the antenna cables from the routing channels.



12. Disconnect the low-voltage differential (LVDS) and the camera cables.



13. Remove the screws that secure the display assembly to the computer.

14. Remove the display assembly.

DELL

Installing the Display Assembly

1. Attach the display assembly to the base of the computer.
2. Tighten the screws to secure the display assembly.
3. Connect the low-voltage differential (LVDS) cable to the system board.
4. Connect the camera cable to the system board connector.
5. Push the antenna cables through the opening of the bottom of the computer.
6. Secure the antenna cables to the routing channels.
7. Connect the antenna cables to the WLAN/WLAN cards.
8. Replace the *palm rest*.
9. Replace the *CPU door*.
10. Replace the *keyboard*.
11. Replace the *keyboard trim*.
12. Replace the *hard drive*.
13. Replace the *optical drive*.
14. Replace the *back panel*.
15. Replace the *battery*.
16. Follow the procedures in *After Working Inside Your Computer*.

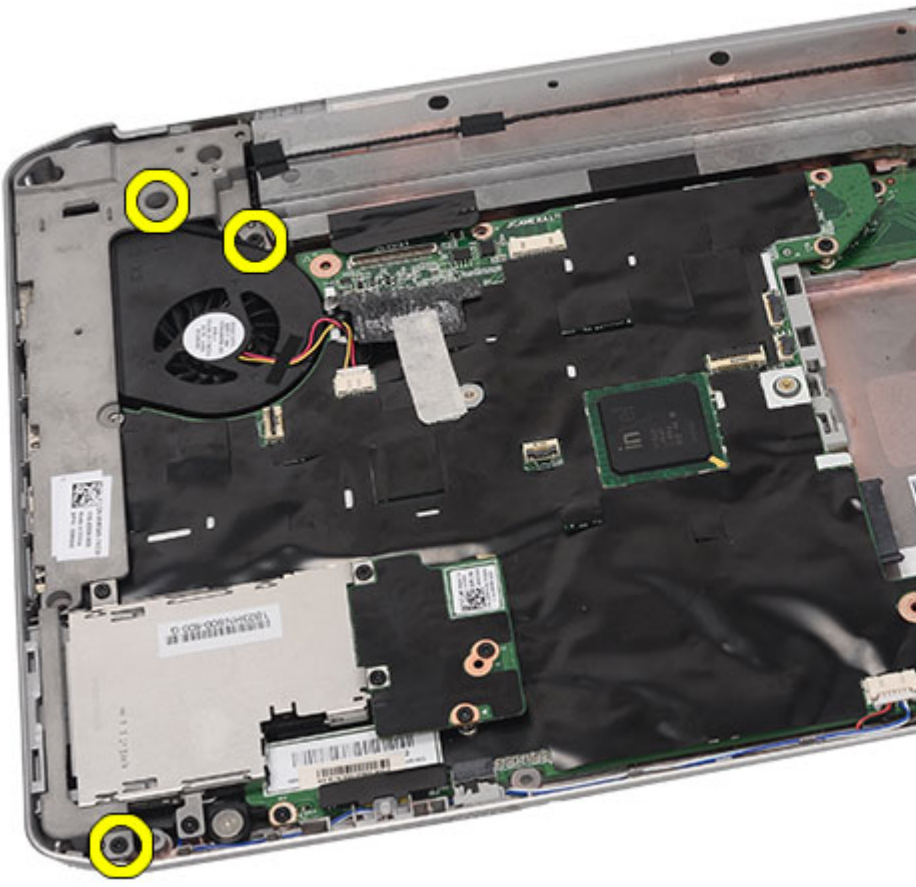
Brackets 23

Removing the Support Brackets

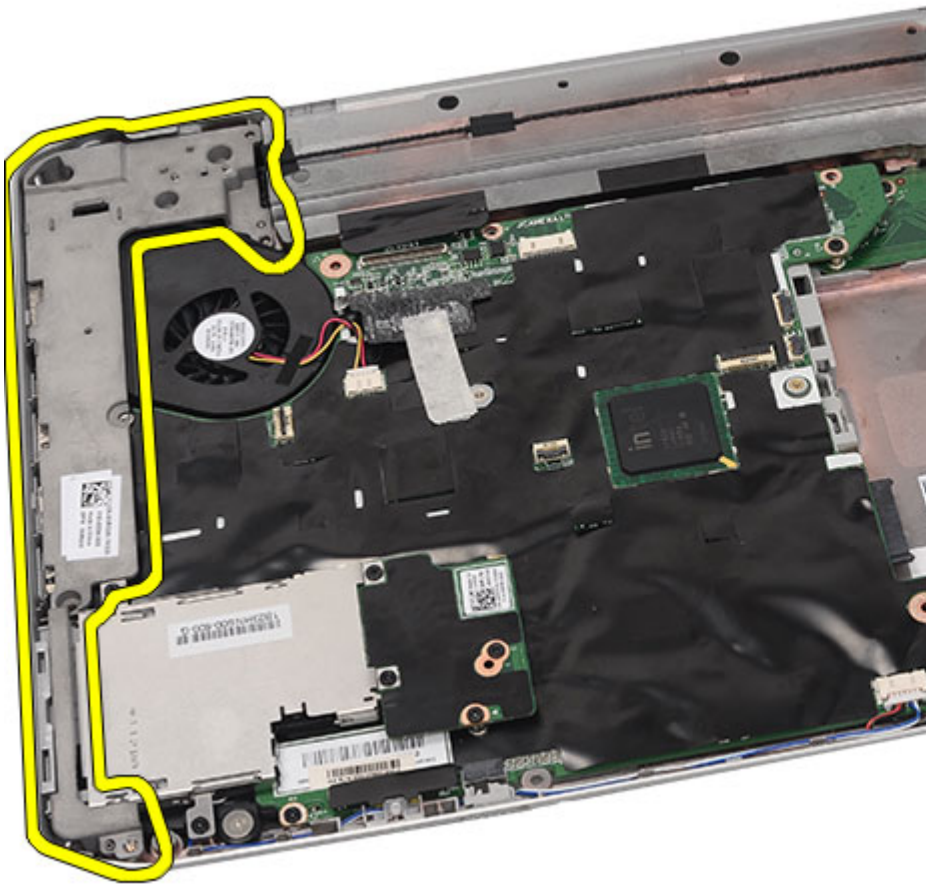
1. Follow the procedures in *Before Working On Your Computer*.
2. Remove the *battery*.
3. Remove the *back panel*.
4. Remove the *keyboard trim*.
5. Remove the *keyboard*.
6. Remove the *optical drive*.
7. Remove the *CPU door*.
8. Remove the *palm rest*.
9. Remove the *display assembly*.
10. Remove the screws that secure the right support bracket.

11. Remove the right support bracket.

12. Remove the screws that secure the left support bracket.



13. Remove the left support bracket.



Installing the Support Brackets

1. Place the right support bracket in the computer.
2. Tighten the screws to secure the right support bracket.
3. Place the left support bracket in the computer.
4. Tighten the screws to secure the left support bracket.
5. Replace the *display assembly*.
6. Replace the *palm rest*.
7. Replace the *LED board*.
8. Replace the *CPU door*.
9. Replace the *keyboard*.
10. Replace the *keyboard trim*.
11. Replace the *optical drive*.
12. Replace the *back panel*.
13. Replace the *battery*.
14. Follow the procedures in *After Working Inside Your Computer*.

Modem Card

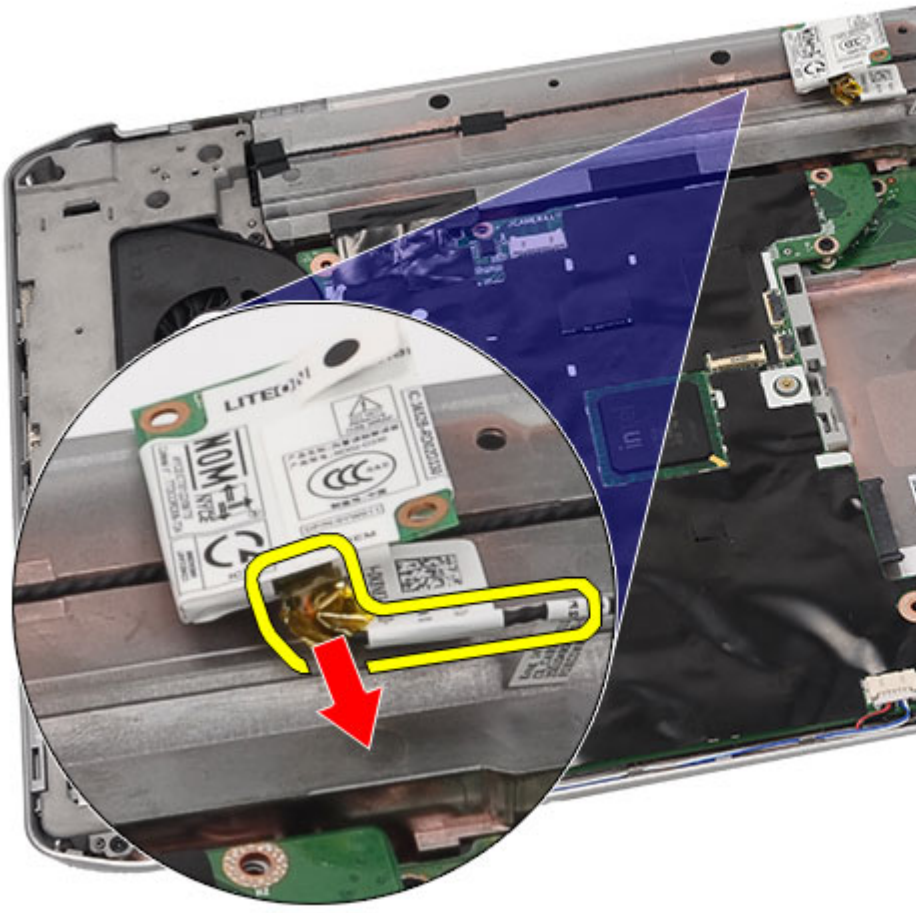
24

Removing the Modem Card

1. Follow the procedures in *Before Working On Your Computer*.
2. Remove the *battery*.
3. Remove the *back panel*.
4. Remove the *keyboard trim*.
5. Remove the *keyboard*.
6. Remove the *optical drive*.
7. Remove the *hard drive*
8. Remove the *CPU door*.
9. Remove the *palm rest*.
10. Remove the *display assembly*.
11. Remove the *support brackets*.
12. Remove the screw that secures the modem card.

13. Lift the modem card, to disengage from the connector on the back of the card.

14. Disconnect the modem cable from the modem.



15. Remove the modem card.

Installing the Modem Card

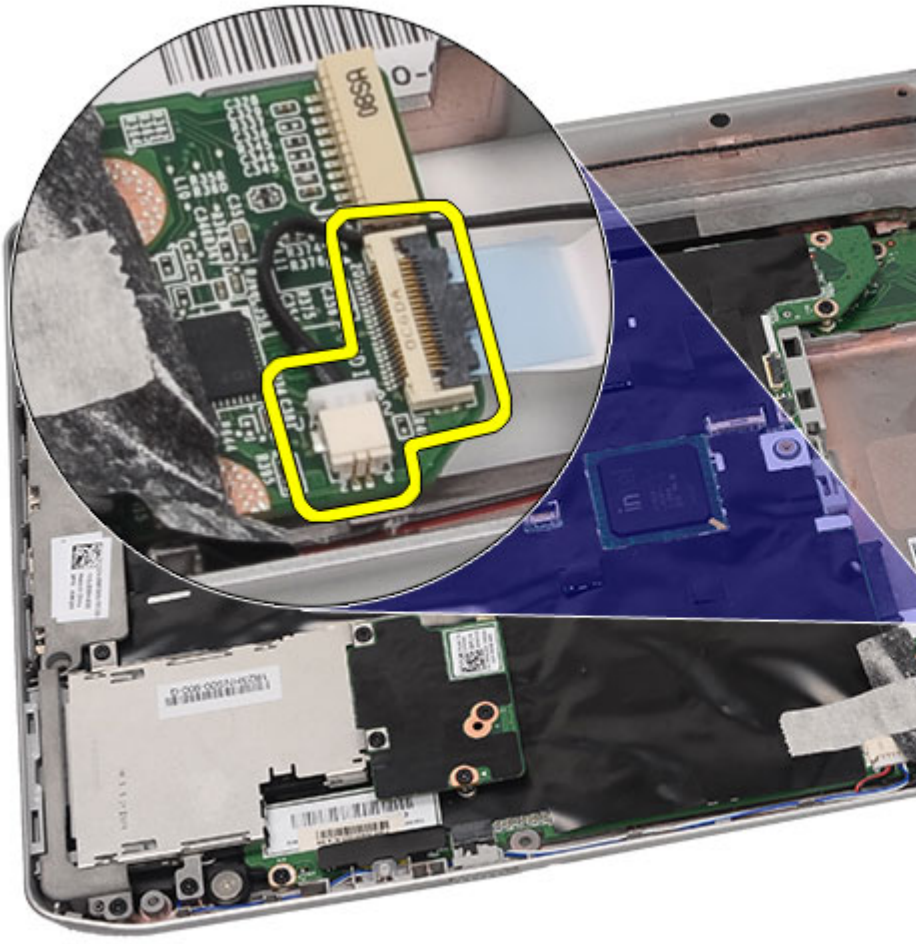
1. Connect the modem cable.
2. Attach the connector on the back of the modem card to the connector on the I/O panel.
3. Replace the *support brackets*.
4. Replace the *display assembly*.
5. Replace the *palm rest*.
6. Replace the *CPU door*.
7. Replace the *keyboard*.
8. Replace the *keyboard trim*
9. Replace the *optical drive*.
10. Replace the *back panel*.
11. Replace the *battery*.
12. Follow the procedures in *After Working Inside Your Computer*.

Audio Board

25

Removing the Audio Board

1. Follow the procedures in *Before Working On Your Computer*.
2. Remove the *battery*.
3. Remove the *back panel*.
4. Remove the *keyboard trim*.
5. Remove the *keyboard*.
6. Remove the *optical drive*.
7. Remove the *CPU door*.
8. Remove the *palm rest*.
9. Remove the *Bluetooth card*.
10. Disconnect the audio board cables from the system board.



11. Remove the screw that secures the audio board to the computer.

12. Remove the audio board.

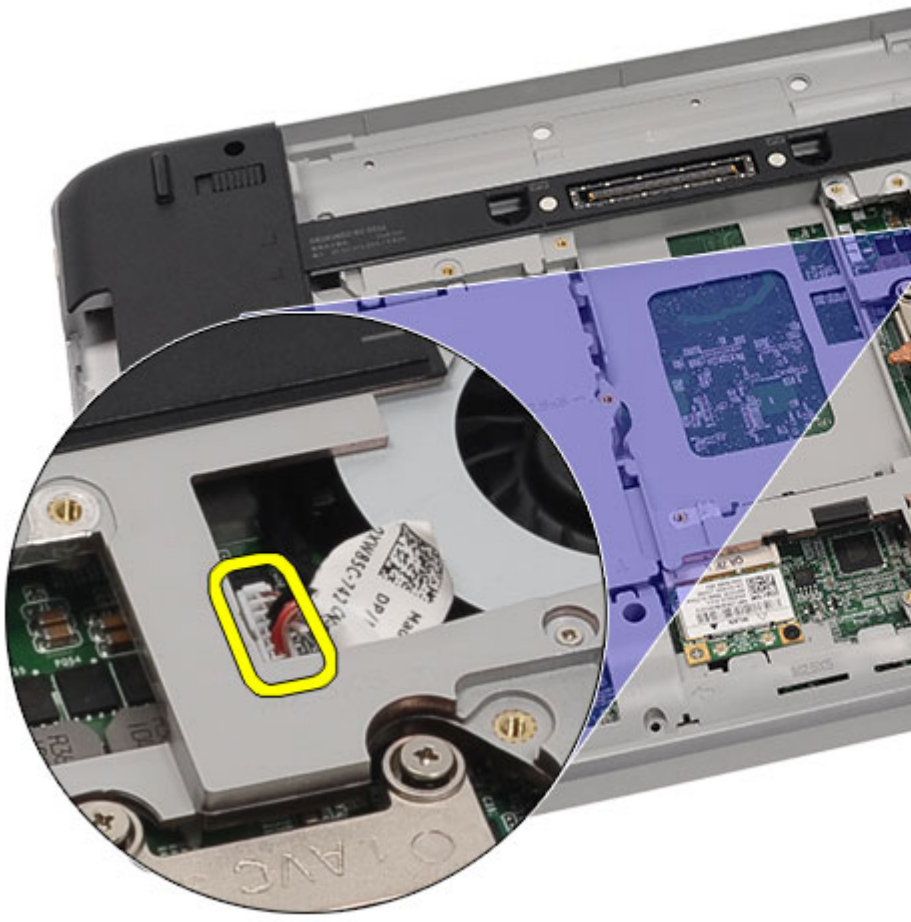
Installing the Audio Board

1. Place the audio board in the computer.
2. Tighten the screw to secure the audio board.
3. Connect the audio cables to the system board.
4. Replace the *Bluetooth card*.
5. Replace the *palm rest*.
6. Replace the *CPU door*.
7. Replace the *keyboard*.
8. Replace the *keyboard trim*.
9. Replace the *optical drive*.
10. Replace the *back panel*.
11. Replace the *battery*.
12. Follow the procedures in *After Working Inside Your Computer*.

System Board 26

Removing the System Board

1. Follow the procedures in *Before Working On Your Computer*.
2. Remove the *battery*.
3. Remove the *subscriber identity module (SIM) card*.
4. Remove the *secure digital (SD) card*.
5. Remove the *back panel*.
6. Remove the *memory*.
7. Remove the *keyboard trim*.
8. Remove the *keyboard*.
9. Remove the *optical drive*.
10. Remove the *hard drive*.
11. Remove the *wireless local area network (WLAN)*.
12. Remove the *wireless wide area network (WWAN)*.
13. Remove the *CPU door*.
14. Remove the *heat sink*:
15. Remove the *processor*.
16. Remove the *palm rest*.
17. Remove the *ExpressCard/Smart Card/PCMCIA module*.
18. Remove the *display assembly*.
19. Remove the *LED board*.
20. Remove the *support brackets*.
21. Disconnect the power connector cable.



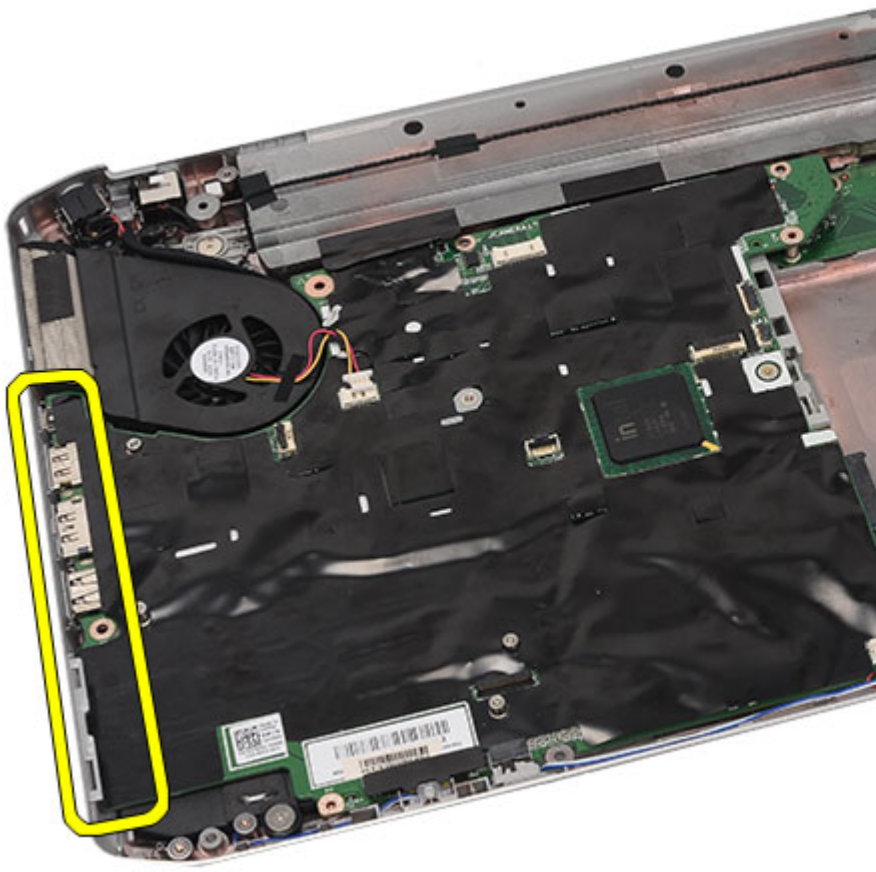
22. Disconnect the following cables from the system board:

- thermal fan cable
- speaker cable
- audio board cable
- bluetooth cable

23. Remove the screws that secure the system board.

24. Lift the edge of the system board to disconnect it from the input/output (I/O) panel.

25. Release the system board from the port connectors.



26. Remove the system board.

Installing the System Board

1. Align the system board to the port connectors and place the system board in the computer.
2. Engage the connector on the back of the system board to the input/output (I/O panel).
3. Tighten the screws to secure the system board.
4. Connect the following cables to the system board:

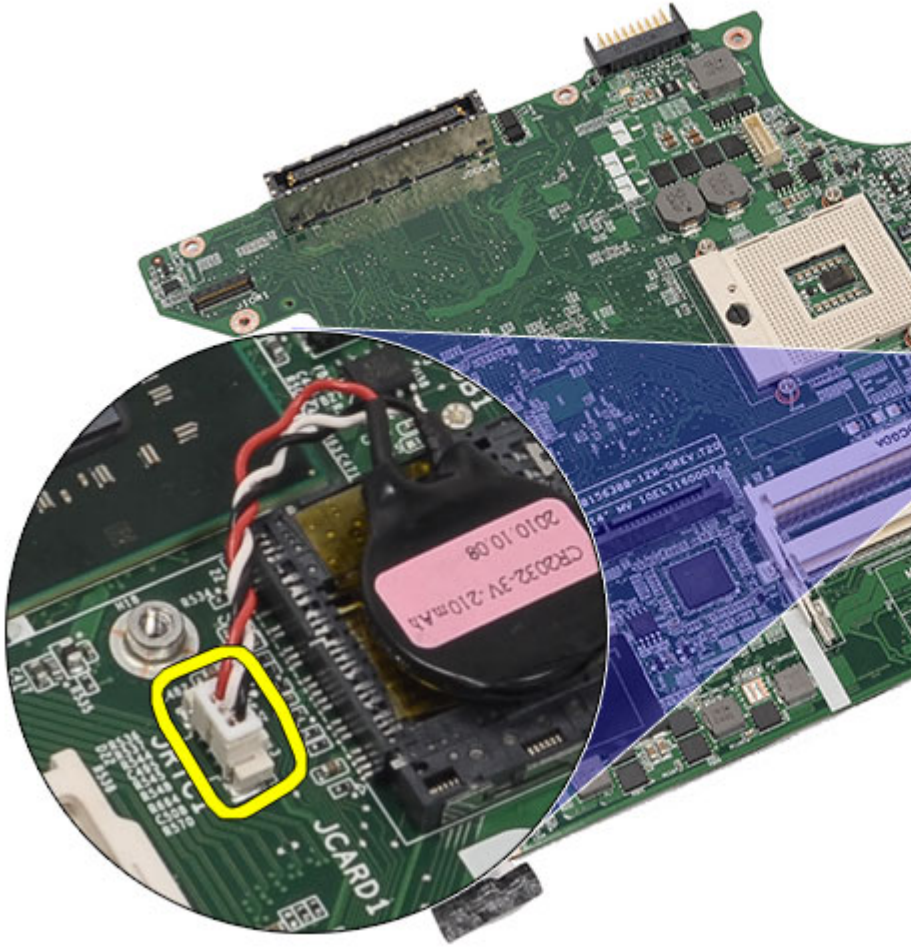
- thermal fan cable
- speaker cable
- audio board cable
- bluetooth cable

5. Replace the *support brackets*.
6. Replace the *LED board*.
7. Replace the *display assembly*.
8. Replace the *ExpressCard/Smart Card/PCMCIA module*.
9. Replace the *palm rest*.
10. Replace the *processor*.
11. Replace the *heat sink*.
12. Replace the *CPU door*..
13. Replace the *wireless wide area network (WWAN)*.
14. Replace the *wireless local area network (WLAN)*.
15. Replace the *hard drive*.
16. Replace the *optical drive*.
17. Replace the *keyboard*.
18. Replace the *keyboard trim*
19. Replace the *memory*.
20. Replace the *back panel*.
21. Replace the *secure digital (SD) card*.
22. Replace the *subscriber identity module (SIM) card*.
23. Replace the *battery*.
24. Follow the procedures in *After Working Inside Your Computer*.

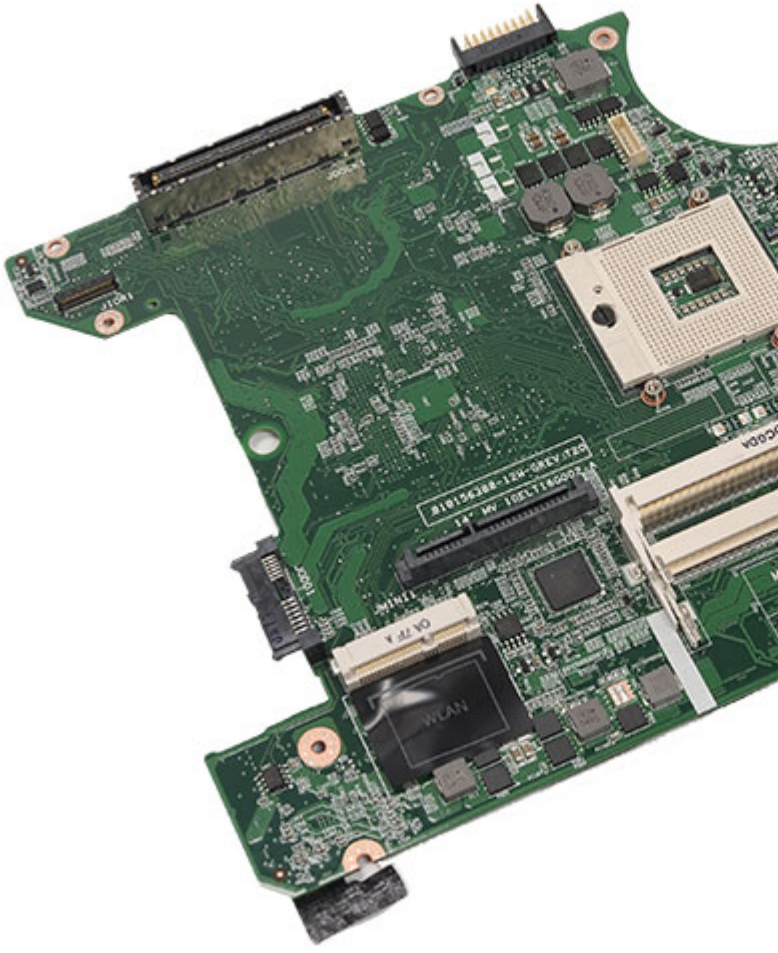
Coin-Cell Battery 27

Removing the Coin-Cell Battery

1. Follow the procedures in *Before Working On Your Computer*.
2. Remove the *battery*.
3. Remove the *subscriber identity module (SIM) card*.
4. Remove the *secure digital (SD) card*.
5. Remove the *back panel*.
6. Remove the *memory*.
7. Remove the *keyboard trim*.
8. Remove the *keyboard*.
9. Remove the *optical drive*.
10. Remove the *hard drive*.
11. Remove the *wireless wide area network (WWAN)*.
12. Remove the *wireless local area network (WLAN)*.
13. Remove the *CPU door*.
14. Remove the *heat sink*.
15. Remove the *processor*.
16. Remove the *palm rest*.
17. Remove the *ExpressCard/Smart Card/PCMCIA module*,
18. Remove the *display assembly*.
19. Remove the *LED board*.
20. Remove the *support brackets*.
21. Remove the *system board*.
22. Disconnect the coin-cell battery connector.



23. Pry and remove the coin-cell battery.


WLAN

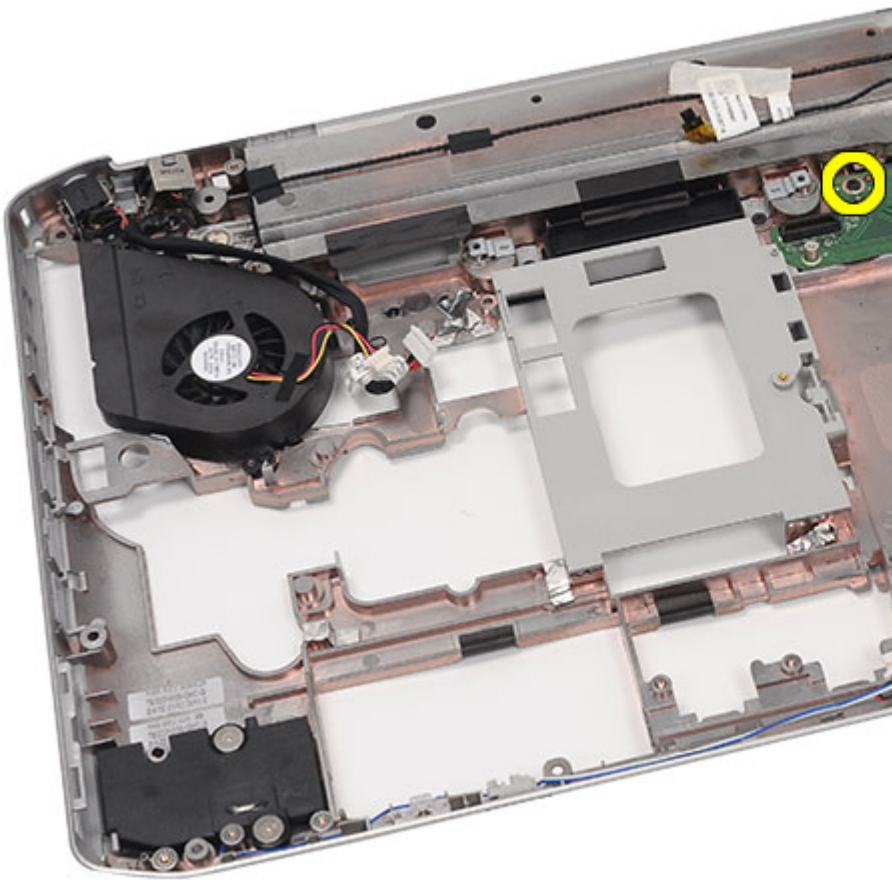
Installing the Coin-Cell Battery

1. Connect the coin-cell battery to system board and secure it.
2. Replace the *system board*.
3. Replace the *support brackets*.
4. Replace the *LED board*.
5. Replace the *display assembly*.
6. Replace the *ExpressCard/Smart Card/PCMCIA module*.
7. Replace the *palm rest*.
8. Replace the *processor*.
9. Replace the *heat sink*.
10. Replace the *CPU door*.
11. Replace the *wireless local area network (WLAN)*.
12. Replace the *wireless wide area network (WWAN)*.
13. Replace the *hard drive*.
14. Replace the *optical drive*.
15. Replace the *keyboard*.
16. Replace the *keyboard trim*.
17. Replace the *memory*.
18. Replace the *back panel*.
19. Replace the *secure digital (SD) card*.
20. Replace the *subscriber identity module (SIM) card*.
21. Replace the *battery*.
22. Follow the procedures in *After Working Inside Your Computer*.

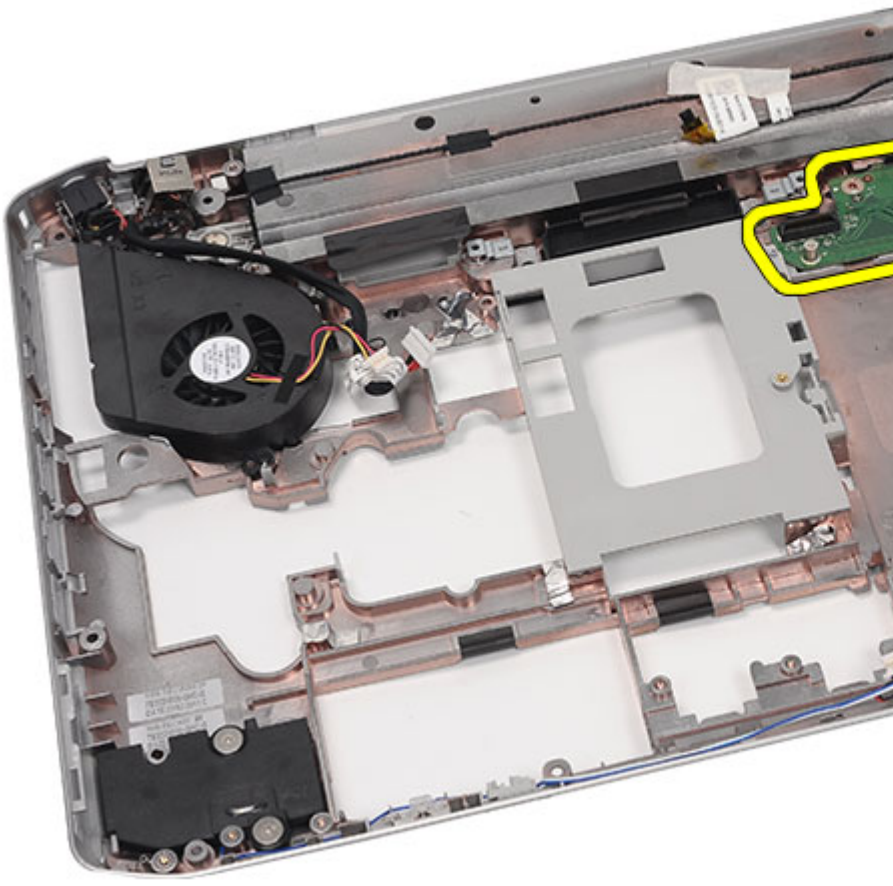
Input/Output Panel 28

Removing The Input/Output (I/O) Panel

1. Follow the procedures in *Before Working On Your Computer*.
2. Remove the *battery*.
3. Remove the *subscriber identity module (SIM) card*.
4. Remove the *secure digital (SD) card*.
5. Remove the *back panel*.
6. Remove the *memory*
7. Remove the *keyboard trim*.
8. Remove the *keyboard*.
9. Remove the *optical drive*.
10. Remove the *hard drive*.
11. Remove the *wireless local area network (WLAN)*.
12. Remove the *wireless wide area network (WWAN)*.
13. Remove the *CPU door*.
14. Remove the *heat sink*.
15. Remove the *processor*.
16. Remove the *palm rest*.
17. Remove the *ExpressCard/Smart Card/PCMCIA module*.
18. Remove the *display assembly*.
19. Remove the *LED board*.
20. Remove the *support brackets*.
21. Remove the *system board*.
22. Remove the screws that secure the I/O panel.



23. Remove the I/O panel.



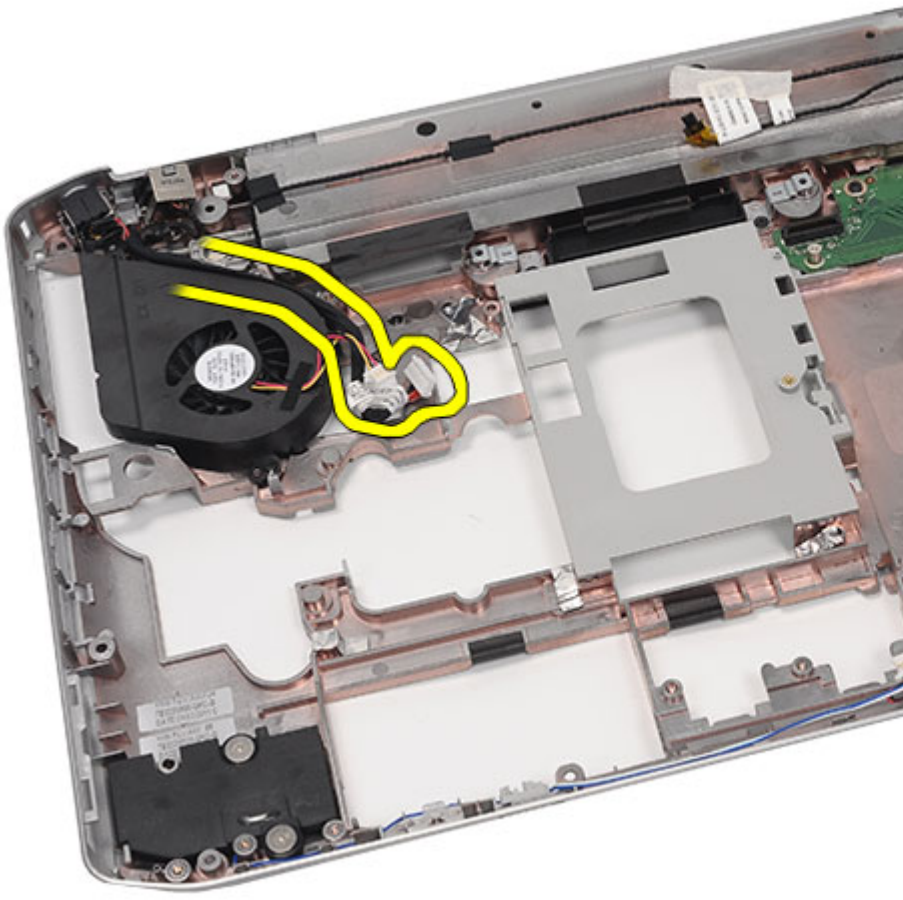
Installing the Input/Output (I/O) Panel

1. Place the I/O panel in the computer.
2. Tighten the screws to secure the I/O panel.
3. Replace the *system board*.
4. Replace the *support brackets*.
5. Replace the *LED board*.
6. Replace the *display assembly*.
7. Replace the *ExpressCard/Smart Card/PCMCIA module*
8. Replace the *palm rest*.
9. Replace the *processor*.
10. Replace the *heat sink*.
11. Replace the *CPU door*.
12. Replace the *wireless local area network (WLAN)*.
13. Replace the *wireless wide area network (WWAN)*.
14. Replace the *hard drive*.
15. Replace the *optical drive*.
16. Replace the *keyboard*.
17. Replace the *keyboard trim*.
18. Replace the *memory*.
19. Replace the *back panel*.
20. Replace the *secure digital (SD) card*.
21. Replace the *subscriber identity module (SIM) card*.
22. Replace the *battery*.
23. Follow the procedures in *After Working Inside Your Computer*.

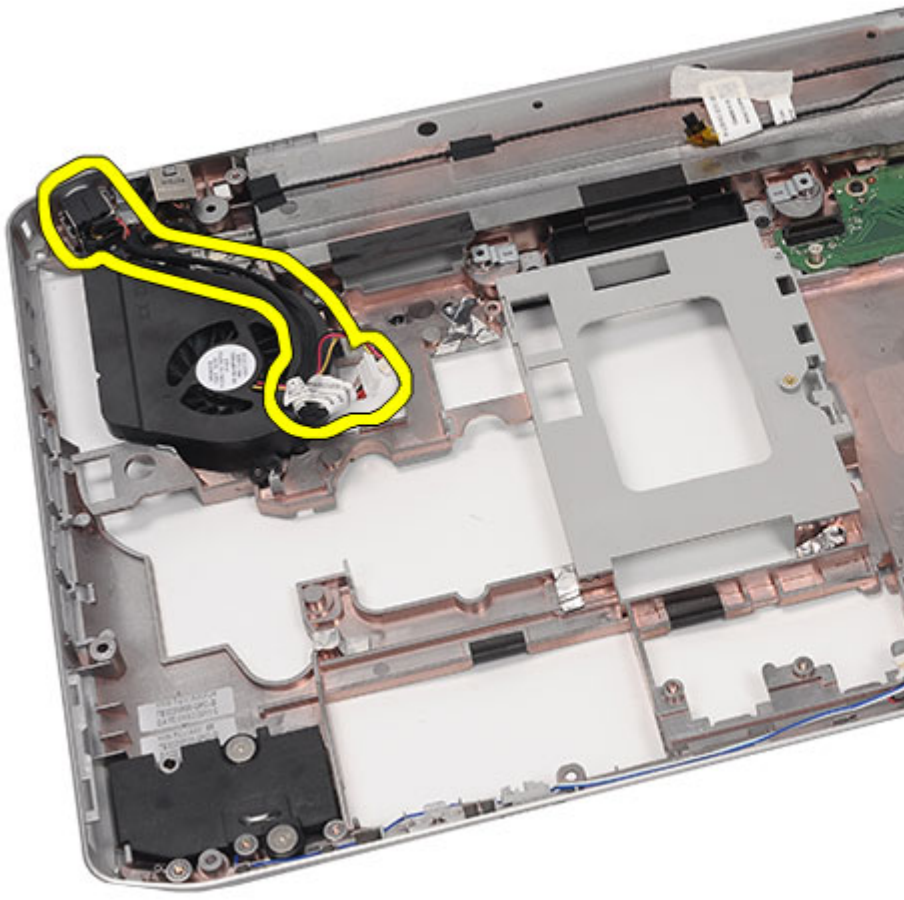
Power Connector 29

Removing the Power Connector

1. Follow the procedures in *Before Working On Your Computer*.
2. Remove the *battery*.
3. Remove the *subscriber identity module (SIM) card*.
4. Remove the *secure digital (SD) card*.
5. Remove the *back panel*.
6. Remove the *memory*.
7. Remove the *keyboard trim*.
8. Remove the *keyboard*.
9. Remove the *optical drive*.
10. Remove the *hard drive*.
11. Remove the *wireless local area network (WLAN)*.
12. Remove the *wireless wide area network (WWAN)*.
13. Remove the *CPU door*.
14. Remove the *heat sink*.
15. Remove the *processor*.
16. Remove the *palm rest*.
17. Remove the *ExpressCard/Smart Card/PCMCIA module*
18. Remove the *display assembly*
19. Remove the *LED board*.
20. Remove the *support brackets*.
21. Remove the *system board*.
22. Remove the power connector from the routing channel.



23. Remove the power connector.



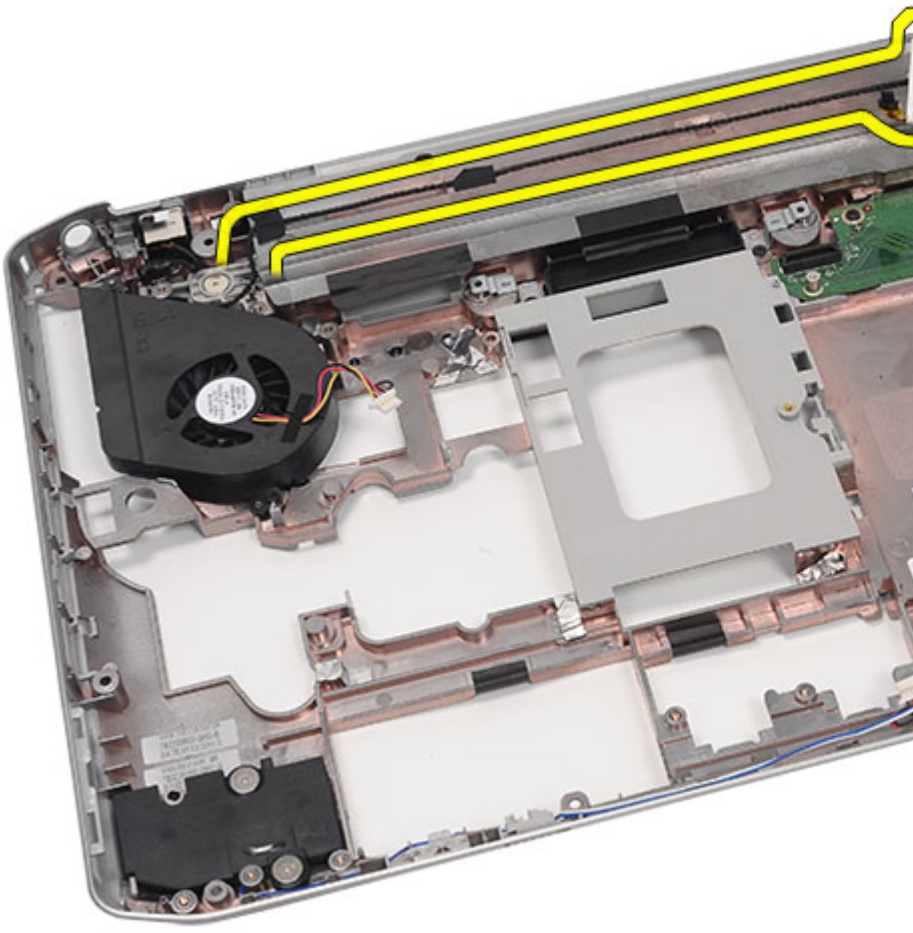
Installing the Power Connector

1. Secure the DC-In port to the routing channel on the processor fan.
2. Replace the *system board*.
3. Replace the *support brackets*.
4. Replace the *LED board*.
5. Replace the *display assembly*.
6. Replace the *ExpressCard/Smart Card/PCMCIA module*.
7. Replace the *palm rest*.
8. Replace the *processor*.
9. Replace the *heat sink*.
10. Replace the *CPU door*.
11. Replace the *wireless wide area network (WWAN)*.
12. Replace the *wireless local area network (WLAN)*.
13. Replace the *hard drive*.
14. Replace the *optical drive*.
15. Replace the *keyboard*.
16. Replace the *keyboard trim*.
17. Replace the *memory*.
18. Replace the *back panel*.
19. Replace the *secure digital (SD) card*.
20. Replace the *subscriber identity module (SIM) card*.
21. Replace the *battery*.
22. Follow the procedures in *After Working Inside Your Computer*.

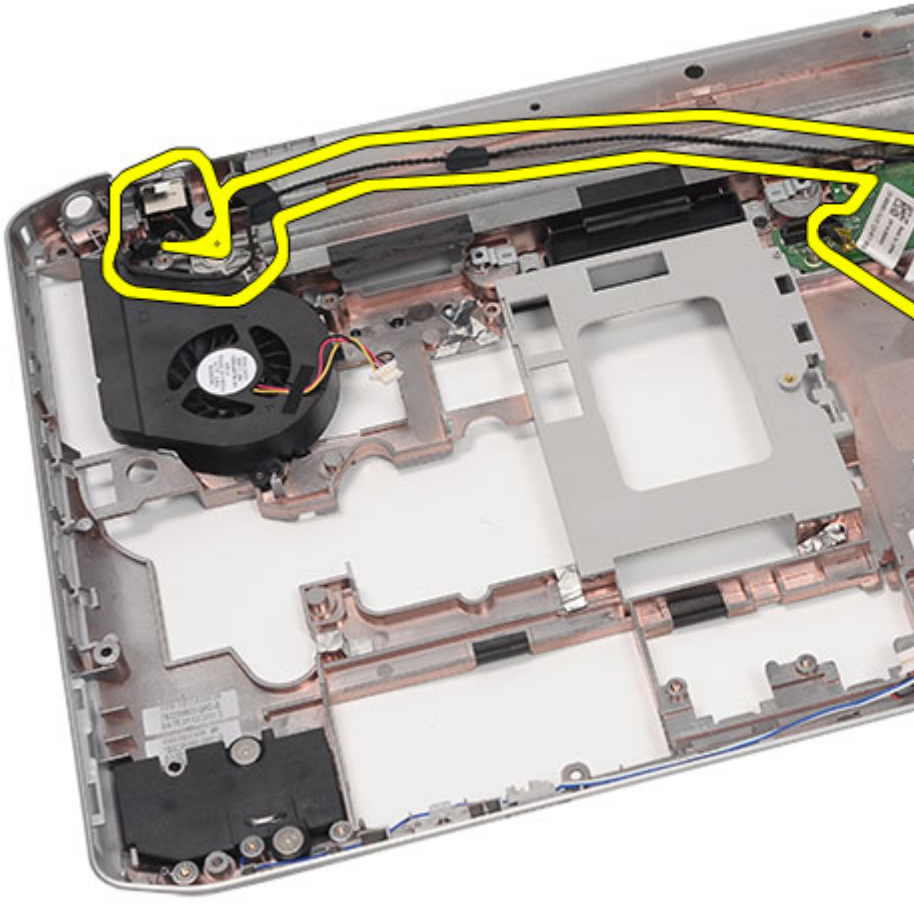
Modem Connector 30

Removing the Modem Connector

1. Follow the procedures in *Before Working On Your Computer*.
2. Remove the *battery*.
3. Remove the *subscriber identity module (SIM) card*.
4. Remove the *secure digital (SD) card*.
5. Remove the *back panel*.
6. Remove the *memory*.
7. Remove the *keyboard trim*.
8. Remove the *keyboard*.
9. Remove the *optical drive*.
10. Remove the *hard drive*.
11. Remove the *wireless local area network (WLAN)*.
12. Remove the *wireless wide area network (WWAN)*.
13. Remove the *CPU door*.
14. Remove the *heat sink*.
15. Remove the *processor*.
16. Remove the *palm rest*.
17. Remove the *ExpressCard/Smart Card/PCMCIA module*
18. Remove the *display assembly*.
19. Remove the *LED board*.
20. Remove the *modem card*.
21. Remove the *support brackets*.
22. Remove the *system board*.
23. Remove the *power connector*.
24. Remove the modem cable from the routing channel.



25. Remove the modem connector.



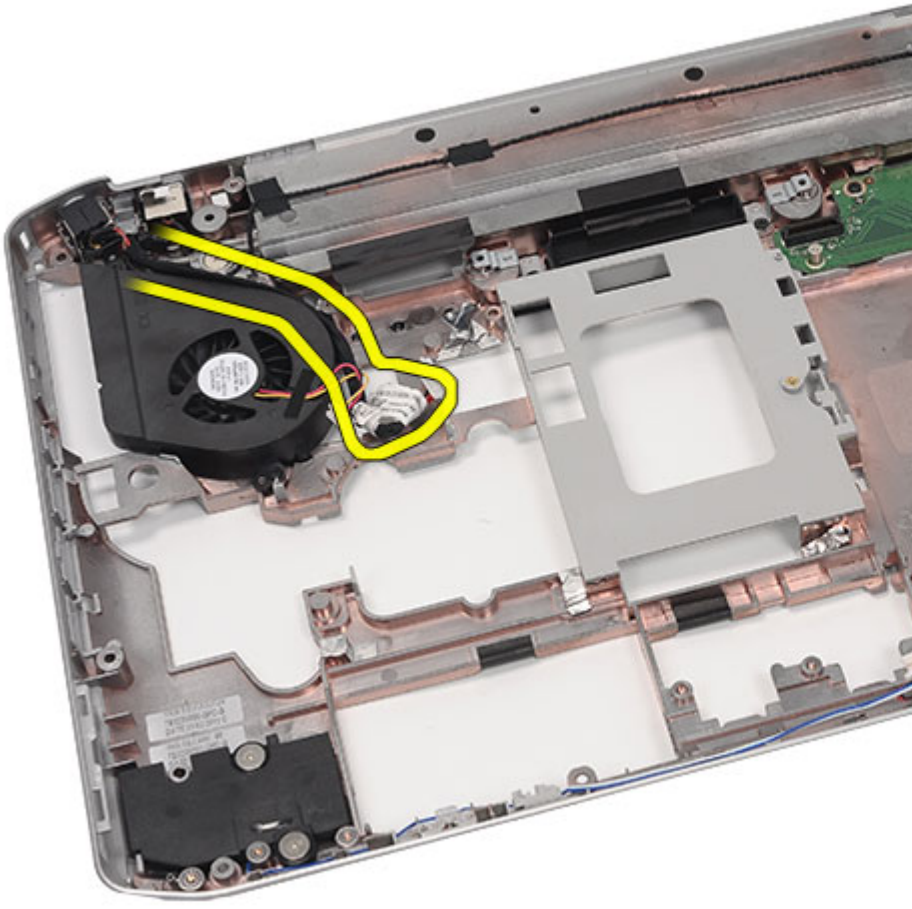
Installing the Modem Connector

1. Secure the modem connector into the routing channel on the thermal fan.
2. Replace the *system board*.
3. Replace the *support brackets*.
4. Replace the *audio board*.
5. Replace the *bluetooth*.
6. Replace the *audio board*.
7. Replace the *display assembly*.
8. Replace the *ExpressCard/Smart Card/PCMCIA module*.
9. Replace the *palm rest*.
10. Replace the *processor*.
11. Replace the *heat sink*.
12. Replace the *CPU door*.
13. Replace the *wireless local area network (WLAN)*
14. Replace the *wireless wide area network (WWAN)*
15. Replace the *hard drive*.
16. Replace the *optical drive*.
17. Replace the *keyboard*.
18. Replace the *keyboard trim*.
19. Replace the *memory*.
20. Replace the *back panel*.
21. Replace the *secure digital (SD) card*.
22. Replace the *subscriber identity module (SIM) card*.
23. Replace the *battery*.
24. Follow the procedures in *After Working Inside Your Computer*.

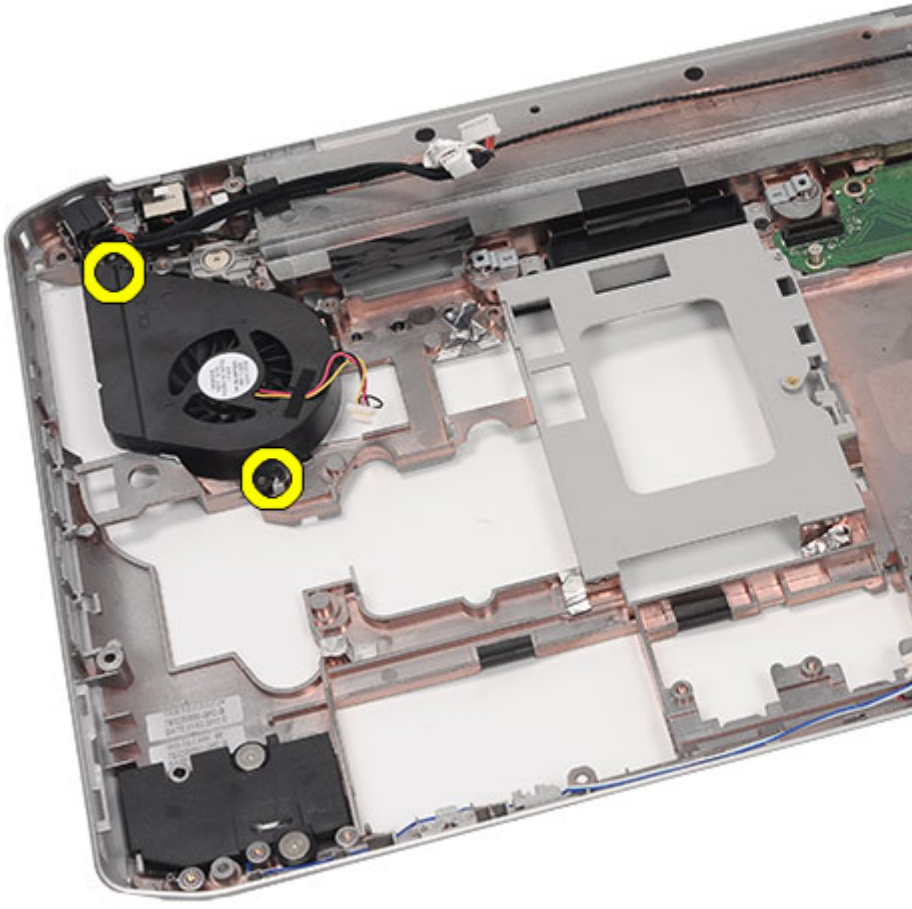
Thermal Fan 31

Removing the Thermal Fan

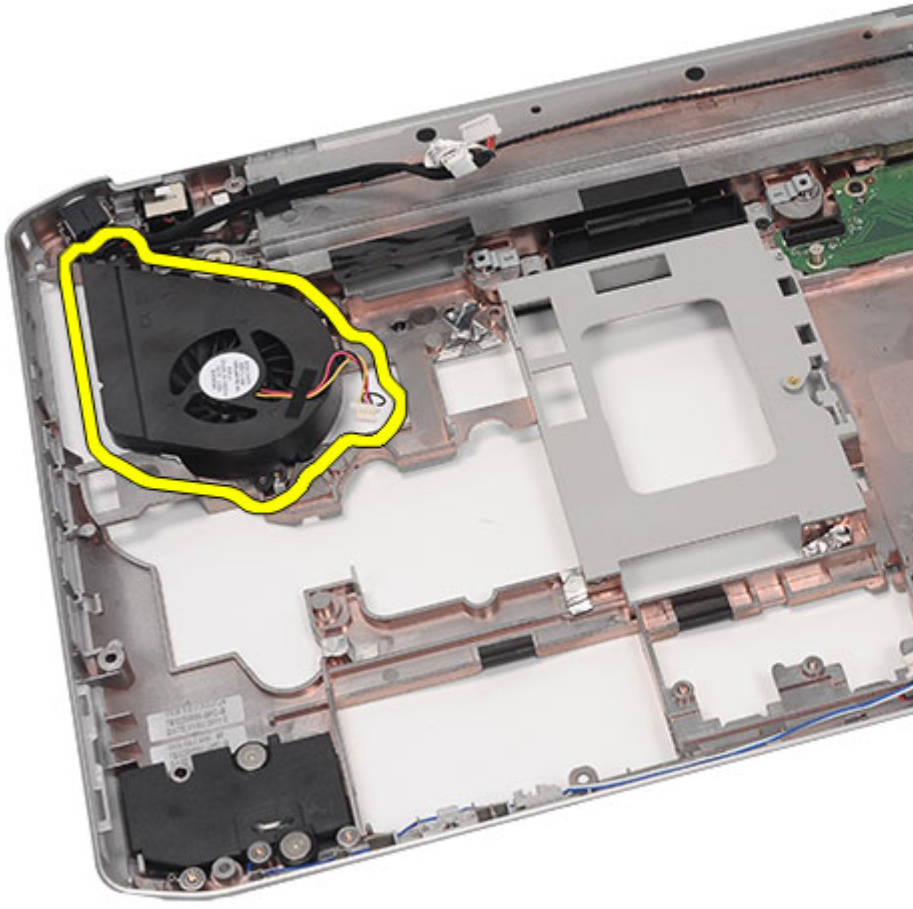
1. Follow the procedures in *Before Working On Your Computer*.
2. Remove the *battery*.
3. Remove the *subscriber identity module (SIM) card*.
4. Remove the *secure digital (SD) card*.
5. Remove the *back panel*.
6. Remove the *memory*.
7. Remove the *keyboard trim*.
8. Remove the *keyboard*.
9. Remove the *optical drive*.
10. Remove the *hard drive*.
11. Remove the *wireless local area network (WLAN)*.
12. Remove the *wireless wide area network (WWAN)*.
13. Remove the *CPU door*.
14. Remove the *heat sink*.
15. Remove the *processor*.
16. Remove the *palm rest*.
17. Remove the *ExpressCard/Smart Card/PCMCIA module*.
18. Remove the *display assembly*.
19. Remove the *LED board*.
20. Remove the *support brackets*.
21. Remove the *system board*.
22. Disengage the power connector and the modem connector cables from the routing channel.



23. Remove the screw that secures the thermal fan.



24. Remove the thermal fan.



Installing the Thermal Fan

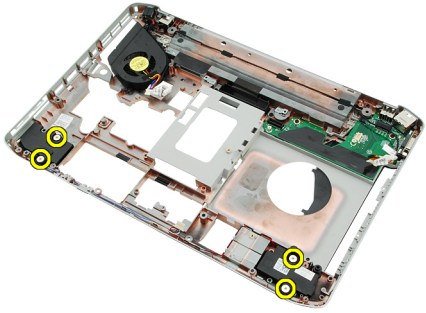
1. Connect the processor fan in the computer.
2. Tighten the screws to secure the processor fan.
3. Secure the power connector and the modem connector cables to the routing channels.
4. Replace the *system board*.
5. Replace the *brackets*.
6. Replace the *LED board*.
7. Replace the *display assembly*.
8. Replace the *ExpressCard/Smart Card/PCMCIA module*.
9. Replace the *palm rest*.
10. Replace the *processor*.
11. Replace the *heat sink*.
12. Replace the *CPU door*.
13. Replace the *wireless local area network (WLAN)*.
14. Replace the *wireless wide area network (WWAN)*.
15. Replace the *hard drive*.
16. Replace the *optical drive*.
17. Replace the *keyboard*.
18. Replace the *keyboard trim*.
19. Replace the *memory*.
20. Replace the *back panel*.
21. Replace the *secure digital (SD) card*.
22. Replace the *subscriber identity module (SIM) card*.
23. Replace the *battery*.
24. Follow the procedures in *After Working Inside Your Computer*.

Speaker

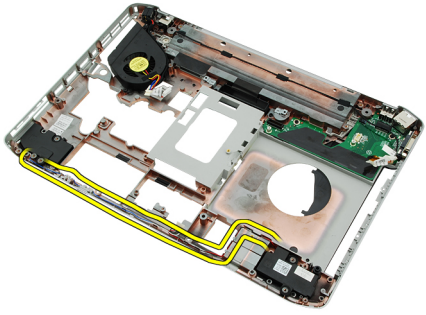
32

Removing the Speakers

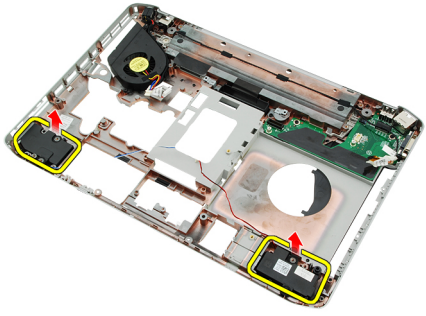
1. Follow the procedures in *Before Working On Your Computer*.
2. Remove the *battery*.
3. Remove the *subscriber identity module (SIM) card*.
4. Remove the *secure digital (SD) card*.
5. Remove the *back panel*.
6. Remove the *memory*.
7. Remove the *keyboard trim*.
8. Remove the *keyboard*.
9. Remove the *optical drive*.
10. Remove the *hard drive*.
11. Remove the *wireless local area network (WLAN)*.
12. Remove the *wireless wide area network (WWAN)*.
13. Remove the *CPU door*.
14. Remove the *heat sink*.
15. Remove the *processor*.
16. Remove the *palm rest*.
17. Remove the *ExpressCard/Smart Card/PCMCIA module*.
18. Remove the *display assembly*.
19. Remove the *LED board*.
20. Remove the *support brackets*.
21. Remove the *system board*.
22. Remove the *bluetooth card*.
23. Remove the *audio board*.
24. Remove the screws that secure the speakers.



25. Remove the speaker cables from the routing channels.



26. Remove the speakers.



Installing the Speakers

1. Secure the speaker cables to the routing channels.
2. Connect the speakers.
3. Tighten the screws to secure the speakers.
4. Replace the *audio board*.
5. Replace the *Bluetooth*.
6. Replace the *system board*.
7. Replace the *support brackets*.
8. Replace the *LED board.*.
9. Replace the *display assembly*.
10. Replace the *ExpressCard/Smart Card/PCMCIA module*.
11. Replace the *palm rest*.
12. Replace the *processor*.
13. Replace the *heat sink*.
14. Replace the *CPU door*.
15. Replace the *wireless local area network (WLAN)*.
16. Replace the *wireless wide area network (WWAN)*.
17. Replace the *hard drive*.
18. Replace the *optical drive*.
19. Replace the *keyboard*.
20. Replace the *keyboard trim*.
21. Replace the *keyboard trim and keyboard*.
22. Replace the *memory*.
23. Replace the *back panel*.
24. Replace the *secure digital (SD) card*.
25. Replace the *subscriber identity module (SIM) card*.
26. Replace the *battery*.
27. Follow the procedures in *After Working Inside Your Computer*.

Display Bezel

33

Removing the Display Bezel

1. Follow the procedures in *Before Working On Your Computer*.
2. Remove the *battery*.
3. Pry up the bottom edge of the display bezel.

4. Work your way around the sides and the top edge of the display bezel.

5. Remove the display bezel.

Installing the Display Bezel

1. Place the display bezel on the computer.
2. From the top edge, press downward on the display bezel to engage the tabs om all the edges.
3. Work your way around the side and the bottom edge.
4. Replace the *battery*.
5. Follow the procedures in *After Working Inside Your Computer*.

Display Panel

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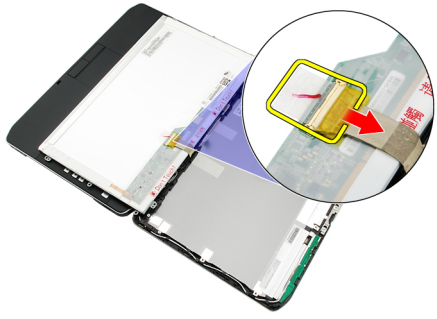
Removing the Display Panel

1. Follow the procedures in *Before Working On Your Computer*.
2. Remove the *battery*.
3. Remove the *display bezel*.
4. Remove the screws that secure the display panel.

5. Disconnect the low-voltage differential signaling (LVDS) cable from the back of the display panel.



6. Remove the display panel from the display assembly.

7. Remove the screws that secure the display brackets to the display panel and remove the brackets.

Installing the Display Panel

1. Align the display brackets with the display panel.
2. Tighten the screws to secure the display panel.
3. Connect the low-voltage differential signaling (LVDS) cable to the back of the display panel.
4. Place the display panel in the display cover.
5. Tighten the screws to secure the display panel.
6. Replace the *display bezel*.
7. Replace the *battery*.
8. Follow the procedures in *After Working Inside Your Computer*.

Display Hinges

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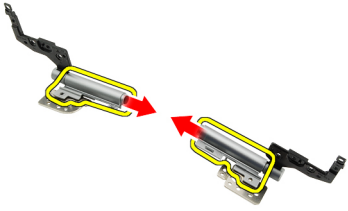
Removing the Display Hinges

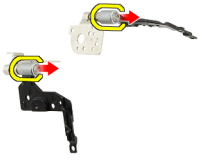
1. Follow the procedures in *Before Working On Your Computer*.
2. Remove the *battery*.
3. Remove the *back panel*.
4. Remove the *keyboard trim*.
5. Remove the *keyboard*.
6. Remove the *optical drive*.
7. Remove the *CPU door*.
8. Remove the *palm rest*.
9. Remove the *display assembly*.
10. Remove the *display bezel*..
11. Remove the *display panel*.
12. Remove the screws that secure the display hinges.

13. Remove the display hinges from the display assembly.

14. Separate the display hinge towers from the hinges.



15. Remove the hinge caps from the display hinges.



Installing the Display Hinges

1. Secure the display hinge caps onto the ends of the hinges.
2. Insert the display hinges into the hinge towers.
3. Insert the low-voltage differential signaling (LVDS) cable into the left hinge tower.
4. Replace the left hinge on the display cover.
5. Replace the antenna cables into the right hinge tower.
6. Replace the right hinge on the display cover.
7. Tighten the screw to secure the display hinges.
8. Replace the *display panel*.
9. Replace the *display bezel*.
10. Replace the *display assembly*.
11. Replace the *palm rest*.
12. Replace the *CPU door*.
13. Replace the *optical drive*.
14. Replace the *keyboard*.
15. Replace the *keyboard trim*.
16. Replace the *back panel*..
17. Replace the *battery*.
18. Follow the procedures in *After Working Inside Your Computer*.

Camera

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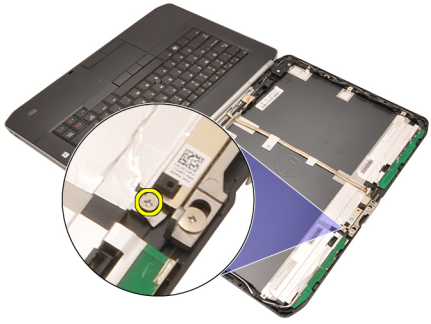
Removing the Camera Module

1. Follow the procedures in *Before Working On Your Computer*.
2. Remove the *battery*.
3. Remove the *display bezel*.
4. Remove the *display panel*.
5. Disconnect the camera cable.

6. Loosen the screw that secures the camera module.



7. Lift and remove the camera module.

Installing the Camera Module

1. Place the camera module on the display cover.
2. Tighten the screw to secure the camera.
3. Connect the camera cable to the camera module.
4. Replace the *display panel*
5. Replace the *display bezel*.
6. Replace the *battery*.
7. Follow the procedures in *After Working Inside Your Computer*.

Specifications 37

Technical Specifications

NOTE: Offerings may vary by region. The following specifications are only those required by law to ship with your computer. For more information regarding the configuration of your computer, click **Start** → **Help and Support** and select the option to view information about your computer.

System Information	
Chipset	
Latitude 5420/E5420/ 5520/E5520	Intel HM65 Express chipset
Latitude E5420m/E5520m	Intel GM45 Express chipset
DRAM bus width	64-bit
Flash EPROM	SPI 32 Mbits
PCIe Gen1 bus	100 MHz

Processor	
Types	
Latitude 5420/E5420/ 5520/E5520	Intel Core i3/i5/i7 series
Latitude E5420m/E5520m	Intel Core 2 series
	Intel Celeron (Socket P) series

Memory	
Memory connector	two SODIMM slots
Memory capacity	1 GB, 2 GB, 4 GB, or 8 GB
Memory type	
Latitude 5420/E5420/5520/E5520	DDR3 SDRAM, 1333 MHz
Latitude E5420m/E5520m	DDR3 SDRAM, 1066 MHz

Memory	
Minimum memory	1 GB
Maximum memory	8 GB
	NOTE: Only 64-bit operating systems support more than 4 GB memory.

Audio	
Type	two-channel high definition audio
Controller	92HD90B
Stereo Conversion	24-bit (analog-to-digital and digital-to-analog)
Interface:	
Internal	high definition audio
External	microphone-in connector, stereo headphones/external speakers connector
Speakers	1.5 W stereo
Internal speaker amplifier	1.5 W mono
Volume controls	media buttons for Media control

Video	
Type	Intel UMA video
Data bus	integrated video
Video controller	
Latitude 5420/E5420/5520/E5520	Intel HD Graphics
	Intel HD Graphics 3000
Latitude E5420m/E5520m	Intel GM45
Output	15-pin video connector
	19-pin HDMI connector

Communications	
Network adapter	10/100/1000 Mbps Ethernet LAN
Wireless	internal wireless local area network (WLAN), wireless wide area network (WWAN), and Bluetooth wireless support

Ports and Connectors	
Audio	microphone connector, stereo headphone/ speakers connector
Video	15-pin VGA connector
Network adapter	RJ-45 connector
USB	three 4-pin USB 2.0-compliant connectors, one eSATA/USB 2.0-compliant connector
Memory card reader	5-in-1 memory card reader

Display	
Type	White Light Emitting Diode (WLED) display
Size	
Latitude 5420/E5420/E5420m	14.0 inch high definition WLED
Latitude 5520/E55420/E5520m	15.6 inch high definition WLED
Active area (X/Y)	
Latitude 5420/E5420/E5420m	309.60 mm/173.90 mm
Latitude 5520/E55420/E5520m	344.20 mm/193.50 mm
Dimensions:	
Height	
Latitude 5420/E5420/E5420m	192.50 mm (7.57 inches)
Latitude 5520/E55420/E5520m	210.00 mm (8.27 inches)
Width	
Latitude 5420/E5420/E5420m	324.00 mm (12.75 inches)
Latitude 5520/E55420/E5520m	360.00 mm (14.17 inches)

Display	
Z-Height	
Latitude 5420/E5420/E5420m	5.20 mm (0.20 inch)
Latitude 5520/E55420/E5520m	5.80 mm (0.23 inch)
Diagonal	
Latitude 5420/E5420/E5420m	344.6 mm (14.00 inches)
Latitude 5520/E55420/E5520m	396.24 mm (15.60 inches)
Maximum resolution	
Latitude 5420/E5420/E5420m	
HD	1366 x 768 at 262 K colors
HD+	1600 x 900 at 262 K colors
Latitude 5520/E55420/E5520m	
HD	1366 x 768 at 263 K colors
FHD	1920 x 1080 at 262 K colors
Typical Brightness	200 nits
Operating angle	0° (closed) to 135°
Refresh rate	60 Hz
Minimum Viewing angles:	
Horizontal	+40°/–40°
Vertical	+10°/–30°
Pixel pitch	
Latitude 5420/E5420/E5420m	
HD	0.2265 mm x 0.2265 mm
HD+	0.1935 mm x 0.1935 mm
Latitude 5520/E55420/E5520m	
HD	0.2520 mm x 0.2520 mm
FHD	0.1935 mm x 0.1935 mm

Keyboard	
Number of keys	United States: 86 keys, United Kingdom: 87 keys, Brazil: 87 keys, and Japan: 90 keys
Layout	QWERTY/AZERTY/Kanji

Touchpad	
Active Area	
X-axis	80.00 mm
Y-axis	40.70 mm

Battery	
Type	4-, 6- or 9-cell "smart" lithium ion
Dimensions:	
Height	
4-, 6-, and 9-cell	20.00 mm (0.79 inch)
Width	
4- and 6-cell	208.00 mm (8.18 inches)
9-cell	214.00 mm (8.43 inches)
Depth	
4- and 6-cell	48.08 mm (1.89 inches)
9-cell	71.79 mm (2.83 inches)
Weight	
4-cell	240.00 g (0.53 lb)
6-cell	344.73 g (0.76 lb)
9-cell	508.20 g (1.12 lb)
Voltage	
4-cell	14.8 VDC
6- and 9-cell	11.1 VDC
Temperature range:	

Battery		
Operating	0 °C to 50 °C (32 °F to 122 °F)	
Non-Operating	–40 °C to 85 °C (–40 °F to 185 °F)	
	NOTE: The battery pack is capable of safely withstanding the above storage temperatures with 100% charge.	
	NOTE: The battery pack is also capable of withstanding storage temperatures from –20 °C to +60 °C with no degradation in its performance.	
Coin-cell battery	3 V CR2032 lithium coin cell	

AC Adapter		
Input voltage	100 VAC to 240 VAC	
Input current (maximum)	1.5 A, 1.6 A, or 1.7 A	
Input frequency	50 Hz to 60 Hz	
Output power	65 W or 90 W	
Output current	65 W	90 W
	3.34 A (continuous)	4.62 A (continuous)
Rated output voltage	19.5 +/– 1.0 VDC	
Dimensions		
	65 W	90 W
Height	16.00 mm (0.63 inch)	16.00 mm (0.63 inch)
Width	66.00 mm (2.60 inches)	70.00 mm (2.76 inches)
Length	127.00 mm (5.00 inches)	147.00 mm (5.79 inches)
Temperature range:		
Operating	0 °C to 40 °C (32 °F to 104 °F)	
Non-Operating	–40 °C to 70 °C (–40 °F to 158 °F)	

Physical	
Height	
Latitude 5420/E5420/E5420m	29.90 mm to 32.50 mm (1.18 inches to 1.28 inches)
Latitude 5520/E5520/E5520m	30.20 mm to 33.20 mm (1.19 inches to 1.31 inches)
Width	
Latitude 5420/E5420/E5420m	350.00 mm (13.78 inches)
Latitude 5520/E5520/E5520m	388.00 mm (15.28 inches)
Depth	
Latitude 5420/E5420/E5420m	240.00 mm (9.45 inches)
Latitude 5520/E5520/E5520m	251.00 mm (9.88 inches)
Weight	
Latitude 5420/E5420/E5420m	2.27 kg (5.00 lb)
Latitude 5520/E5520	2.54 kg (5.60 lb)
Latitude E5520m	2.63 kg (5.80 lb)

Environmental	
Temperature:	
Operating	0 °C to 35 °C (32 °F to 95 °F)
Storage	–40 °C to 65 °C (–40 °F to 149 °F)
Relative humidity (maximum):	
Operating	10 % to 90 % (noncondensing)
Storage	5 % to 95 % (noncondensing)
Altitude (maximum):	
Operating	–15.20 m to 3048 m (–50 ft to 10,000 ft)
Non-Operating	–15.20 m to 10,668 m (–50 ft to 35,000 ft)
Airborne contaminant level	G1 or lower as defined by ISA-S71.04–1985

System Setup 38

Overview

System Setup allows you to:

- change the system configuration information after you add, change, or remove any hardware in your computer.
- set or change a user-selectable option such as the user password.
- read the current amount of memory or set the type of hard drive installed.

CAUTION: Unless you are an expert computer user, do not change the settings for this program. Certain changes can cause your computer to work incorrectly.

Entering System Setup

1. Turn on (or restart) your computer.
2. When the blue DELL logo is displayed, you must watch for the F2 prompt to appear.
3. Once the F2 prompt appears, press <F2> immediately.

NOTE: The F2 prompt indicates that the keyboard has initialized. This prompt can appear very quickly, so you must watch for it to display, and then press <F2> . If you press <F2> before you are prompted, this keystroke will be lost.

4. If you wait too long and the operating system logo appears, continue to wait until you see the Microsoft Windows desktop. Then, shut down your computer and try again.

System Setup Options

NOTE: Depending on the computer and its installed devices, the items listed in this section may or may not appear.

General

System Information	This section lists the primary hardware features of your computer. • System Information

General

	• Memory Information • Processor Information • Device Information
Battery Information	Displays the battery status and the type of AC adapter connected to the computer
Boot Sequence	Allows you to change the order in which the computer attempts to find an operating system. • Diskette Drive • Internal HDD • USB Storage Device • CD/DVD/CD-RW Drive • Onboard NIC • Cardbus NIC
Boot List Option	Allows you to change the boot list option. • Legacy • UEFI
Date/Time	Allows you to change the date and time.

System Configuration

Integrated NIC	Allows you to configure the integrated network controller. The options are: • Disabled • Enabled • Enabled w/PXE • Enabled w/ImageServer Default Setting: **Enabled w/PXE**
System Management	Allows you to control the systems management mechanism. The options are: • Disabled • Alert Only • ASF 2.0

- DASH/ASF 2.0

Default Setting: **Disabled**

Serial Port

Identifies and defines the serial port settings. You can set the serial port to:

- Disabled
- Auto
- COM1
- COM2
- COM3
- COM4

NOTE: The operating system may allocate resources even though the setting is disabled.

Parallel Port

Allows you to configure the parallel port on the docking station. The options are:

- Disabled
- AT
- PS2
- ECP
- DMA1
- DMA3

Default Setting: **AT**

Serial Port

Allows you to configure the integrated serial port. The options are:

- Disabled
- COM1
- COM2
- COM3
- COM4

Default Setting: **COM1**

SATA Operation

Allows you to configure the internal SATA hard-drive controller. The options are:

- Disabled

- ATA
- AHCI

Default Setting: **AHCI**

NOTE: SATA is configured to support RAID mode.

USB Controller — Allows you to control the USB controller. The options are:

- Enable USB Controller
- Diasabe USB Mass Storage Dev
- Disable USB Controller

Default Setting: **Enable USB Controller**

SMART Reporting — Allows you to activate the Self Monitoring Analysis and Reporting Technology (SMART).
Default Setting: **Disabled**

Diskette Drive — Allows you to activate the diskette drives. The options are:

- Disabled
- Enabled

Default Setting: **Disabled**

Miscellaneous Devices — Allows you to enable or disable the following devices:

- Internal Modem
- Fixed Bay
- eSATA Ports
- Hard Drive Free Fall Protection
- External USB Port
- Microphone
- Camera

You can also enable or disable Media Card and 1394 together.
Default Setting: All devices are enabled.

Keyboard illumination — Allows you to configure the keyboard illumination feature. The options are:

- Disabled
- Level is 25%

	• Level is 50% • Level is 50% • Levels is 100% Default Setting: **Level is 75%**
Drives	Allows you to configure the SATA drives on board. The options are: • SATA-0 • SATA-1 • SATA-4 • SATA-5 Default Setting: All drives are enabled.

Video

LCD Brightness	Allows you to set the display brightness depending up on the power source (On Battery and On AC).

NOTE: The Video setting will only be visible when a video card is installed into the system.

Security

Admin Password	Allows you to set, change, or delete the administrator (admin) password. **NOTE:** You must set the admin password before you set the system or hard drive password. **NOTE:** Successful password changes take effect immediately. **NOTE:** Deleting the admin password automatically deletes the system password and the hard drive password. **NOTE:** Successful password changes take effect immediately. Default Setting: **Not set**
System Password	Allows you to set, change or delete the system password.

	NOTE: Successful password changes take effect immediately. Default Setting: **Not set**
Internal HDD-0 Password	Allows you to set or change the system's internal hard-disk drive. **NOTE:** Successful password changes take effect immediately. Default Setting: **Not set**
Password Bypass	Allows you to enable or disable the permission to bypass the System and the Internal HDD password, when they are set. The options are: • Disabled • Reboot bypass Default Setting: **Disabled**
Password Change	Allows you to enable the disable permission to the System and Hard Drive passwords when the admin password is set. Default Setting: **Allow Non-Admin Password Changes** is not selected
Strong Password	Allows you to enforce the option to always set strong passwords. Default Setting: **Enable Stron Password** is not selected.
OROM Keyboard Access	Allows you to set an option to enter the Option ROM Configuration screens using hotkeys during boot. The options are: • Enable • One Time Enable • Disable Default Setting: **Enable**
TPM Security	Allows you to enable the Trusted Platform Module (TPM) during POST. Default Setting: The option is disabled.

Security	
Computrace	Allows you to activate or disable the optional Computrace software The options are: • Deactivate • Disable • Activate **NOTE:** The Activate and Disable options will permanently activate or disable the feature and no further changes will be allowed Default Setting: **Deactivate**
CPU XD Support	Allows you to enable the Execute Disable mode of the processor. Default Setting: **Enable CPU XD Support**
Non-Admin Setup Changes	Allows you to determine whether changes to the setup options are allowed when an Administrator Password is set. If disabled the setup options are locked by the admin password.
Password Configuration	Allows you to determine the minimum and maximum length of Administrator and System passwords.
Admin Setup Lockout	Allows you to prevent users from entering Setup when an Administrator password is set. Default Setting: **Enable Admin Setup Lockout** is not selected.

Performance	
Multi Core Support	This field specifies whether the process will have one or all cores enabled. The performance of some applications will improve with the additional cores. This option is enabled by default.Allows you to enable or disable multi-core support for the processor. The options are: • All • 1 • 2 Default Setting: **All**

Performance

Intel® SpeedStep™	Allows you to enable or disable the Intel SpeedStep feature. Default Setting: **Enable Intel SpeedStep**
C States Control	Allows you to enable or disable the additional processor sleep states. Default Setting: The options **C states**, **C3**, **C6**, **Enhanced C-states**, and **C7** options are enabled.
Limit CPUID	Allows you to limit the maximum value the processor Standard CPUID Function will support. Default Setting: **Enable CPUID**
Intel® TurboBoost™	Allows you to enable or disable the Intel TurboBoost mode of the processor. Default Setting: **Enable Intel TurboBoost**
Hyper-Thread Control	Allows you to enable or disable the HyperThreading in the processor. Default Setting: **Enabled**

Power Management

AC Behavior	Allows you to enable or disable the computer from turning on automatically when an AC adapter is connected. Default Setting: **Wake on AC** is not selected.
Auto On Time	Allows you to set the time at which the computer must turn on automatically. The options are: • Disabled • Every Day • Weekdays Default Setting: **Disabled**
USB Wake Support	Allows you to enable USB devices to wake the system from Standby. **NOTE:** This feature is only functional when the AC power adapter is connected. If the AC power adapter is removed during Standby, the system setup will remove power from all of the USB ports to conserve battery power.

Power Management

Wireless Radio Control	Allows you to enable or disable the feature that automatically switches from wired or wireless networks without depending on the physical connection. Default Setting: **Disabled**
Wake on LAN	Allows you to enable or disable the feature that powers on the computer from the Off state when triggered by a LAN signal. Default Setting: **Disabled**
ExpressCharge	Allows you to enable or disable the ExpressCharge feature. The options are: • Standard • ExpressCharge Default Setting: **Standard**
Charger Behavior	Allows you to enable or disable the battery charger. The options are; • Disabled • Enabled Default Setting: **Enabled**

POST Behavior

Adapter Warnings	Allows you to enable or disable the system setup (BIOS) warning messages when you use certain power adapters. Default Setting: **Enable Adapter Warnings**
Mouse/Touchpad	Allows you to define how the system handles mouse and touch pad input. The options are: • Serial Mouse • PS2 Mouse • Toushpad/PS-2 Mouse Default Setting: **Touchpad/Mouse 2**
Numlock Enable	Allows you to enable the Numlock option when the computer boots. Default Setting: **Enable Network**

POST Behavior

USB Emulation	Allows you to enable or disable the Legacy USB Emulation. Default Setting: **Enable Legacy USB Emulation** is selected.
Fn Key Emulation	Allows you to set the option where the <Scroll Lock> key is used to simulate the <Fn> key feature. Default Setting: **Enable Fn Key Emulation**
POST HotKeys	Allows you enable the sign-on screen message display indicating the keystroke sequence to access the System Setup option menu. Default Setting: **Enable F12 Boot Option Menu**
Fastboot	Allows to set the option to speed up the boot process. The options are: • Minimal • Thorough • Auto Default Setting: **Thorough**

Virtualization Support

Virtualization	Allows you to enable or disable the Intel Virtualization Technology. Default Setting: **Enable Intel Virtualization Technology**

Wireless

Wireless Switch	Allows to set the wireless devices that can be controlled by the wireless switch. The options are: • WWAN • WLAB • Bluetooth Default Setting: All the options are selected.
Wireless Device Enable	Allows you to enable or disable the wireless devices.

Maintenance	
Service Tag	Displays the Service Tag of your computer.
Asset Tag	Allows you to create a system asset tag if an asset tag is not already set. This option is not set by default.
SERR Messages	Controls the SERR message mechanism. This option is not set by default. Some graphics cards require that the SERR message mechanism be disabled.

System Logs	
BIOS Events	Allows you to view and clear the System Setup (BIOS) POST events.
DellDiag Events	Allows you to view and clear the DellDiag events.
Thermal Events	Allows you to view and clear the Thermal events.
Power Events	Allows you to view and clear the Power events.
BIOS Progress Events	Allows you to view and clear the BIOS Progress Events.

Diagnostics 39

Diagnostics

Device Status Lights

	Turns on when you turn on the computer and blinks when the computer is in a power management mode.
	Turns on when the computer reads or writes data.
	Turns on steadily or blinks to indicate battery charge status.
	Turns on when wireless networking is enabled.
	Turns on when a card with Bluetooth wireless technology is enabled. To turn off only the Bluetooth wireless technology function, right-click the icon in the system tray and select **Disable Bluetooth Radio**

Battery Status Lights

If the computer is connected to an electrical outlet, the battery light operates as follows:

Alternately blinking amber light and blue light	An unauthenticated or unsupported non-Dell AC adapter is attached to your laptop.
Alternately blinking amber light with steady blue light	Temporary battery failure with AC adapter present.
Constantly blinking amber light	Fatal battery failure with AC adapter present.
Light off	Battery in full charge mode with AC adapter present.

Solid white light on	Battery in charge mode with AC adapter present.

Battery Charge and Health

To check the battery charge, press and release the status button on the battery charge gauge to illuminate the charge-level lights. Each light represents approximately 20 percent of the total battery charge. For example, if four lights are on, the battery has 80 percent of its charge remaining. If no lights appear, the battery has no charge.

To check battery health using the charge gauge, press and hold the status button on the battery charge gauge for at least 3 seconds. If no lights appear, the battery is in good condition and more than 80 percent of its original charge capacity remains. Each light represents incremental degradation. If five lights appear, less than 60 percent of the charge capacity remains, and you should consider replacing the battery.

Keyboard Status Lights

The lights located above the keyboard indicate the following:

	Turns on when the numeric keypad is enabled.
	Turns on when the Caps Lock function is enabled.
	Turns on when the Scroll Lock function is enabled.

Contacting Dell 40

Contacting Dell

NOTE: If you do not have an active Internet connection, you can find contact information on your purchase invoice, packing slip, bill, or Dell product catalog.

Dell provides several online and telephone-based support and service options. Availability varies by country and product, and some services may not be available in your area. To contact Dell for sales, technical support, or customer service issues:

1. Visit **support.dell.com**.
2. Select your support category.
3. If you are not a U.S. customer, select your country code at the bottom of the page, or select **All** to see more choices.
4. Select the appropriate service or support link based on your need.