This guide is a troubleshooting reference used for maintaining and servicing the computer. It provides comprehensive information on identifying computer features, components, and spare parts; troubleshooting computer problems; and performing computer disassembly procedures.
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Maintenance and Service Guide
HP Pavilion dv4000 Notebook PC
Compaq Presario V4000 Notebook PC
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Product Description

The HP Pavilion dv4000 Notebook PC 1 and Compaq Presario V4000 Notebook PC 2 offer advanced modularity, Intel® Pentium® M and Celeron® M processors, and extensive multimedia support.
1.1 Features

- Intel Pentium M 2.00-, 1.73-, 1.60-, or 1.50-GHz processors, or Intel Celeron M 1.50-, 1.40-, or 1.30-GHz processors, varying by computer model
- 15.4-inch, WXGA, TFT (1280 × 800) with BrightView display, or 15.4-inch, WXGA, TFT (1280 × 800) display, varying by computer model
- 100-, 80-, 60-, or 40-GB high-capacity hard drive, varying by computer model
- 256-MB DDR synchronous DRAM (SDRAM) at 333 MHz, expandable to 2.0 GB
- Microsoft® Windows® XP Home Edition or Windows XP Professional, varying by computer model
- Full-size Windows keyboard with embedded numeric keypad
- TouchPad pointing device, including dedicated horizontal (Compaq Presario V4000 models) and vertical scroll regions
- Integrated 10Base-T/100Base-TX Ethernet local area network (LAN) network interface card (NIC) with RJ-45 jack
- Integrated high-speed 56K modem with RJ-11 jack
- Integrated wireless support for Mini PCI IEEE 802.11b/g WLAN device (select models only)
- Support for one Type I or Type II PC Card slot, with support for both 32-bit (CardBus) and 16-bit PC Cards
- Support for ExpressCard slot
- External 65-watt AC adapter with 3-wire power cord
- 12- or 6-cell Li-Ion battery pack, varying by computer model
- Stereo speakers
- Volume up, volume mute, and volume down buttons
- QuickPlay buttons (select models only)
- Support for the following optical drives:
  - DVD±RW and CD-RW Combo Drive
  - DVD/CD-RW Combo Drive
Numerous references are made throughout this **Maintenance and Service Guide** to “full-featured” and “defeatured” models. A model is considered to be full-featured if it has 4 Universal Serial Bus ports and the following components:

- Digital Media Slot/Memory Reader
- Expansion port
- ExpressCard slot
- IEEE 1394 port
- Infrared port
- Quick Launch buttons (HP Pavilion dv4000 models only)

A computer model is considered to be defeatured if it has only 2 Universal Serial Bus ports and none of the components listed above.

**Connectors:**
- Audio-in (microphone)
- Audio-out (headphone)
- Digital Media Slot (full-featured models only)
- Expansion port (full-featured models only)
- ExpressCard slot (full-featured models only)
- External monitor
- IEEE 1394 (full-featured models only)
- Infrared (full-featured models only)
- PC Card
- Power
- Primary battery
- RJ-11 (modem)
- RJ-45 (network)
- S-Video-out
- Serial port (full-featured models only)
- Smart card
- Universal Serial Bus (USB) v. 2.0 (4 ports on full-featured models, 2 ports on defeatured models)
1.2 Resetting the Computer

If the computer you are servicing has an unknown password, follow these steps to set a new password. These steps also clear CMOS:

1. Enter an incorrect password and press enter.

2. Repeat step 1 two more times.

   After the third entry of the incorrect password, the computer responds with a “System Disabled” message and provides an override password.


4. Access MS-DOS by clicking Start > All Programs > Accessories > Command Prompt.

5. Enter unlock6 xxxxx 0, where “xxxxx” is the password generated by the computer in step 2.

   The computer responds with another system-generated password.

6. Enter the password generated in step 5 on the disabled computer to enter the system BIOS. In the BIOS, navigate to the Security tab and Administrator Password. Enter the password generated in step 5 as the current password. Enter a new password to change it.

7. The password has been reset and all CMOS settings have been cleared.
1.3 Power Management

The computer comes with power management features that extend battery operating time and conserve power. The computer supports the following power management features:

- Standby
- Hibernation
- Setting customization by the user
- Hotkeys for setting the level of performance
- Battery calibration
- Lid switch standby/resume
- Power button
- Advanced Configuration and Power Management (ACPM) compliance
1.4 External Components

The external components on the front of the computer are shown below and described in Table 1-1. Depending on your computer model, component locations may vary.

![Front Components Diagram]
Table 1-1
Front Components

<table>
<thead>
<tr>
<th>Item</th>
<th>Component</th>
<th>Function</th>
</tr>
</thead>
<tbody>
<tr>
<td>1</td>
<td>Power light</td>
<td>■ On: Computer is turned on.</td>
</tr>
<tr>
<td></td>
<td></td>
<td>■ Blinking: Computer is in standby.</td>
</tr>
<tr>
<td></td>
<td></td>
<td>■ Off: Computer is off or in hibernation.</td>
</tr>
<tr>
<td>2</td>
<td>Battery light</td>
<td>■ On: The battery pack is charging.</td>
</tr>
<tr>
<td></td>
<td></td>
<td>■ Blinking: The battery pack has reached a low-battery condition.</td>
</tr>
<tr>
<td></td>
<td></td>
<td>■ Off: The battery pack is fully charged or not inserted.</td>
</tr>
<tr>
<td>3</td>
<td>Integrated Drive Electronics (IDE)</td>
<td>On or blinking: The internal hard drive or an optical drive is being accessed.</td>
</tr>
<tr>
<td></td>
<td>drive light</td>
<td></td>
</tr>
<tr>
<td>4</td>
<td>Consumer infrared (IR) lens (select</td>
<td>Links the computer to an optional remote control.</td>
</tr>
<tr>
<td></td>
<td>models only)</td>
<td></td>
</tr>
<tr>
<td>5</td>
<td>Speakers</td>
<td>Produce stereo sound.</td>
</tr>
<tr>
<td>6</td>
<td>Display release button</td>
<td>Opens the computer.</td>
</tr>
</tbody>
</table>
The external components on the right side of the HP Pavilion dv4000 are shown below and described in Table 1-2. Depending on your computer model, component locations may vary.

Right-Side Components, HP Pavilion dv4000
### Table 1-2
Right-Side Components, HP Pavilion dv4000

<table>
<thead>
<tr>
<th>Item</th>
<th>Component</th>
<th>Function</th>
</tr>
</thead>
<tbody>
<tr>
<td>1</td>
<td>Optical drive</td>
<td>Supports an optical disc, such as a CD or DVD.</td>
</tr>
<tr>
<td>2</td>
<td>Audio-out (headphone) jack (full-featured models only)</td>
<td>Connects an optional headphone or powered stereo speakers. Also connects the audio function of an audio/video device, such as a television or VCR.</td>
</tr>
<tr>
<td>3</td>
<td>Audio-in (microphone) jack (full-featured models only)</td>
<td>Connects an optional stereo microphone.</td>
</tr>
<tr>
<td>4</td>
<td>USB ports (full-featured models only)</td>
<td>Connect optional USB devices.</td>
</tr>
<tr>
<td>5</td>
<td>Monitor port (full-featured models only)</td>
<td>Connects an optional VGA monitor or projector.</td>
</tr>
<tr>
<td>6</td>
<td>S-Video-out jack (full-featured models only)</td>
<td>Connects the video function of an optional S-Video device, such as a television, VCR, or video capture card.</td>
</tr>
<tr>
<td>7</td>
<td>Security cable slot</td>
<td>Attaches an optional security cable to the computer.</td>
</tr>
</tbody>
</table>

✎ Number of USB ports vary by model.

✎ The purpose of security solutions is to act as a deterrent. These solutions do not prevent the product from being mishandled or stolen.
The external components on the right side of the Compaq Presario V4000 are shown below and described in Table 1-3. Depending on your computer model, component locations may vary.
<table>
<thead>
<tr>
<th>Item</th>
<th>Component Description</th>
<th>Function</th>
</tr>
</thead>
<tbody>
<tr>
<td>1</td>
<td>Optical drive</td>
<td>Supports an optical disc, such as a CD or DVD.</td>
</tr>
<tr>
<td>2</td>
<td>Audio-out (headphone) jack (full-featured models only)</td>
<td>Connects an optional headphone or powered stereo speakers. Also connects the audio function of an audio/video device, such as a television or VCR.</td>
</tr>
<tr>
<td>3</td>
<td>Audio-in (microphone) jack (full-featured models only)</td>
<td>Connects an optional stereo microphone.</td>
</tr>
</tbody>
</table>
| 4    | USB ports (full-featured models only) | Connect optional USB devices.  
|      | ✎ Number of USB ports vary by model. | |
| 5    | Monitor port (full-featured models only) | Connects an optional VGA monitor or projector. |
| 6    | S-Video-out jack (full-featured models only) | Connects the video function of an optional S-Video device, such as a television, VCR, or video capture card. |
| 7    | Security cable slot  | Attaches an optional security cable to the computer.  
|      | ✎ The purpose of security solutions is to act as a deterrent. These solutions do not prevent the product from being mishandled or stolen. | |
The external components on the left side of the HP Pavilion dv4000 are shown below and described in Table 1-4. Depending on your computer model, component locations may vary.

![Left-Side Components, HP Pavilion dv4000](image)

### Table 1-4

**Left-Side Components, HP Pavilion dv4000**

<table>
<thead>
<tr>
<th>Item</th>
<th>Component</th>
<th>Function</th>
</tr>
</thead>
<tbody>
<tr>
<td>1</td>
<td>Power connector</td>
<td>Connects the AC adapter cable.</td>
</tr>
<tr>
<td>2</td>
<td>RJ-11 (modem) jack</td>
<td>Connects a modem cable (not included).</td>
</tr>
<tr>
<td>3</td>
<td>RJ-45 (network) jack</td>
<td>Connects a network cable (not included).</td>
</tr>
<tr>
<td>4</td>
<td>Expansion port 2 (full-featured models only)</td>
<td>Connects the computer to an optional docking device.</td>
</tr>
<tr>
<td>5</td>
<td>USB ports</td>
<td>Connect optional USB devices.</td>
</tr>
</tbody>
</table>

✎ The computer has only one expansion port. The term expansion port 2 describes the type of expansion port.
<table>
<thead>
<tr>
<th>Item</th>
<th>Component</th>
<th>Function</th>
</tr>
</thead>
<tbody>
<tr>
<td>6</td>
<td>1394 port (4-pin; full-featured models only)</td>
<td>Connects an optional 1394a device such as a scanner, a digital camera, or a digital camcorder.</td>
</tr>
<tr>
<td>7</td>
<td>Digital Media Slot (full-featured models only)</td>
<td>Supports the following optional digital cards: SD (Secure Digital) Memory Card, SD I/O Card, Memory Stick, Memory Stick Pro, MultiMediaCard, xD-Picture Card, and SmartMedia.</td>
</tr>
<tr>
<td>8</td>
<td>Digital Media Slot light (full-featured models only)</td>
<td>On: An optional digital card is being accessed.</td>
</tr>
<tr>
<td>9</td>
<td>ExpressCard slot (full-featured models only)</td>
<td>Supports an optional ExpressCard.</td>
</tr>
<tr>
<td>10</td>
<td>PC Card slot</td>
<td>Supports an optional Type I or Type II 32-bit (CardBus) or 16-bit PC Card.</td>
</tr>
<tr>
<td>11</td>
<td>PC Card eject button</td>
<td>Ejects PC Cards from the PC Card slot.</td>
</tr>
<tr>
<td>12</td>
<td>Monitor port (full-featured models only)</td>
<td>Connects an optional VGA monitor or projector.</td>
</tr>
<tr>
<td>13</td>
<td>S-Video-out jack (full-featured models only)</td>
<td>Connects the video function of an optional S-Video device, such as a television, VCR, or video capture card.</td>
</tr>
<tr>
<td>14</td>
<td>Audio-in (microphone) jack (full-featured models only)</td>
<td>Connects an optional stereo microphone.</td>
</tr>
<tr>
<td>15</td>
<td>Audio-out (headphone) jack (defeatured models only)</td>
<td>Connects an optional headphone or powered stereo speakers. Also connects the audio function of an audio/video device, such as a television or VCR.</td>
</tr>
</tbody>
</table>
The external components on the left side of the Compaq Presario V4000 are shown below and described in Table 1-5. Depending on your computer model, component locations may vary.

![Left-Side Components, Compaq Presario V4000](image)

### Table 1-5

<table>
<thead>
<tr>
<th>Item</th>
<th>Component</th>
<th>Function</th>
</tr>
</thead>
<tbody>
<tr>
<td>1</td>
<td>Power connector</td>
<td>Connects the AC adapter cable.</td>
</tr>
<tr>
<td>2</td>
<td>RJ-11 (modem) jack</td>
<td>Connects a modem cable (not included).</td>
</tr>
<tr>
<td>3</td>
<td>RJ-45 (network) jack</td>
<td>Connects a network cable (not included).</td>
</tr>
<tr>
<td>4</td>
<td>Expansion port 2 (full-featured models only)</td>
<td>Connects the computer to an optional docking device.</td>
</tr>
<tr>
<td></td>
<td><img src="image" alt="expansion port 2" /></td>
<td>The computer has only one expansion port. The term <em>expansion port 2</em> describes the type of expansion port.</td>
</tr>
<tr>
<td>5</td>
<td>USB ports</td>
<td>Connect optional USB devices.</td>
</tr>
<tr>
<td></td>
<td><img src="image" alt="USB ports" /></td>
<td>Number of USB ports vary by model.</td>
</tr>
</tbody>
</table>
### Table 1-5

#### Left-Side Components, Compaq Presario V4000 (Continued)

<table>
<thead>
<tr>
<th>Item</th>
<th>Component</th>
<th>Function</th>
</tr>
</thead>
<tbody>
<tr>
<td>6</td>
<td>1394 port (4-pin; full-featured models only)</td>
<td>Connects an optional 1394a device such as a scanner, a digital camera, or a digital camcorder.</td>
</tr>
<tr>
<td>7</td>
<td>Memory Reader (full-featured models only)</td>
<td>Supports the following optional digital cards: SD (Secure Digital) Memory Card, SD I/O Card, Memory Stick, Memory Stick Pro, MultiMediaCard, xD-Picture Card, and SmartMedia.</td>
</tr>
<tr>
<td>8</td>
<td>Memory Reader light (full-featured models only)</td>
<td>On: An optional digital card is being accessed.</td>
</tr>
<tr>
<td>9</td>
<td>ExpressCard slot (full-featured models only)</td>
<td>Supports an optional ExpressCard.</td>
</tr>
<tr>
<td>10</td>
<td>PC Card slot</td>
<td>Supports an optional Type I or Type II 32-bit (CardBus) or 16-bit PC Card.</td>
</tr>
<tr>
<td>11</td>
<td>PC Card eject button</td>
<td>Ejects PC Cards from the PC Card slot.</td>
</tr>
<tr>
<td>12</td>
<td>Monitor port (full-featured models only)</td>
<td>Connects an optional VGA monitor or projector.</td>
</tr>
<tr>
<td>13</td>
<td>S-Video-out jack (defeatured models only)</td>
<td>Connects the video function of an optional S-Video device, such as a television, VCR, or video capture card.</td>
</tr>
<tr>
<td>14</td>
<td>Audio-in (microphone) jack (defeatured models only)</td>
<td>Connects an optional stereo microphone.</td>
</tr>
<tr>
<td>15</td>
<td>Audio-out (headphone) jack (defeatured models only)</td>
<td>Connects an optional headphone or powered stereo speakers. Also connects the audio function of an audio/video device, such as a television or VCR.</td>
</tr>
</tbody>
</table>
The standard keyboard components of the computer are shown below and described in Table 1-6.
Table 1-6

Standard Keyboard Components

<table>
<thead>
<tr>
<th>Item</th>
<th>Component</th>
<th>Function</th>
</tr>
</thead>
<tbody>
<tr>
<td>1</td>
<td>fn key</td>
<td>Combines with other keys to perform system tasks as hotkeys. For example, pressing fn+f7 decreases screen brightness.</td>
</tr>
<tr>
<td>2</td>
<td>caps lock key</td>
<td>Enables caps lock and turns on the caps lock light.</td>
</tr>
<tr>
<td>3</td>
<td>f1 to f12 keys (12)</td>
<td>Perform system and application tasks. When combined with fn, function keys perform additional tasks as hotkeys.</td>
</tr>
<tr>
<td>4</td>
<td>num lock key</td>
<td>Enables numeric lock, turns on the embedded numeric keypad, and turns on the num lock light.</td>
</tr>
<tr>
<td>5</td>
<td>Embedded numeric keypad keys (15)</td>
<td>Can be used like the keys on an external numeric keypad.</td>
</tr>
<tr>
<td>6</td>
<td>Arrow keys</td>
<td>Move the cursor around the screen.</td>
</tr>
<tr>
<td>7</td>
<td>Windows applications key</td>
<td>Displays a shortcut menu for items beneath the pointer.</td>
</tr>
<tr>
<td>8</td>
<td>Windows logo key</td>
<td>Displays the Microsoft Windows Start menu.</td>
</tr>
</tbody>
</table>
Product Description

The top components on HP Pavilion dv4000 models are shown below and described in Table 1-7.

![Top Components, HP Pavilion dv4000 Models](image)

**Table 1-7**

<table>
<thead>
<tr>
<th>Item</th>
<th>Component</th>
<th>Function</th>
</tr>
</thead>
</table>
| 1    | Power light   | - On: Computer is turned on.  
- Blinking: Computer is in standby.  
- Off: Computer is off or in hibernation. |
| 2    | Power button  | When the computer is  
- Off, press to start the computer.  
- On, briefly press to initiate hibernation.  
- In standby, briefly press to resume from standby.  
- In hibernation, briefly press to restore from hibernation. |

✎ If the system has stopped responding and Windows shutdown procedures cannot be used, press and hold for at least 4 seconds to turn off the computer.
### Table 1-7

#### Top Components, HP Pavilion dv4000 (Continued)

<table>
<thead>
<tr>
<th>Item</th>
<th>Component</th>
<th>Function</th>
</tr>
</thead>
<tbody>
<tr>
<td>3</td>
<td>Quick Launch buttons (select models only)</td>
<td>Launch default multimedia, digital imaging, or music applications (vary by model).</td>
</tr>
<tr>
<td>4</td>
<td>Volume mute button</td>
<td>Mutes or restores volume.</td>
</tr>
</tbody>
</table>
| 5    | Wireless light (select models only) | On: One or more internal wireless devices have been turned on.  
To establish a wireless connection, a wireless network must already be set up. |
| 6    | Wireless button (select models only) | Turns the wireless functionality on or off, but does not create a wireless connection.  
To establish a wireless connection, a wireless network must already be set up. |
| 7    | Volume down button | Decreases system volume. |
| 8    | Volume up button | Increases system volume. |
| 9    | Display switch | Initiates standby when the computer is closed. |
The top components on Compaq Presario V4000 models are shown below and described in Table 1-8.

Top Components, Compaq Presario V4000 Models
### Table 1-8

**Top Components, Compaq Presario V4000 Models**

<table>
<thead>
<tr>
<th>Item</th>
<th>Component</th>
<th>Function</th>
</tr>
</thead>
</table>
| 1    | Wireless button (select models only) | Turns the wireless functionality on or off, but does not create a wireless connection.  
To establish a wireless connection, a wireless network must already be set up. |
| 2    | Power button | When the computer is  
- Off, press to start the computer.  
- On, briefly press to initiate hibernation.  
- In standby, briefly press to resume from standby.  
- In hibernation, briefly press to restore from hibernation.  
If the system has stopped responding and Windows shutdown procedures cannot be used, press and hold for at least 4 seconds to turn off the computer. |
| 3    | Volume down button | Decreases system volume. |
| 4    | Volume mute button  
Volume mute light | Mutes or restores volume.  
On: Volume is muted. |
| 5    | Volume up button | Increases system volume. |
| 6    | Display switch | Initiates standby when the computer is closed. |
The HP Pavilion dv4000 computer TouchPad components are shown below and described in Table 1-9.

Table 1-9

<table>
<thead>
<tr>
<th>Item</th>
<th>Component</th>
<th>Function</th>
</tr>
</thead>
<tbody>
<tr>
<td>1</td>
<td>TouchPad</td>
<td>Moves the pointer.</td>
</tr>
<tr>
<td>2</td>
<td>Left and right TouchPad buttons</td>
<td>Function like the left and right buttons on an external mouse.</td>
</tr>
<tr>
<td>3</td>
<td>Display release button</td>
<td>Opens the computer.</td>
</tr>
<tr>
<td>4</td>
<td>TouchPad vertical scroll zone</td>
<td>Scrolls up or down.</td>
</tr>
</tbody>
</table>
The Compaq Presario V4000 computer TouchPad components are shown below and described in Table 1-10.

![TouchPad Components, Compaq Presario V4000](image)

Table 1-10

<table>
<thead>
<tr>
<th>Item</th>
<th>Component</th>
<th>Function</th>
</tr>
</thead>
<tbody>
<tr>
<td>1</td>
<td>TouchPad</td>
<td>Moves the pointer.</td>
</tr>
<tr>
<td>2</td>
<td>TouchPad horizontal scroll zone</td>
<td>Scrolls left or right.</td>
</tr>
<tr>
<td>3</td>
<td>Left and right TouchPad buttons</td>
<td>Function like the left and right buttons on an external mouse.</td>
</tr>
<tr>
<td>4</td>
<td>TouchPad vertical scroll zone</td>
<td>Scrolls up or down.</td>
</tr>
</tbody>
</table>
The external components on the bottom of the computer are shown below and described in Table 1-11.

Table 1-11

**Bottom Components**

<table>
<thead>
<tr>
<th>Item</th>
<th>Component</th>
<th>Function</th>
</tr>
</thead>
<tbody>
<tr>
<td>1</td>
<td>Battery bay</td>
<td>Holds a battery pack.</td>
</tr>
<tr>
<td>2</td>
<td>Vents (4)</td>
<td>Provide airflow to cool internal components.</td>
</tr>
</tbody>
</table>

⚠️ To prevent overheating, do not obstruct vents. Do not allow a hard surface, such as a printer, or a soft surface, such as pillows or thick rugs or clothing, to block airflow.

<table>
<thead>
<tr>
<th>Item</th>
<th>Component</th>
<th>Function</th>
</tr>
</thead>
<tbody>
<tr>
<td>3</td>
<td>Hard drive bay</td>
<td>Holds the internal hard drive.</td>
</tr>
</tbody>
</table>
4 Optical drive Supports an optical disc, such as a CD or DVD.

5 Labels area Contains the serial number and other information labels.

6 Battery pack release latch Releases a battery pack from the battery bay.

7 Memory module cover Contains 2 memory module slots that support replaceable memory modules. The number of preinstalled memory modules varies by computer model.

Mini PCI compartment cover Holds an optional wireless LAN device (select models only).

To prevent an unresponsive system and the display of a warning message, install only a Mini PCI device authorized for use in your computer by the governmental agency that regulates wireless devices in your country. If you install an unauthorized device and then receive a warning message, remove the device to restore computer functionality. Then contact Customer Care.

8 Thermal cover Provides access to the heat sink and processor.

**Table 1-11**

Bottom Components *(Continued)*

<table>
<thead>
<tr>
<th>Item</th>
<th>Component</th>
<th>Function</th>
</tr>
</thead>
<tbody>
<tr>
<td>4</td>
<td>Optical drive</td>
<td>Supports an optical disc, such as a CD or DVD.</td>
</tr>
<tr>
<td>5</td>
<td>Labels area</td>
<td>Contains the serial number and other information labels.</td>
</tr>
<tr>
<td>6</td>
<td>Battery pack release latch</td>
<td>Releases a battery pack from the battery bay.</td>
</tr>
<tr>
<td>7</td>
<td>Memory module cover</td>
<td>Contains 2 memory module slots that support replaceable memory modules. The number of preinstalled memory modules varies by computer model.</td>
</tr>
<tr>
<td></td>
<td>Mini PCI compartment cover</td>
<td>Holds an optional wireless LAN device (select models only).</td>
</tr>
</tbody>
</table>

To prevent an unresponsive system and the display of a warning message, install only a Mini PCI device authorized for use in your computer by the governmental agency that regulates wireless devices in your country. If you install an unauthorized device and then receive a warning message, remove the device to restore computer functionality. Then contact Customer Care.
1.5 Design Overview

This section presents a design overview of key parts and features of the computer. Refer to Chapter 3, “Illustrated Parts Catalog,” to identify replacement parts, and Chapter 5, “Removal and Replacement Procedures,” for disassembly steps.

The system board provides the following device connections:

- Audio
- Display
- Hard drive
- Intel Pentium M and Celeron M processors
- Keyboard
- Memory module
- Mini PCI communications devices
- PC Card
- TouchPad

⚠️ CAUTION: To properly ventilate the computer, allow at least a 7.6-cm (3-inch) clearance on the left and right sides of the computer.

The computer uses an electric fan for ventilation. The fan is controlled by a temperature sensor and is designed to be turned on automatically when high temperature conditions exist. These conditions are affected by high external temperatures, system power consumption, power management/battery conservation configurations, battery fast charging, and software applications. Exhaust air is displaced through the ventilation grill located on the left side of the computer.
WARNING: Only authorized technicians trained by HP should repair this equipment. All troubleshooting and repair procedures are detailed to allow only subassembly/module-level repair. Because of the complexity of the individual boards and subassemblies, do not attempt to make repairs at the component level or modifications to any printed wiring board. Improper repairs can create a safety hazard. Any indication of component replacement or printed wiring board modification may void any warranty or exchange allowances.

2.1 Computer Setup

Computer Setup is a preinstalled, ROM-based utility that can be used even when the operating system is not working or will not load. If the operating system is working, the computer restarts the operating system after you exit Computer Setup.

Pointing devices are not supported in Computer Setup; you must use the keyboard to navigate and make selections.

The menu tables later in this chapter provide an overview of Computer Setup options.
Troubleshooting

Accessing Computer Setup

The information and settings in Computer Setup are accessed from the **File**, **Security**, **Tools**, and **Advanced** menus.

1. Open Computer Setup by turning on or restarting the computer. Press **f10** while the F10 = Based Setup message is displayed in the lower-left corner of the screen.
   - To change the language, press **f2**.
   - To view navigation information, press **f1**.
   - To return to the Computer Setup menu, press **esc**.
2. Select the **File**, **Security**, **Tools**, or **Advanced** menu.
3. To exit Computer Setup, choose one of the following:
   - To exit without saving any changes, use the arrow keys to select **File > Ignore changes and exit**, and then follow the instructions on the screen.
   - To exit and save all the settings you have entered, use the arrow keys to select **File > Save changes and exit**, and then follow the instructions on the screen.

Your preferences are set when you exit Computer Setup and take effect when the computer restarts.

Computer Setup Defaults

To return all settings in Computer Setup to the values that were set at the factory:

1. Open Computer Setup by turning on or restarting the computer. Press **f10** while the F10 = Based Setup message is displayed in the lower-left corner of the screen.
   - To change the language, press **f2**.
   - To view navigation information, press **f1**.
2. Use the arrow keys to select **File > Restore defaults**.
3. Select the **Restore Defaults** check box.
4. To confirm the restoration, press **F10**.
5. Select **File > Save changes and exit**, and then follow the instructions on the screen.

When the computer restarts, the factory settings are restored, and any identification information you have entered is saved.

### Selecting from the File Menu

<table>
<thead>
<tr>
<th>Select</th>
<th>To Do This</th>
</tr>
</thead>
<tbody>
<tr>
<td>System Information</td>
<td>■ View identification information about the computer and any battery packs in the system.</td>
</tr>
<tr>
<td></td>
<td>■ View specification information about the processor, memory and cache size, video revision, keyboard controller version, and system ROM.</td>
</tr>
<tr>
<td>Save to floppy</td>
<td>Save system configuration settings to a diskette.</td>
</tr>
<tr>
<td>Restore to floppy</td>
<td>Restore system configuration settings from a diskette.</td>
</tr>
<tr>
<td>Restore defaults</td>
<td>Replace configuration settings in Computer Setup with factory default settings. (Identification information is retained.)</td>
</tr>
<tr>
<td>Ignore changes and exit</td>
<td>Cancel changes entered during the current session. Then exit and restart the computer.</td>
</tr>
<tr>
<td>Save changes and exit</td>
<td>Save changes entered during the current session. Then exit and restart the computer. The changes you save are in effect when the computer restarts.</td>
</tr>
</tbody>
</table>
Troubleshooting

## Selecting from the Security Menu

<table>
<thead>
<tr>
<th>Select</th>
<th>To Do This</th>
</tr>
</thead>
<tbody>
<tr>
<td>Administrator password</td>
<td>Enter, change, or delete an HP Administrator password.</td>
</tr>
<tr>
<td>Power-on password</td>
<td>Enter, change, or delete a power-on password.</td>
</tr>
<tr>
<td>Password options</td>
<td>■ Enable/Disable stringent security.</td>
</tr>
<tr>
<td></td>
<td>■ Enable/Disable required password on restart.</td>
</tr>
<tr>
<td>DriveLock passwords</td>
<td>Enable/disable DriveLock; change a DriveLock user or master password.</td>
</tr>
<tr>
<td></td>
<td>DriveLock Settings are accessible only when you enter Computer Setup by turning on (not restarting) the computer.</td>
</tr>
<tr>
<td>Smart Card Security</td>
<td>Enable/disable power-on support for smart cards.</td>
</tr>
<tr>
<td></td>
<td>This feature is supported by select smart card readers only.</td>
</tr>
<tr>
<td>Embedded Security</td>
<td>■ Enable/Disable the embedded security chip.</td>
</tr>
<tr>
<td></td>
<td>■ Restore embedded security chip to factory settings.</td>
</tr>
<tr>
<td></td>
<td>■ Enable/Disable power-on authentication support.</td>
</tr>
<tr>
<td></td>
<td>■ Enable/Disable automatic DriveLock.</td>
</tr>
<tr>
<td></td>
<td>■ Reset power-on authentication credential.</td>
</tr>
<tr>
<td></td>
<td>Embedded Security settings are accessible only if the computer is equipped with an embedded security chip.</td>
</tr>
<tr>
<td>Device security</td>
<td>Enable/Disable devices in the system.</td>
</tr>
<tr>
<td></td>
<td>Enable NIC for inclusion in MultiBoot.</td>
</tr>
<tr>
<td>System IDs</td>
<td>Enter user-defined identification values.</td>
</tr>
</tbody>
</table>
## Selecting from the Tools Menu

<table>
<thead>
<tr>
<th>Select</th>
<th>To Do This</th>
</tr>
</thead>
<tbody>
<tr>
<td>HDD Self Test options</td>
<td>Run a quick or comprehensive self-test on any hard drive in the system.</td>
</tr>
<tr>
<td>Battery Information</td>
<td>View information about any battery packs in the computer.</td>
</tr>
<tr>
<td>Memory Check</td>
<td>■ Run a self-test on memory modules in the computer.</td>
</tr>
<tr>
<td></td>
<td>■ View information about memory modules installed in the computer.</td>
</tr>
</tbody>
</table>
Selecting from the Advanced Menu

Table 2-4
Advanced Menu

<table>
<thead>
<tr>
<th>Select</th>
<th>To Do This</th>
</tr>
</thead>
<tbody>
<tr>
<td>Language (or press f2)</td>
<td>Change the Computer Setup language.</td>
</tr>
<tr>
<td>Boot options</td>
<td>■ Enable/Disable MultiBoot, which sets a startup sequence that can include most bootable devices and media in the system.</td>
</tr>
<tr>
<td></td>
<td>■ Set the boot order.</td>
</tr>
<tr>
<td>Device options</td>
<td>■ Swap the functions of the fn key and left ctrl key.</td>
</tr>
<tr>
<td></td>
<td>■ Enable/Disable multiple pointing devices at startup. (To set the computer to support only a single, usually nonstandard, pointing device at startup, select Disable.)</td>
</tr>
<tr>
<td></td>
<td>■ Enable/Disable USB legacy support for a USB keyboard, mouse, and hub. When USB legacy support is enabled</td>
</tr>
<tr>
<td></td>
<td>▫ A USB keyboard, mouse, and hub work even when a Windows operating system is not loaded.</td>
</tr>
<tr>
<td></td>
<td>▫ The computer starts from a bootable hard drive, diskette drive diskette, or CD, CD-RW, or DVD inserted into a drive connected by a USB connector to the computer or to an optional docking device.</td>
</tr>
<tr>
<td></td>
<td>■ Select a parallel port mode: EPP (Enhanced Parallel Port), standard, bidirectional, or ECP (Enhanced Capabilities Port).</td>
</tr>
<tr>
<td></td>
<td>■ Enable/Disable all settings in the SpeedStep window. (When Disable is selected, the computer runs in Battery Optimized mode.)</td>
</tr>
</tbody>
</table>
2.2 Troubleshooting Flowcharts

Table 2-5
Troubleshooting Flowcharts Overview

<table>
<thead>
<tr>
<th>Flowchart</th>
<th>Description</th>
</tr>
</thead>
<tbody>
<tr>
<td>2.1</td>
<td>“Flowchart 2.1—Initial Troubleshooting”</td>
</tr>
<tr>
<td>2.2</td>
<td>“Flowchart 2.2—No Power, Part 1”</td>
</tr>
<tr>
<td>2.3</td>
<td>“Flowchart 2.3—No Power, Part 2”</td>
</tr>
<tr>
<td>2.4</td>
<td>“Flowchart 2.4—No Power, Part 3”</td>
</tr>
<tr>
<td>2.5</td>
<td>“Flowchart 2.5—No Power, Part 4”</td>
</tr>
<tr>
<td>2.6</td>
<td>“Flowchart 2.6—No Video, Part 1”</td>
</tr>
<tr>
<td>2.7</td>
<td>“Flowchart 2.7—No Video, Part 2”</td>
</tr>
<tr>
<td>2.8</td>
<td>“Flowchart 2.8—Nonfunctioning Docking Device (if applicable)”</td>
</tr>
<tr>
<td>2.9</td>
<td>“Flowchart 2.9—No Operating System (OS) Loading”</td>
</tr>
<tr>
<td>2.10</td>
<td>“Flowchart 2.10—No OS Loading, Hard Drive, Part 1”</td>
</tr>
<tr>
<td>2.11</td>
<td>“Flowchart 2.11—No OS Loading, Hard Drive, Part 2”</td>
</tr>
<tr>
<td>2.12</td>
<td>“Flowchart 2.12—No OS Loading, Hard Drive, Part 3”</td>
</tr>
<tr>
<td>2.13</td>
<td>“Flowchart 2.13—No OS Loading, Diskette Drive”</td>
</tr>
</tbody>
</table>
## Table 2-5

Troubleshooting Flowcharts Overview *(Continued)*

<table>
<thead>
<tr>
<th>Flowchart</th>
<th>Description</th>
</tr>
</thead>
<tbody>
<tr>
<td>2.14</td>
<td>“Flowchart 2.14—No OS Loading, Optical Drive”</td>
</tr>
<tr>
<td>2.15</td>
<td>“Flowchart 2.15—No Audio, Part 1”</td>
</tr>
<tr>
<td>2.16</td>
<td>“Flowchart 2.16—No Audio, Part 2”</td>
</tr>
<tr>
<td>2.17</td>
<td>“Flowchart 2.17—Nonfunctioning Device”</td>
</tr>
<tr>
<td>2.18</td>
<td>“Flowchart 2.18—Nonfunctioning Keyboard”</td>
</tr>
<tr>
<td>2.19</td>
<td>“Flowchart 2.19—Nonfunctioning Pointing Device”</td>
</tr>
<tr>
<td>2.20</td>
<td>“Flowchart 2.20—No Network/Modem Connection”</td>
</tr>
</tbody>
</table>
Flowchart 2.1—Initial Troubleshooting

Begin troubleshooting.

- **Is there power?**
  - **Y:**
    - Beeps, LEDs, or error messages?
      - **Y:**
        - Check LED board, speaker connections.
      - **N:**
        - Is there video? (no boot)
          - **Y:**
            - Is the OS loading?
              - **Y:**
                - Is there sound?
                  - **Y:**
                    - Go to “Flowchart 2.18—Nonfunctioning Keyboard” or “Flowchart 2.19—Nonfunctioning Pointing Device.”
                  - **N:**
                    - Go to “Flowchart 2.20—No Network/Modem Connection.”
              - **N:**
                - Go to “Flowchart 2.15—No Audio, Part 1.”
          - **N:**
            - Go to “Flowchart 2.9—No Operating System (OS) Loading.”
      - **N:**
        - Go to “Flowchart 2.6—No Video, Part 1.”
    - All drives working?
      - **Y:**
        - Go to “Flowchart 2.17—Nonfunctioning Device.”
      - **N:**
        - Go to “Flowchart 2.16—No Video, Part 1.”
        - Go to “Flowchart 2.18—Nonfunctioning Keyboard” or “Flowchart 2.19—Nonfunctioning Pointing Device.”
  - **N:**
    - Go to “Flowchart 2.2—No Power, Part 1.”

- **N:**
  - Go to “Flowchart 2.8—No Video, Part 1.”

End
Flowchart 2.2—No Power, Part 1

1. Reseat the power cables in the docking device and at the AC outlet.
2. Ensure the AC power source is active.
3. Ensure that the power strip is working.

*NOTES
1. On select models, there is a separate reset button.
2. On select models, the computer can be reset using the standby switch and either the lid switch or the main power switch.

Go to “Flowchart 2.3—No Power, Part 2.”

Go to “Flowchart 2.4—No Power, Part 3.”

Go to “Flowchart 2.8—Nonfunctioning Docking Device (if applicable).”
Troubleshooting

Flowchart 2.3—No Power, Part 2

Continued from “Flowchart 2.2—No Power, Part 1.”

Visually check for debris in battery socket and clean if necessary.

Power on?

Y

Done

N

Check battery by recharging it, moving it to another computer, or replacing it.

Power on?

Y

Replace power supply (if applicable).

N

Go to “Flowchart 2.4—No Power, Part 3.”

Power on?

Y

Done

N

Power on?

Y

Done
Flowchart 2.4—No Power, Part 3

Continued from “Flowchart 2.3—No Power, Part 2.”

1. Plug directly into AC outlet.
   - Y: Power LED on?
     - Y: Done
     - N: Power LED on?
       - Y: Power on?
         - Y: Done
         - N: Power on?
           - Y: Done
           - N: Power outlet active?
             - Y: Replace power cord.
               - Y: Power on?
                 - Y: Done
                 - N: Power on?
                   - Y: Done
                   - N: Replace external AC adapter.
                     - Y: Power on?
                       - Y: Done
                       - N: Go to “Flowchart 2.5—No Power, Part 4.”
                     - N: Replace internal or external AC adapter?
                       - Y: Power on?
                         - Y: Done
                         - N: Go to “Flowchart 2.5—No Power, Part 4.”
                       - N: Try different outlet.
                         - Y: Done
                         - N: Power on?
                           - Y: Done
                           - N: Try different outlet.
                             - Y: Done
                             - N: External AC adapter?
                               - Y: Power on?
                                 - Y: Done
                                 - N: Go to “Flowchart 2.5—No Power, Part 4.”
                               - N: Replace external AC adapter.
                                 - Y: Power on?
                                   - Y: Done
                                   - N: Go to “Flowchart 2.5—No Power, Part 4.”
                                 - N: Replace internal or external AC adapter?
                                   - Y: Power on?
                                     - Y: Done
                                     - N: Go to “Flowchart 2.5—No Power, Part 4.”
                                   - N: Replace internal or external AC adapter?
                                     - Y: Power on?
                                       - Y: Done
                                       - N: Go to “Flowchart 2.5—No Power, Part 4.”
                                     - N: Replace internal or external AC adapter?
                                       - Y: Power on?
                                         - Y: Done
                                         - N: Go to “Flowchart 2.5—No Power, Part 4.”
                                       - N: Replace internal or external AC adapter?
                                         - Y: Power on?
                                           - Y: Done
                                           - N: Go to “Flowchart 2.5—No Power, Part 4.”
                                         - N: Replace internal or external AC adapter?
                                           - Y: Power on?
                                             - Y: Done
                                             - N: Go to “Flowchart 2.5—No Power, Part 4.”
                                           - N: Replace internal or external AC adapter?
                                             - Y: Power on?
                                               - Y: Done
                                               - N: Go to “Flowchart 2.5—No Power, Part 4.”
                                             - N: Replace internal or external AC adapter?
                                               - Y: Power on?
                                                 - Y: Done
                                                 - N: Go to “Flowchart 2.5—No Power, Part 4.”
                                               - N: Replace internal or external AC adapter?
                                                 - Y: Power on?
                                                   - Y: Done
                                                   - N: Go to “Flowchart 2.5—No Power, Part 4.”
                                                 - N: Replace internal or external AC adapter?
                                                   - Y: Power on?
                                                     - Y: Done
                                                     - N: Go to “Flowchart 2.5—No Power, Part 4.”
                                                   - N: Replace internal or external AC adapter?
                                                     - Y: Power on?
                                                       - Y: Done
                                                       - N: Go to “Flowchart 2.5—No Power, Part 4.”
                                                     - N: Replace internal or external AC adapter?
                                                       - Y: Power on?
                                                         - Y: Done
                                                         - N: Go to “Flowchart 2.5—No Power, Part 4.”
                                                       - N: Replace internal or external AC adapter?
                                                         - Y: Power on?
                                                           - Y: Done
                                                           - N: Go to “Flowchart 2.5—No Power, Part 4.”
                                                         - N: Replace internal or external AC adapter?
                                                           - Y: Power on?
                                                             - Y: Done
                                                             - N: Go to “Flowchart 2.5—No Power, Part 4.”
                                                           - N: Replace internal or external AC adapter?
                                                             - Y: Power on?
                                                               - Y: Done
                                                               - N: Go to “Flowchart 2.5—No Power, Part 4.”
                                                             - N: Replace internal or external AC adapter?
                                                               - Y: Power on?
                                                                 - Y: Done
                                                                 - N: Go to “Flowchart 2.5—No Power, Part 4.”
                                                               - N: Replace internal or external AC adapter?
                                                                 - Y: Power on?
                                                                   - Y: Done
                                                                   - N: Go to “Flowchart 2.5—No Power, Part 4.”
                                                                 - N: Replace internal or external AC adapter?
                                                                   - Y: Power on?
                                                                     - Y: Done
                                                                     - N: Go to “Flowchart 2.5—No Power, Part 4.”
                                                                   - N: Replace internal or external AC adapter?
                                                                     - Y: Power on?
                                                                       - Y: Done
                                                                       - N: Go to “Flowchart 2.5—No Power, Part 4.”
                                                                     - N: Replace internal or external AC adapter?
                                                                       - Y: Power on?
                                                                         - Y: Done
                                                                         - N: Go to “Flowchart 2.5—No Power, Part 4.”
                                                                       - N: Replace internal or external AC adapter?
                                                                         - Y: Power on?
                                                                           - Y: Done
                                                                           - N: Go to “Flowchart 2.5—No Power, Part 4.”
                                                                         - N: Replace internal or external AC adapter?
                                                                           - Y: Power on?
                                                                             - Y: Done
                                                                             - N: Go to “Flowchart 2.5—No Power, Part 4.”
                                                                           - N: Replace internal or external AC adapter?
                                                                             - Y: Power on?
                                                                               - Y: Done
                                                                               - N: Go to “Flowchart 2.5—No Power, Part 4.”
                                                                             - N: Replace internal or external AC adapter?
                                                                               - Y: Power on?
                                                                                 - Y: Done
                                                                                 - N: Go to “Flowchart 2.5—No Power, Part 4.”
                                                                               - N: Replace internal or external AC adapter?
                                                                                 - Y: Power on?
                                                                                   - Y: Done
                                                                                   - N: Go to “Flowchart 2.5—No Power, Part 4.”
                                                                                 - N: Replace internal or external AC adapter?
                                                                                   - Y: Power on?
                                                                                     - Y: Done
                                                                                     - N: Go to “Flowchart 2.5—No Power, Part 4.”
                                                                                 - N: Replace internal or external AC adapter?
                                                                                   - Y: Power on?
                                                                                    - Y: Done
                                                                                    - N: Go to “Flowchart 2.5—No Power, Part 4.”
                                                                                 - N: Replace internal or external AC adapter?
                                                                                   - Y: Power on?
                                                                                    - Y: Done
                                                                                    - N: Go to “Flowchart 2.5—No Power, Part 4.”
                                                                                 - N: Replace internal or external AC adapter?
                                                                                   - Y: Power on?
                                                                                    - Y: Done
                                                                                    - N: Go to “Flowchart 2.5—No Power, Part 4.”
                                                                                 - N: Replace internal or external AC adapter?
                                                                                   - Y: Power on?
                                                                                    - Y: Done
                                                                                    - N: Go to “Flowchart 2.5—No Power, Part 4.”
                                                                                 - N: Replace internal or external AC adapter?
                                                                                   - Y: Power on?
                                                                                    - Y: Done
                                                                                    - N: Go to “Flowchart 2.5—No Power, Part 4.”
                                                                                 - N: Replace internal or external AC adapter?
                                                                                   - Y: Power on?
                                                                                    - Y: Done
                                                                                    - N: Go to “Flowchart 2.5—No Power, Part 4.”
                                                                                 - N: Replace internal or external AC adapter?
                                                                                   - Y: Power on?
                                                                                    - Y: Done
                                                                                    - N: Go to “Flowchart 2.5—No Power, Part 4.”
                                                                                 - N: Replace internal or external AC adapter?
                                                                                   - Y: Power on?
                                                                                    - Y: Done
                                                                                    - N: Go to “Flowchart 2.5—No Power, Part 4.”
                                                                                 - N: Replace internal or external AC adapter?
                                                                                   - Y: Power on?
                                                                                    - Y: Done
                                                                                    - N: Go to “Flowchart 2.5—No Power, Part 4.”
                                                                                 - N: Replace internal or external AC adapter?
                                                                                   - Y: Power on?
                                                                                    - Y: Done
                                                                                    - N: Go to “Flowchart 2.5—No Power, Part 4.”
                                                                                 - N: Replace internal or external AC adapter?
                                                                                   - Y: Power on?
                                                                                    - Y: Done
                                                                                    - N: Go to “Flowchart 2.5—No Power, Part 4.”
                                                                                 - N: Replace internal or external AC adapter?
                                                                                   - Y: Power on?
                                                                                    - Y: Done
                                                                                    - N: Go to “Flowchart 2.5—No Power, Part 4.”
                                                                                 - N: Replace internal or external AC adapter?
                                                                                   - Y: Power on?
                                                                                    - Y: Done
                                                                                    - N: Go to “Flowchart 2.5—No Power, Part 4.”
                                                                                 - N: Replace internal or external AC adapter?
                                                                                   - Y: Power on?
                                                                                    - Y: Done
                                                                                    - N: Go to “Flowchart 2.5—No Power, Part 4.”
                                                                                 - N: Replace internal or external AC adapter?
                                                                                   - Y: Power on?
                                                                                    - Y: Done
                                                                                    - N: Go to “Flowchart 2.5—No Power, Part 4.”
                                                                                 - N: Replace internal or external AC adapter?
                                                                                   - Y: Power on?
                                                                                    - Y: Done
                                                                                    - N: Go to “Flowchart 2.5—No Power, Part 4.”
                                                                                 - N: Replace internal or external AC adapter?
                                                                                   - Y: Power on?
                                                                                    - Y: Done
                                                                                    - N: Go to “Flowchart 2.5—No Power, Part 4.”
                                                                                 - N: Replace internal or external AC adapter?
Flowchart 2.5—No Power, Part 4

Continued from “Flowchart 2.4—No Power, Part 3.”

Open computer.

Loose or damaged parts?

Y

Reseat loose components and boards and replace damaged items.

N

Close computer and retest.

Power on?

Y

Done

N

Replace the following items (if applicable). Check computer operation after each replacement:
1. Internal DC-DC converter*
2. Internal AC adapter
3. Processor board*
4. System board*

*NOTE: Replace these items as a set to prevent shorting out among components.
Flowchart 2.6—No Video, Part 1

No video.

Docking Device

Stand-alone or docking device?

Yes

Go to "Flowchart 2.7—No Video, Part 2."

No

Stand-alone

Internal or external display?

Yes

Adjust brightness.

Video OK?

Yes

Done

No

Press lid switch to ensure operation.

Video OK?

Yes

Done

No

Replace the following one at a time. Test after each replacement.

1. Cable between computer and computer display (if applicable)
2. Display
3. System board

N

Check for bent pins on cable.

Yes

Done

No

Try another display.

Internal and external video OK?

Yes

Done

No

Replace system board.

N

Y

Y

Y

N

N

N

N

N

N

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Flowchart 2.7—No Video, Part 2

Continued from “Flowchart 2.6—No Video, Part 1.”

Remove computer from docking device, if connected.

Adjust display brightness.

Video OK?

Check that computer is properly seated in docking device, for bent pins on cable, and for monitor connection.

Video OK?

Check brightness of external monitor.

Y

Go to “A” in “Flowchart 2.6—No Video, Part 1.”

Y

Video OK?

Try another external monitor.

Internal and external video OK?

Y

Go to “Flowchart 2.8—Nonfunctioning Docking Device (if applicable).”

N

Done

N

Done

N

Adjust external monitor display.
Flowchart 2.8—Nonfunctioning Docking Device (if applicable)

Nonfunctioning docking device.

Reseat power cord in docking device and power outlet.

Check voltage setting on docking device.

Reset monitor cable connector at docking device.

Docking device operating?

Y

Docking device operating?

Y

Done

N

Test replacement docking device with new computer.

N

Remove computer, replace docking device.

Done
Flowchart 2.9—No Operating System (OS) Loading

No OS loading.*

- Reseat power cord in docking device and power outlet.

  No OS loading from hard drive, go to “Flowchart 2.10—No OS Loading, Hard Drive, Part 1.”

  No OS loading from diskette drive, go to “Flowchart 2.13—No OS Loading, Diskette Drive.”

  No OS loading from optical drive, go to “Flowchart 2.14—No OS Loading, Optical Drive.”

  No OS loading from network, go to “Flowchart 2.20—No Network/Modem Connection.”

*NOTE: Before beginning troubleshooting, always check cable connections, cable ends, and drives for bent or damaged pins.
Flowchart 2.10—No OS Loading, Hard Drive, Part 1

OS not loading from hard drive.

Nonsystem disk message?

Y

Go to “Flowchart 2.11—No OS Loading, Hard Drive, Part 2.”

N

Reseat external hard drive.

OS loading?

Y

Done

N

Boot from CD?

Y

Check the Setup utility for correct booting order.

N

Boot from hard drive?

Y

Done

N

Nonsystem disk message?

Y

Go to “Flowchart 2.11—No OS Loading, Hard Drive, Part 2.”

N

Reseat external hard drive.

OS loading?

Y

Done

N

Boot from CD?

Y

Check the Setup utility for correct booting order.

N

Boot from hard drive?

Y

Done

N

Boot from diskette?

Y

Change boot priority through the Setup Utility and reboot.

N

Boot from hard drive?

Y

Go to “Flowchart 2.17—Nonfunctioning Device.”
Flowchart 2.11—No OS Loading, Hard Drive, Part 2

Continued from “Flowchart 2.10—No OS Loading, Hard Drive, Part 1.”

Disc or diskette in drive?

Y

N

Remove disc or diskette and reboot.

Boot from hard drive?

Y

N

Boot from diskette drive?

Y

N

Hard drive accessible?

Y

N

Go to “Flowchart 2.12—No OS Loading, Hard Drive, Part 3.”

1. Replace hard drive.
2. Replace system board.

Hard drive accessible?

Y

N

Run FDISK.

Hard drive partitioned?

Y

N

Create partition, and then format hard drive to bootable C:\ prompt.

Hard drive formatted?

Y

N

Format hard drive and bring to a bootable C:\ prompt.

Computer booted?

Y

N

Load OS using Operating System disc (if applicable).

Y

Done

N

Reseat hard drive.

Done

Disc or diskette in drive?

Y

N

Replace hard drive.

Replace system board.

Format hard drive and bring to a bootable C:\ prompt.

Y

N

Go to “Flowchart 2.13—No OS Loading, Diskette Drive.”

Hard drive booted?

Y

N

Go to “Flowchart 2.12—No OS Loading, Hard Drive, Part 3.”
Flowchart 2.12—No OS Loading, Hard Drive, Part 3

Continued from "Flowchart 2.11—No OS Loading, Hard Drive, Part 2."

1. System files on hard drive?
   - Y: Install OS and reboot.
   - N: Virus on hard drive?
     - Y: Clean virus.
     - N: OS loading from hard drive?
       - Y: Done
       - N: Diagnostics on disc or diskette?
         - Y: Replace hard drive.
         - N: Run SCANDISK and check for bad sectors.
           - Y: Can bad sectors be fixed?
             - Y: Fix bad sectors.
             - N: Replace hard drive.
           - N: Boot from hard drive?
             - Y: Done
             - N: Replace hard drive.
Flowchart 2.13—No OS Loading, Diskette Drive

OS not loading from diskette drive.

Reseat diskette drive.

OS loading?

Y

Done

N

Reseat diskette drive.

Non-system disk message?

Y

Install bootable diskette and reboot computer.

N

Bootable diskette in drive?

Y

Check diskette for system files. Try different diskette.

N

Boot from another device?

Y

Go to "Flowchart 2.17—Nonfunctioning Device."

N

Diskette drive enabled in the Setup utility?

Y

Enable drive and cold boot computer.

N

Is diskette drive boot order correct?

Y

Reset the computer. Refer to Section 1.2, “Resetting the Computer,” for instructions.

N

Change boot priority using the Setup Utility.

N

Go to "Flowchart 2.17—Nonfunctioning Device."

Non-system disk error?

Y

Replace the following components individually, retesting after each replacement:
■ Diskette drive
■ System board

N

OS loading?

Y

Done

N

OS not loading from diskette drive.

N

Y

Reseat diskette drive.

Y

Reseat diskette drive.

Y

Reseat diskette drive.

Y

Reseat diskette drive.
Troubleshooting

Flowchart 2.14—No OS Loading, Optical Drive

1. **No OS loading from CD-ROM or DVD-ROM drive.**
   - **Y**: Disc in drive?
     - **Y**: Install bootable disc.
     - **N**: Bootable disc in drive?
       - **Y**: Install bootable disc and reboot computer.
       - **N**: Boot from CD or DVD?
         - **Y**: Done
         - **N**: Disc in drive?
           - **Y**: Install bootable disc.
           - **N**: Bootable disc in drive?
             - **Y**: Try another bootable disc.
             - **N**: Booting from another device?
               - **Y**: Booting order correct?
                 - **Y**: Done
                 - **N**: Reseat drive.
               - **N**: Go to “Flowchart 2.17—Nonfunctioning Device.”
           - **N**: Reseat drive.
         - **N**: Reseat drive.
   - **N**: Bootable disc in drive?
     - **Y**: Booting from another device?
       - **Y**: Booting order correct?
         - **Y**: Done
         - **N**: Reset the computer. Refer to Section 1.2, “Resetting the Computer,” for instructions.
       - **N**: Go to “Flowchart 2.17—Nonfunctioning Device.”
     - **N**: Install bootable disc.

Refer to Section 1.2, “Resetting the Computer,” for instructions.
Flowchart 2.15—No Audio, Part 1

1. **No audio.**
   - **Turn up audio internally or externally.**
     - **Audio?**
       - **Y**
         - **Audio?**
           - **Y**
             - **Done**
           - **N**
             - Go to “Flowchart 2.16—No Audio, Part 2.”
     - **N**
       - **Y**
         - **Computer in docking device (if applicable)?**
           - **Y**
             - **Undock**
               - **Internal audio?**
                 - **Y**
                   - **Replace the docking device.**
                 - **N**
                   - Go to “Flowchart 2.17—Nonfunctioning Device.”
           - **N**
             - Go to “Flowchart 2.16—No Audio, Part 2.”

2. **N**
   - **Turn up audio internally or externally.**
     - **Audio?**
       - **Y**
         - **Audio?**
           - **Y**
             - **Done**
           - **N**
             - Go to “Flowchart 2.17—Nonfunctioning Device.”
     - **N**
       - **Y**
         - **Computer in docking device (if applicable)?**
           - **Y**
             - **Undock**
               - **Internal audio?**
                 - **Y**
                   - **Replace the docking device.**
                 - **N**
                   - Go to “Flowchart 2.17—Nonfunctioning Device.”
           - **N**
             - Go to “Flowchart 2.16—No Audio, Part 2.”
Flowchart 2.16—No Audio, Part 2

Continued from “Flowchart 2.15—No Audio, Part 1.”

Audio driver in OS configured?

Y

Y

Correct drivers for application?

N

N

Connect to external speaker.

Load drivers and set configuration in OS.

Y

Replace audio board and speaker connections in computer (if applicable).

N

Audio?

N

Replace audio drivers.

N

Y

Audio?

Done

Replace the following components individually, retesting after each replacement:
- Internal speakers
- Audio board (if applicable)
Flowchart 2.17—Nonfunctioning Device

Any physical device detected?

N  Unplug the nonfunctioning device from the computer and inspect cables and plugs for bent or broken pins or other damage.

Y  Clear CMOS.

N  Reattach device. Close computer, plug in power, and reboot.

Y  Device boots properly?

N  Replace NIC. If integrated NIC, replace system board.

Y  Replace diskette drive.

Done

Y  Fix or replace broken item.

Go to “Flowchart 2.9—No Operating System (OS) Loading.”

Device boots properly?

N  Replace hard drive.

Y  Done
Flowchart 2.18—Nonfunctioning Keyboard

1. Keyboard not operating properly.
   - Connect computer to good external keyboard.
     - N: External device works?
       - Y: Reseat internal keyboard connector (if applicable).
       - N: Keyboard operating properly?
         - Y: Done
         - N: Replace system board.
     - Y: Replace system board.
   - Y: Replace internal keyboard or cable.
     - Y: Done
     - N: Replace system board.
Flowchart 2.19—Nonfunctioning Pointing Device

1. **Pointing device not operating properly.**
   - Connect computer to good external pointing device.
   - **Y:** Reseat internal pointing device connector (if applicable).
     - **N:** Replace internal pointing device or cable.
     - **Y:** Pointing device operating properly?
       - **N:** Replace system board.
       - **Y:** Done

2. **External device works?**
   - **Y:** Replace system board.
   - **N:** Pointing device operating properly?
     - **Y:** Done
     - **N:** Replace system board.
Flowchart 2.20—No Network/Modem Connection

No network or modem connection.

Network or modem jack active?

Digital line?

NIC/modem configured in OS?

Disconnect all power from the computer and open.

Reseat NIC/modem (if applicable).

Replace jack or have jack activated.

Connect to nondigital line.

Reload drivers and reconfigure.

Network or modem connection working?

Replace the NIC/modem (if applicable).

Network or modem connection working?

Replace system board.

Done
This chapter provides an illustrated parts breakdown and a reference for spare part numbers.

### 3.1 Serial Number Location

When ordering parts or requesting information, provide the computer serial number and model number located on the bottom of the computer.

*Serial Number Location*
3.2 Computer Major Components
### Table 3-1

**Spare Parts: Computer Major Components**

<table>
<thead>
<tr>
<th>Item</th>
<th>Description</th>
<th>Spare Part Number</th>
</tr>
</thead>
<tbody>
<tr>
<td>1</td>
<td><strong>Display assemblies</strong> (include display cable, wireless antenna boards, and antenna cables)</td>
<td></td>
</tr>
<tr>
<td></td>
<td>For use with HP Pavilion dv4000 models</td>
<td></td>
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<tr>
<td></td>
<td>15.4-inch, WXGA, TFT with BrightView</td>
<td>383477-001</td>
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<tr>
<td></td>
<td>15.4-inch, WXGA, TFT</td>
<td>383476-001</td>
</tr>
<tr>
<td></td>
<td>For use with Compaq Presario V4000 models</td>
<td></td>
</tr>
<tr>
<td></td>
<td>15.4-inch, WXGA, TFT with BrightView</td>
<td>383479-001</td>
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<tr>
<td></td>
<td>15.4-inch, WXGA, TFT</td>
<td>383478-001</td>
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<td>Refer to Section 3.3, “Display Assembly Subcomponents,” for display assembly internal component spare part number information.</td>
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<tr>
<td>2</td>
<td><strong>Switch cover</strong> (includes LED board and LED board cable)</td>
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<tr>
<td></td>
<td>For use with HP Pavilion dv4000 models with wireless capability</td>
<td>403911-001</td>
</tr>
<tr>
<td></td>
<td>For use with HP Pavilion dv4000 models without wireless capability</td>
<td>403910-001</td>
</tr>
<tr>
<td></td>
<td>For use with Compaq Presario V4000 models with wireless capability</td>
<td>384619-001</td>
</tr>
<tr>
<td></td>
<td>For use with Compaq Presario V4000 models without wireless capability</td>
<td>403004-001</td>
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</tbody>
</table>
Computer Major Components, Compaq Presario V4000
<table>
<thead>
<tr>
<th>Item</th>
<th>Description</th>
<th>Spare Part Number</th>
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<tbody>
<tr>
<td>3</td>
<td><strong>Keyboards</strong></td>
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<td></td>
<td>For use with HP Pavilion dv4000 models:</td>
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<tr>
<td></td>
<td>Belgium</td>
<td>383495-181 Norway</td>
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<td></td>
<td>Denmark</td>
<td>383495-081 Portugal</td>
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<td></td>
<td>Europe</td>
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<td>France</td>
<td>383495-051 Spain</td>
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<td></td>
<td>French Canada</td>
<td>383495-121 Sweden/Finland</td>
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<td>Germany</td>
<td>383495-041 Switzerland</td>
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<td>Greece</td>
<td>383495-151 Taiwan</td>
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<td></td>
<td>Israel</td>
<td>383495-BB1 Thailand</td>
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<td>Italy</td>
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<td></td>
<td>Norway</td>
<td>383495-091 United States</td>
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<td>For use with Compaq Presario V4000 models:</td>
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<td>Denmark</td>
<td>384635-081 Norway</td>
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<td>384635-331 United States</td>
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Computer Major Components, HP Pavilion dv4000
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<th>Item</th>
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<th>Spare Part Number</th>
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<tbody>
<tr>
<td>4</td>
<td><strong>Top covers</strong>&lt;br&gt;For use with full-featured HP Pavilion dv4000 models (includes TouchPad)&lt;br&gt;For use with defeatured HP Pavilion dv4000 models (includes TouchPad)&lt;br&gt;For use with full-featured Compaq Presario V4000 models (does not include TouchPad)&lt;br&gt;For use with defeatured Compaq Presario V4000 models (does not include TouchPad)&lt;br&gt;<strong>TouchPad board</strong>, for use with Compaq Presario V4000 models (not illustrated)</td>
<td>397858-001&lt;br&gt;397860-001&lt;br&gt;397859-001&lt;br&gt;397861-001&lt;br&gt;391737-001</td>
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<td>5</td>
<td><strong>Modem board</strong> (high-speed 56K, includes modem cable)</td>
<td>384623-001</td>
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<td>6</td>
<td><strong>TouchPad cable</strong></td>
<td>383467-001</td>
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<tr>
<td></td>
<td><strong>Miscellaneous Doors/Covers Kit</strong>&lt;br&gt;For use with HP Pavilion dv4000 models</td>
<td>383469-001</td>
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<td></td>
<td>For use with Compaq Presario V4000 models</td>
<td>384627-001</td>
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<td></td>
<td><strong>Includes:</strong>&lt;br&gt;7a PC Card slot space saver&lt;br&gt;7b ExpressCard slot space saver&lt;br&gt;7c Thermal cover&lt;br&gt;7d Memory module compartment cover&lt;br&gt;7e Hard drive cover&lt;br&gt;Computer feet (not illustrated)</td>
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</table>
Computer Major Components, Compaq Presario V4000
<table>
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<th>Item</th>
<th>Description</th>
<th>Spare Part Number</th>
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<td>8</td>
<td><strong>System board shield</strong> (for use with HP Pavilion dv4000 models)</td>
<td>403915-001</td>
</tr>
<tr>
<td>9</td>
<td><strong>System boards</strong>&lt;br&gt;Full-featured&lt;br&gt;Defeatured</td>
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<td><strong>USB board</strong>, includes:&lt;br&gt;USB board, USB board cable, and audio board cable&lt;br&gt;USB board frame</td>
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<td>10a</td>
<td>Heat sink assembly, includes:&lt;br&gt;Fan&lt;br&gt;Heat sink&lt;br&gt;Thermal paste (not illustrated)</td>
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<td>10b</td>
<td><strong>Bluetooth® module</strong> (includes Bluetooth module cable)</td>
<td>383459-001</td>
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<tr>
<td>11</td>
<td><strong>Speakers</strong></td>
<td>383466-001</td>
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<td>12a</td>
<td>Base enclosures&lt;br&gt;For use with full-featured HP Pavilion dv4000 models</td>
<td>384629-001</td>
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<td>For use with defeatured HP Pavilion dv4000 models</td>
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<td><strong>Rubber feet</strong> (not illustrated)&lt;br&gt;For use with HP Pavilion dv4000 models</td>
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<td>For use with Compaq Presario V4000 models</td>
<td>404576-001</td>
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</table>
Illustrated Parts Catalog

Computer Major Components, HP Pavilion dv4000

3-10

Maintenance and Service Guide
Table 3-1  
Spare Parts: Computer Major Components *(Continued)*

<table>
<thead>
<tr>
<th>Item</th>
<th>Description</th>
<th>Spare Part Number</th>
</tr>
</thead>
<tbody>
<tr>
<td>15</td>
<td><strong>Processors</strong> (include thermal paste)</td>
<td></td>
</tr>
<tr>
<td></td>
<td>Intel Pentium M 2.13-GHz</td>
<td>396700-001</td>
</tr>
<tr>
<td></td>
<td>Intel Pentium M 2.00-GHz</td>
<td>396699-001</td>
</tr>
<tr>
<td></td>
<td>Intel Pentium M 1.86-GHz</td>
<td>393327-001</td>
</tr>
<tr>
<td></td>
<td>Intel Pentium M 1.73-GHz</td>
<td>383474-001</td>
</tr>
<tr>
<td></td>
<td>Intel Pentium M 1.60-GHz</td>
<td>383473-001</td>
</tr>
<tr>
<td></td>
<td>and</td>
<td>396698-001</td>
</tr>
<tr>
<td></td>
<td>Intel Celeron M 1.50-GHz</td>
<td>383471-001</td>
</tr>
<tr>
<td></td>
<td>Intel Celeron M 1.40-GHz</td>
<td>396697-001</td>
</tr>
<tr>
<td></td>
<td>Intel Celeron M 1.30-GHz</td>
<td>389036-001</td>
</tr>
<tr>
<td>16</td>
<td><strong>Mini PCI communications modules</strong></td>
<td></td>
</tr>
<tr>
<td></td>
<td>802.11b/g wireless local access network (WLAN)</td>
<td>378973-001</td>
</tr>
<tr>
<td></td>
<td>module, for use in most of the world</td>
<td></td>
</tr>
<tr>
<td></td>
<td>802.11b/g WLAN module, for use in the rest of the</td>
<td>378972-001</td>
</tr>
<tr>
<td></td>
<td>world</td>
<td></td>
</tr>
<tr>
<td></td>
<td>802.11b/g WLAN Broadcomm module, for use in most</td>
<td>396694-001</td>
</tr>
<tr>
<td></td>
<td>of the world</td>
<td></td>
</tr>
<tr>
<td></td>
<td>802.11b/g WLAN Broadcomm module, for use in the</td>
<td>396695-001</td>
</tr>
<tr>
<td></td>
<td>rest of the world</td>
<td></td>
</tr>
<tr>
<td>17</td>
<td><strong>Memory modules</strong></td>
<td></td>
</tr>
<tr>
<td></td>
<td>1024 MB</td>
<td>383482-001</td>
</tr>
<tr>
<td></td>
<td>512 MB</td>
<td>383481-001</td>
</tr>
<tr>
<td></td>
<td>256 MB</td>
<td>383480-001</td>
</tr>
<tr>
<td>18</td>
<td><strong>Battery packs</strong></td>
<td></td>
</tr>
<tr>
<td></td>
<td>12-cell, 8.8-AHr</td>
<td>383492-001</td>
</tr>
<tr>
<td></td>
<td>6-cell, 4.4-AHr</td>
<td>383493-001</td>
</tr>
</tbody>
</table>
Computer Major Components, HP Pavilion dv4000
### Table 3-1
Spare Parts: Computer Major Components *(Continued)*

<table>
<thead>
<tr>
<th>Item</th>
<th>Description</th>
<th>Spare Part Number</th>
</tr>
</thead>
</table>
| 19   | **Optical drives**  
      | For use with HP Pavilion dv4000 models  
      | DVD±RW and CD-RW Double Layer Combo Drive with LightScribe | 396704-001  
      | DVD±RW and CD-RW Double Layer Combo Drive | 391743-001  
      | DVD/CD-RW Combo Drive | 383490-001  
      | DVD-ROM drive | 396706-001  
      | For use with Compaq Presario V4000 models  
      | DVD±RW and CD-RW Double Layer Combo Drive with LightScribe | 396705-001  
      | DVD±RW and CD-RW Double Layer Combo Drive | 391744-001  
      | DVD/CD-RW Combo Drive | 384631-001  
      | DVD-ROM drive | 396707-001  
| 20   | **RTC battery** (includes 2-sided tape) | 384626-001  
| 21   | **Hard drives** (include frame and connector)  
      | 5400 rpm  
      | 80-GB | 383487-001  
      | 60-GB | 383485-001  
      | 4200-rpm  
      | 100-GB | 383488-001  
      | 80-GB | 383486-001  
      | 60-GB | 383484-001  
      | 40-GB | 383483-001 |
3.3 Display Assembly Subcomponents

HP Pavilion dv4000 Models
<table>
<thead>
<tr>
<th>Item</th>
<th>Description</th>
<th>Part Number</th>
</tr>
</thead>
<tbody>
<tr>
<td>1a</td>
<td><strong>Display Plastics Kit</strong>, includes:</td>
<td>403919-001</td>
</tr>
<tr>
<td>1b</td>
<td>■ Display bezel</td>
<td></td>
</tr>
<tr>
<td></td>
<td>■ Display enclosure</td>
<td></td>
</tr>
<tr>
<td>2</td>
<td><strong>Display Panel Kit</strong> (includes display panel, display inverter, and display cable)</td>
<td>403918-001</td>
</tr>
<tr>
<td>3a</td>
<td><strong>Display Hinge Kit</strong>, includes:</td>
<td>403921-001</td>
</tr>
<tr>
<td>3b</td>
<td>■ Display hinges (2)</td>
<td></td>
</tr>
<tr>
<td></td>
<td>■ Display release hooks (2)</td>
<td></td>
</tr>
<tr>
<td>4</td>
<td><strong>Wireless antenna</strong> (includes cable and board)</td>
<td>397924-001</td>
</tr>
<tr>
<td></td>
<td><strong>Display Label Kit</strong> (not illustrated)</td>
<td>403925-001</td>
</tr>
<tr>
<td></td>
<td><strong>Display Screw Kit</strong> (not illustrated, includes Phillips PM2.5×7.0 screws, Phillips PM2.5×5.0 screws, and rubber screw covers)</td>
<td>403923-001</td>
</tr>
</tbody>
</table>
3.4 Display Assembly Subcomponents
Compaq Presario V4000 Models
### Table 3-3

**Compaq Presario V4000 Models**  
**Display Assembly Subcomponent**  
**Spare Part Number Information**

<table>
<thead>
<tr>
<th>Item</th>
<th>Description</th>
<th>Part Number</th>
</tr>
</thead>
</table>
| 1a   | Display Plastics Kit, includes:  
■ Display bezel  
■ Display enclosure  
■ Display hinge covers | 403920-001 |
| 1b   | Display Panel Kit (includes the display panel, display inverter, and display cable) | 403918-001 |
| 1c   | Display Hinge Kit, includes:  
■ Display hinges (2)  
■ Display release hooks (2) | 403922-001 |
| 2    | Wireless antenna (includes cable and board) | 397925-001 |
| 3a   | Display Label Kit (not illustrated) | 403926-001 |
| 3b   | Display Screw Kit (not illustrated, includes Phillips PM2.5×7.0 screws, Phillips PM2.5×5.0 screws, and rubber screw covers) | 403924-001 |
3.5 Miscellaneous Doors/Covers Kit
Spare Part Information
### Table 3-4

**Miscellaneous Doors/Covers Kit**

**Spare Part Information**

<table>
<thead>
<tr>
<th>Item</th>
<th>Description</th>
<th>Spare Part Number</th>
</tr>
</thead>
<tbody>
<tr>
<td></td>
<td><strong>Miscellaneous Doors/Covers Kit</strong></td>
<td></td>
</tr>
<tr>
<td></td>
<td>For use with HP Pavilion dv4000 models</td>
<td>383469-001</td>
</tr>
<tr>
<td></td>
<td>For use with Compaq Presario V4000 models</td>
<td>384627-001</td>
</tr>
<tr>
<td></td>
<td>Includes:</td>
<td></td>
</tr>
<tr>
<td>1</td>
<td>PC Card slot space saver</td>
<td></td>
</tr>
<tr>
<td>2</td>
<td>ExpressCard slot space saver</td>
<td></td>
</tr>
<tr>
<td>3</td>
<td>Thermal cover (includes one captive screw, secured by C-clip)</td>
<td></td>
</tr>
<tr>
<td></td>
<td>Computer feet</td>
<td></td>
</tr>
<tr>
<td>4a</td>
<td>For use with HP Pavilion dv4000 models</td>
<td></td>
</tr>
<tr>
<td>4b</td>
<td>For use with Compaq Presario V4000 models</td>
<td></td>
</tr>
<tr>
<td>5</td>
<td>Memory module/Mini PCI compartment cover (includes 3 captive screws, secured by C-clips)</td>
<td></td>
</tr>
<tr>
<td>6</td>
<td>Hard drive cover (includes 2 captive screws, secured by C-clips)</td>
<td></td>
</tr>
</tbody>
</table>
3.6 Miscellaneous Cable Kit
### Table 3-5

**Miscellaneous Cable Kit**

Spare Part Number Information

<table>
<thead>
<tr>
<th>Item</th>
<th>Description</th>
<th>Spare Part Number</th>
</tr>
</thead>
<tbody>
<tr>
<td></td>
<td>Miscellaneous Cable Kit</td>
<td>383468-001</td>
</tr>
<tr>
<td></td>
<td>Includes:</td>
<td></td>
</tr>
<tr>
<td>1</td>
<td>Modern cable</td>
<td></td>
</tr>
<tr>
<td>2</td>
<td>Audio board cable</td>
<td></td>
</tr>
<tr>
<td>3</td>
<td>USB board cable</td>
<td></td>
</tr>
<tr>
<td>4</td>
<td>Bluetooth module cable</td>
<td></td>
</tr>
<tr>
<td>5</td>
<td>LED board cable</td>
<td></td>
</tr>
</tbody>
</table>
3.7 Mass Storage Devices
<table>
<thead>
<tr>
<th>Item</th>
<th>Description</th>
<th>Spare Part Number</th>
</tr>
</thead>
<tbody>
<tr>
<td>1</td>
<td><strong>Hard drives</strong> (include frame and connector)</td>
<td></td>
</tr>
<tr>
<td></td>
<td>5400 rpm</td>
<td></td>
</tr>
<tr>
<td></td>
<td>80-GB 383487-001</td>
<td>383488-001</td>
</tr>
<tr>
<td></td>
<td>60-GB 383485-001</td>
<td>383486-001</td>
</tr>
<tr>
<td></td>
<td>4200-rpm</td>
<td>383484-001</td>
</tr>
<tr>
<td></td>
<td>40-GB 383483-001</td>
<td>383482-001</td>
</tr>
</tbody>
</table>

| 2    | **Optical drives**                              |                   |
|      | For use with HP Pavilion dv4000 models          |                   |
|      | DVD±RW and CD-RW Double Layer Combo Drive       | 396704-001        |
|      | with LightScribe                                |                   |
|      | DVD±RW and CD-RW Double Layer Combo Drive       | 391743-001        |
|      | DVD/CD-RW Combo Drive                           | 383490-001        |
|      | DVD-ROM drive                                   | 396706-001        |

|      | For use with Compaq Presario V4000 models       |                   |
|      | DVD±RW and CD-RW Double Layer Combo Drive       | 396705-001        |
|      | with LightScribe                                |                   |
|      | DVD±RW and CD-RW Double Layer Combo Drive       | 391744-001        |
|      | DVD/CD-RW Combo Drive                           | 384631-001        |
|      | DVD-ROM drive                                   | 396707-001        |

|      | **USB digital drive** (not illustrated)         | 364727-001        |
### 3.8 Miscellaneous (Not Illustrated)

<table>
<thead>
<tr>
<th>Description</th>
<th>Spare Part Number</th>
</tr>
</thead>
<tbody>
<tr>
<td><strong>Power supply, 65 watt</strong></td>
<td>383494-001</td>
</tr>
<tr>
<td><strong>Power cords</strong></td>
<td></td>
</tr>
<tr>
<td>For use in:</td>
<td></td>
</tr>
<tr>
<td>Australia and New Zealand</td>
<td>383496-011</td>
</tr>
<tr>
<td>Belgium, Europe, Finland, France, Germany, Greece,</td>
<td>383496-021</td>
</tr>
<tr>
<td>the Netherlands, Norway, Portugal, Spain, and Sweden</td>
<td></td>
</tr>
<tr>
<td>Canada, French Canada, Latin America, Taiwan, Thailand, and the United States</td>
<td>383496-001</td>
</tr>
<tr>
<td>Denmark</td>
<td>383496-081</td>
</tr>
<tr>
<td>Hong Kong and the United Kingdom</td>
<td>383496-031</td>
</tr>
<tr>
<td>Israel</td>
<td>383496-BB1</td>
</tr>
<tr>
<td>Italy</td>
<td>383496-061</td>
</tr>
<tr>
<td>People’s Republic of China</td>
<td>383496-AA1</td>
</tr>
<tr>
<td>Korea</td>
<td>383496-AD1</td>
</tr>
<tr>
<td>Switzerland</td>
<td>383496-111</td>
</tr>
</tbody>
</table>
### Table 3-7

**Miscellaneous (Not Illustrated)**

**Spare Part Information (Continued)**

<table>
<thead>
<tr>
<th>Description</th>
<th>Spare Part Number</th>
</tr>
</thead>
<tbody>
<tr>
<td><strong>Screw Kits</strong> (include the following screws; refer to Appendix C, “Screw Listing,” for more information on specifications and usage)</td>
<td></td>
</tr>
<tr>
<td>Phillips PM2.5×8.0 screw</td>
<td></td>
</tr>
<tr>
<td>Phillips PM2.5×7.0 screw</td>
<td></td>
</tr>
<tr>
<td>Phillips PM2.5×4.0 screw</td>
<td></td>
</tr>
<tr>
<td>Phillips PM2.0×16.0 screw</td>
<td></td>
</tr>
<tr>
<td>Phillips PM2.0×5.0 screw</td>
<td></td>
</tr>
<tr>
<td>Phillips PM2.0×12.0 spring-loaded screw</td>
<td>384628-001</td>
</tr>
<tr>
<td>Phillips PM2.0×4.0 screw</td>
<td>385740-001</td>
</tr>
<tr>
<td>Phillips PM2.0×2.0 screw</td>
<td></td>
</tr>
<tr>
<td>Phillips PM1.5×4.0 screw</td>
<td></td>
</tr>
<tr>
<td>For use with full-featured HP Pavilion dv4000 models</td>
<td>385741-001</td>
</tr>
<tr>
<td>For use with defeatured HP Pavilion dv4000 models</td>
<td>385742-001</td>
</tr>
<tr>
<td>For use with full-featured Compaq Presario V4000 models</td>
<td></td>
</tr>
<tr>
<td>For use with defeatured Compaq Presario V4000 models</td>
<td></td>
</tr>
<tr>
<td>All-in-One Media Cable II</td>
<td>375759-001</td>
</tr>
<tr>
<td>Audio Y-Cable 2</td>
<td>379452-001</td>
</tr>
<tr>
<td>USB travel mouse</td>
<td>309674-001</td>
</tr>
<tr>
<td>USB digital drive</td>
<td>364727-001</td>
</tr>
<tr>
<td>Wired headset with volume control</td>
<td>371693-001</td>
</tr>
</tbody>
</table>
### 3.9 Sequential Part Number Listing

Table 3-8

<table>
<thead>
<tr>
<th>Spare Part Number</th>
<th>Description</th>
</tr>
</thead>
<tbody>
<tr>
<td>309674-001</td>
<td>USB travel mouse</td>
</tr>
<tr>
<td>364727-001</td>
<td>USB digital drive</td>
</tr>
<tr>
<td>371693-001</td>
<td>Wired headset with volume control</td>
</tr>
<tr>
<td>375759-001</td>
<td>All-in-One Media Cable II</td>
</tr>
<tr>
<td>378972-001</td>
<td>802.11b/g WLAN Mini PCI communications module, for use in most of the world</td>
</tr>
<tr>
<td>378973-001</td>
<td>802.11b/g WLAN Mini PCI communications module, for use in the rest of the world</td>
</tr>
<tr>
<td>379452-001</td>
<td>Audio Y-Cable 2</td>
</tr>
<tr>
<td>383459-001</td>
<td>Bluetooth module (includes Bluetooth module cable)</td>
</tr>
<tr>
<td>383462-001</td>
<td>Defeatured system board</td>
</tr>
<tr>
<td>383466-001</td>
<td>Speakers</td>
</tr>
<tr>
<td>383467-001</td>
<td>TouchPad cable</td>
</tr>
<tr>
<td>383468-001</td>
<td>Miscellaneous Cable Kit</td>
</tr>
<tr>
<td>383469-001</td>
<td>Miscellaneous Doors/Covers Kit for use with HP Pavilion dv4000 models</td>
</tr>
<tr>
<td>383471-001</td>
<td>Intel Celeron M 1.50-GHz processor (includes thermal paste)</td>
</tr>
</tbody>
</table>
### Table 3-8
Sequential Part Number Listing (Continued)

<table>
<thead>
<tr>
<th>Spare Part Number</th>
<th>Description</th>
</tr>
</thead>
<tbody>
<tr>
<td>383473-001</td>
<td>Intel Pentium M 1.60-GHz processor (includes thermal paste)</td>
</tr>
<tr>
<td>383474-001</td>
<td>Intel Pentium M 1.73-GHz processor (includes thermal paste)</td>
</tr>
<tr>
<td>383476-001</td>
<td>15.4-inch, WXGA, TFT display assembly, for use with HP Pavilion dv4000 models (includes display cable, wireless antenna boards, and antenna cables)</td>
</tr>
<tr>
<td>383477-001</td>
<td>15.4-inch, WXGA, TFT display assembly with BrightView for use with HP Pavilion dv4000 models (includes display cable, wireless antenna boards, and antenna cables)</td>
</tr>
<tr>
<td>383478-001</td>
<td>15.4-inch, WXGA, TFT display assembly for use with Compaq Presario V4000 models (includes display cable, wireless antenna boards, and antenna cables)</td>
</tr>
<tr>
<td>383479-001</td>
<td>15.4-inch, WXGA, TFT display assembly with BrightView for use with Compaq Presario V4000 models (includes display cable, wireless antenna boards, and antenna cables)</td>
</tr>
<tr>
<td>383480-001</td>
<td>256-MB memory module</td>
</tr>
<tr>
<td>383481-001</td>
<td>512-MB memory module</td>
</tr>
<tr>
<td>383482-001</td>
<td>1024-MB memory module</td>
</tr>
<tr>
<td>383483-001</td>
<td>4200-rpm 40-GB hard drive (includes frame and connector)</td>
</tr>
<tr>
<td>383484-001</td>
<td>4200-rpm 60-GB hard drive (includes frame and connector)</td>
</tr>
<tr>
<td>383485-001</td>
<td>5400 rpm, 60-GB hard drive (includes frame and connector)</td>
</tr>
<tr>
<td>383486-001</td>
<td>4200-rpm 80-GB hard drive (includes frame and connector)</td>
</tr>
</tbody>
</table>
### Table 3-8
Sequential Part Number Listing (Continued)

<table>
<thead>
<tr>
<th>Spare Part Number</th>
<th>Description</th>
</tr>
</thead>
<tbody>
<tr>
<td>383487-001</td>
<td>5400 rpm, 80-GB hard drive (includes frame and connector)</td>
</tr>
<tr>
<td>383488-001</td>
<td>4200-rpm 100-GB hard drive (includes frame and connector)</td>
</tr>
<tr>
<td>383490-001</td>
<td>DVD/CD-RW Combo Drive or use with HP Pavilion dv4000 models</td>
</tr>
<tr>
<td>383492-001</td>
<td>12-cell, 8.8-AHr battery pack for use with HP Pavilion dv4000 models</td>
</tr>
<tr>
<td>383493-001</td>
<td>6-cell, 4.4-AHr battery pack for use with HP Pavilion dv4000 models</td>
</tr>
<tr>
<td>383494-001</td>
<td>65-watt power supply</td>
</tr>
<tr>
<td>383495-001</td>
<td>Keyboard for use with HP Pavilion dv4000 models in the United States</td>
</tr>
<tr>
<td>383495-021</td>
<td>Keyboard for use with HP Pavilion dv4000 models in Europe</td>
</tr>
<tr>
<td>383495-031</td>
<td>Keyboard for use with HP Pavilion dv4000 models in the United Kingdom</td>
</tr>
<tr>
<td>383495-041</td>
<td>Keyboard for use with HP Pavilion dv4000 models in Germany</td>
</tr>
<tr>
<td>383495-051</td>
<td>Keyboard for use with HP Pavilion dv4000 models in France</td>
</tr>
<tr>
<td>383495-061</td>
<td>Keyboard for use with HP Pavilion dv4000 models in Italy</td>
</tr>
<tr>
<td>383495-071</td>
<td>Keyboard for use with HP Pavilion dv4000 models in Spain</td>
</tr>
<tr>
<td>383495-081</td>
<td>Keyboard for use with HP Pavilion dv4000 models in Denmark</td>
</tr>
</tbody>
</table>
### Table 3-8

**Sequential Part Number Listing (Continued)**

<table>
<thead>
<tr>
<th>Spare Part Number</th>
<th>Description</th>
</tr>
</thead>
<tbody>
<tr>
<td>383495-091</td>
<td>Keyboard for use with HP Pavilion dv4000 models in Norway</td>
</tr>
<tr>
<td>383495-111</td>
<td>Keyboard for use with HP Pavilion dv4000 models in Switzerland</td>
</tr>
<tr>
<td>383495-121</td>
<td>Keyboard for use with HP Pavilion dv4000 models in French Canada</td>
</tr>
<tr>
<td>383495-131</td>
<td>Keyboard for use with HP Pavilion dv4000 models in Portugal</td>
</tr>
<tr>
<td>383495-141</td>
<td>Keyboard for use with HP Pavilion dv4000 models in Turkey</td>
</tr>
<tr>
<td>383495-151</td>
<td>Keyboard for use with HP Pavilion dv4000 models in Greece</td>
</tr>
<tr>
<td>383495-171</td>
<td>Keyboard for use with HP Pavilion dv4000 models in Saudi Arabia</td>
</tr>
<tr>
<td>383495-181</td>
<td>Keyboard for use with HP Pavilion dv4000 models in Belgium</td>
</tr>
<tr>
<td>383495-281</td>
<td>Keyboard for use with HP Pavilion dv4000 models in Thailand</td>
</tr>
<tr>
<td>383495-AB1</td>
<td>Keyboard for use with HP Pavilion dv4000 models in Taiwan</td>
</tr>
<tr>
<td>383495-AD1</td>
<td>Keyboard for use with HP Pavilion dv4000 models in Korea</td>
</tr>
<tr>
<td>383495-B71</td>
<td>Keyboard for use with HP Pavilion dv4000 models in Sweden/Finland</td>
</tr>
<tr>
<td>383495-BB1</td>
<td>Keyboard for use with HP Pavilion dv4000 models in Israel</td>
</tr>
<tr>
<td>383496-001</td>
<td>Power cord for use in Canada, French Canada, Latin America, Taiwan, Thailand, and the United States</td>
</tr>
<tr>
<td>Spare Part Number</td>
<td>Description</td>
</tr>
<tr>
<td>-------------------</td>
<td>---------------------------------------------------------------------------------------------------------------------------------------------</td>
</tr>
<tr>
<td>383496-011</td>
<td>Power cord for use in Australia and New Zealand</td>
</tr>
<tr>
<td>383496-021</td>
<td>Power cord for use in Belgium, Europe, Finland, France, Germany, Greece, the Netherlands, Norway, Portugal, Spain, and Sweden</td>
</tr>
<tr>
<td>383496-031</td>
<td>Power cord for use in Hong Kong and the United Kingdom</td>
</tr>
<tr>
<td>383496-061</td>
<td>Power cord for use in Italy</td>
</tr>
<tr>
<td>383496-081</td>
<td>Power cord for use in Denmark</td>
</tr>
<tr>
<td>383496-111</td>
<td>Power cord for use in Switzerland</td>
</tr>
<tr>
<td>383496-AA1</td>
<td>Power cord for use in People’s Republic of China</td>
</tr>
<tr>
<td>383496-AD1</td>
<td>Power cord for use in Korea</td>
</tr>
<tr>
<td>383496-BB1</td>
<td>Power cord for use in Israel</td>
</tr>
<tr>
<td>384619-001</td>
<td>Switch cover for use with Compaq Presario V4000 models with wireless capability (includes LED board and LED board cable)</td>
</tr>
<tr>
<td>384622-001</td>
<td>Heat sink assembly (includes fan, heat sink, and thermal paste)</td>
</tr>
<tr>
<td>384623-001</td>
<td>Modem board (high-speed 56K, includes modem cable)</td>
</tr>
<tr>
<td>384625-001</td>
<td>USB board (includes USB board, USB board frame, USB board cable, and audio board cable)</td>
</tr>
<tr>
<td>384626-001</td>
<td>RTC battery (includes 2-sided tape)</td>
</tr>
</tbody>
</table>
Table 3-8  
Sequential Part Number Listing (Continued)

<table>
<thead>
<tr>
<th>Spare Part Number</th>
<th>Description</th>
</tr>
</thead>
<tbody>
<tr>
<td>384627-001</td>
<td>Miscellaneous Doors/Covers Kit for use with Compaq Presario V4000 models</td>
</tr>
<tr>
<td>384628-001</td>
<td>Screw Kit for use with full-featured HP Pavilion dv4000 models</td>
</tr>
<tr>
<td>384629-001</td>
<td>Base enclosure for use with full-featured HP Pavilion dv4000 models</td>
</tr>
<tr>
<td>384631-001</td>
<td>DVD/CD-RW Combo Drive for use with Compaq Presario V4000 models</td>
</tr>
<tr>
<td>384635-001</td>
<td>Keyboard for use with Compaq Presario V4000 models in the United States</td>
</tr>
<tr>
<td>384635-031</td>
<td>Keyboard for use with Compaq Presario V4000 models in the United Kingdom</td>
</tr>
<tr>
<td>384635-051</td>
<td>Keyboard for use with Compaq Presario V4000 models in France</td>
</tr>
<tr>
<td>384635-061</td>
<td>Keyboard for use with Compaq Presario V4000 models in Italy</td>
</tr>
<tr>
<td>384635-071</td>
<td>Keyboard for use with Compaq Presario V4000 models in Spain</td>
</tr>
<tr>
<td>384635-081</td>
<td>Keyboard for use with Compaq Presario V4000 models in Denmark</td>
</tr>
<tr>
<td>384635-091</td>
<td>Keyboard for use with Compaq Presario V4000 models in Norway</td>
</tr>
</tbody>
</table>
### Table 3-8
Sequential Part Number Listing (Continued)

<table>
<thead>
<tr>
<th>Spare Part Number</th>
<th>Description</th>
</tr>
</thead>
<tbody>
<tr>
<td>384635-101</td>
<td>Keyboard for use with Compaq Presario V4000 models in Sweden and Finland</td>
</tr>
<tr>
<td>384635-121</td>
<td>Keyboard for use with Compaq Presario V4000 models in French Canada</td>
</tr>
<tr>
<td>384635-331</td>
<td>Keyboard for use with Compaq Presario V4000 models in the Netherlands</td>
</tr>
<tr>
<td>384635-AB1</td>
<td>Keyboard for use with Compaq Presario V4000 models in Thailand</td>
</tr>
<tr>
<td>384635-AD1</td>
<td>Keyboard for use with Compaq Presario V4000 models in Korea</td>
</tr>
<tr>
<td>385739-001</td>
<td>Base enclosure for use with Compaq Presario V4000 models</td>
</tr>
<tr>
<td>385740-001</td>
<td>Screw Kit for use with defeatured HP Pavilion dv4000 models</td>
</tr>
<tr>
<td>385741-001</td>
<td>Screw Kit for use with full-featured Compaq Presario V4000 models</td>
</tr>
<tr>
<td>385742-001</td>
<td>Screw Kit For use with defeatured Compaq Presario V4000 models</td>
</tr>
<tr>
<td>389036-001</td>
<td>Intel Celeron M 1.30-GHz processor (includes thermal paste)</td>
</tr>
<tr>
<td>390917-001</td>
<td>Base enclosure for use with defeatured HP Pavilion dv4000 models</td>
</tr>
<tr>
<td>391737-001</td>
<td>TouchPad board, for use with Compaq Presario V4000 models</td>
</tr>
</tbody>
</table>
### Table 3-8
Sequential Part Number Listing (Continued)

<table>
<thead>
<tr>
<th>Spare Part Number</th>
<th>Description</th>
</tr>
</thead>
<tbody>
<tr>
<td>391743-001</td>
<td>DVD±RW and CD-RW Combo Drive (double-layer writing capability), for use with HP Pavilion dv4000 models</td>
</tr>
<tr>
<td>391744-001</td>
<td>DVD±RW and CD-RW Combo Drive (double-layer writing capability), for use with Compaq Presario V4000 models</td>
</tr>
<tr>
<td>393327-001</td>
<td>Intel Pentium M 1.86-GHz processor (includes thermal paste)</td>
</tr>
<tr>
<td>396694-001</td>
<td>802.11b/g WLAN Mini PCI communications Broadcomm card, for use in most of the world</td>
</tr>
<tr>
<td>396695-001</td>
<td>802.11b/g WLAN Mini PCI communications Broadcomm card, for use in the rest of the world</td>
</tr>
<tr>
<td>396696-001</td>
<td>Full-featured system board</td>
</tr>
<tr>
<td>396697-001</td>
<td>Intel Celeron M 1.40-GHz processor (includes thermal paste)</td>
</tr>
<tr>
<td>396698-001</td>
<td>Intel Pentium M 1.60-GHz processor (includes thermal paste)</td>
</tr>
<tr>
<td>396699-001</td>
<td>Intel Pentium M 2.00-GHz processor (includes thermal paste)</td>
</tr>
<tr>
<td>396700-001</td>
<td>Intel Pentium M 2.13-GHz processor (includes thermal paste)</td>
</tr>
<tr>
<td>396704-001</td>
<td>DVD±RW and CD-RW Double Layer Combo Drive with LightScribe for use with HP Pavilion dv4000 models</td>
</tr>
<tr>
<td>396705-001</td>
<td>DVD±RW and CD-RW Double Layer Combo Drive with LightScribe for use with Compaq Presario V4000 models</td>
</tr>
<tr>
<td>396706-001</td>
<td>DVD-ROM drive for use with HP Pavilion dv4000 models</td>
</tr>
</tbody>
</table>
### Table 3-8
Sequential Part Number Listing (Continued)

<table>
<thead>
<tr>
<th>Spare Part Number</th>
<th>Description</th>
</tr>
</thead>
<tbody>
<tr>
<td>396707-001</td>
<td>DVD-ROM drive for use with Compaq Presario V4000 models</td>
</tr>
<tr>
<td>397858-001</td>
<td>Top cover for use with full-featured HP Pavilion dv4000 models (includes TouchPad)</td>
</tr>
<tr>
<td>397859-001</td>
<td>Top cover for use with full-featured Compaq Presario V4000 models (does not include TouchPad)</td>
</tr>
<tr>
<td>397860-001</td>
<td>Top cover for use with defeatured HP Pavilion dv4000 models (includes TouchPad)</td>
</tr>
<tr>
<td>397861-001</td>
<td>Top cover for use with defeatured Compaq Presario V4000 models (does not include TouchPad)</td>
</tr>
<tr>
<td>397924-001</td>
<td>Wireless antenna for use with HP Pavilion dv4000 models (includes cable and transceiver)</td>
</tr>
<tr>
<td>397925-001</td>
<td>Wireless antenna for use with Compaq Presario V4000 models (includes cable and transceiver)</td>
</tr>
<tr>
<td>398752-001</td>
<td>6-cell, 4.4-Amp hour battery pack</td>
</tr>
<tr>
<td>403004-001</td>
<td>Switch cover for use with Compaq Presario V4000 models without wireless capability (includes LED board and LED board cable)</td>
</tr>
<tr>
<td>403572-01</td>
<td>128-MB memory module</td>
</tr>
<tr>
<td>403573-001</td>
<td>256-MB memory module</td>
</tr>
<tr>
<td>403737-001</td>
<td>12-cell, 8.8-Amp hour battery pack</td>
</tr>
</tbody>
</table>
Table 3-8  
Sequential Part Number Listing (Continued)

<table>
<thead>
<tr>
<th>Spare Part Number</th>
<th>Description</th>
</tr>
</thead>
<tbody>
<tr>
<td>403910-001</td>
<td>Switch cover for use with HP Pavilion v4000 models without wireless capability (includes LED board and LED board cable)</td>
</tr>
<tr>
<td>403911-001</td>
<td>Switch cover for use with HP Pavilion v4000 models with wireless capability (includes LED board and LED board cable)</td>
</tr>
<tr>
<td>403915-001</td>
<td>System board shield for use with HP Pavilion dv4000 models</td>
</tr>
<tr>
<td>403918-001</td>
<td>Display Panel Kit (includes display inverter and display cable)</td>
</tr>
<tr>
<td>403919-001</td>
<td>Display Plastics Kit for use with HP Pavilion dv4000 models (includes display bezel and display enclosure)</td>
</tr>
<tr>
<td>403920-001</td>
<td>Display Plastics Kit for use with Compaq Presario V4000 models (includes display bezel, display enclosure, and display hinge covers)</td>
</tr>
<tr>
<td>403921-001</td>
<td>Display Hinge Kit for use with HP Pavilion dv4000 models (includes display hinges and display release hooks)</td>
</tr>
<tr>
<td>403922-001</td>
<td>Display Hinge Kit for use with Compaq Presario V4000 models (includes display hinges and display release loop)</td>
</tr>
<tr>
<td>403923-001</td>
<td>Display Screw Kit for use with HP Pavilion dv4000 models (includes Phillips PM2.5×7.0 screws, Phillips PM2.5×5.0 screws, and rubber screw covers)</td>
</tr>
<tr>
<td>403924-001</td>
<td>Display Screw Kit for use with Compaq Presario V4000 models (includes Phillips PM2.5×7.0 screws, Phillips PM2.5×5.0 screws, and rubber screw covers)</td>
</tr>
</tbody>
</table>
### Table 3-8
Sequential Part Number Listing *(Continued)*

<table>
<thead>
<tr>
<th>Spare Part Number</th>
<th>Description</th>
</tr>
</thead>
<tbody>
<tr>
<td>403925-001</td>
<td>Display Label Kit for use with HP Pavilion dv4000 models</td>
</tr>
<tr>
<td>403926-001</td>
<td>Display Label Kit for use with Compaq Presario V4000 models</td>
</tr>
<tr>
<td>404369-001</td>
<td>Rubber feet for use with HP Pavilion dv4000 models</td>
</tr>
<tr>
<td>404576-001</td>
<td>Rubber feet for use with Compaq Presario V4000 models</td>
</tr>
<tr>
<td>404803-001</td>
<td>Intel Celeron M 1.60-GHz processor (includes thermal paste)</td>
</tr>
<tr>
<td>405019-001</td>
<td>Top cover for use with defeatured HP Pavilion dv4000 models</td>
</tr>
<tr>
<td></td>
<td>(includes TouchPad)</td>
</tr>
</tbody>
</table>
This chapter provides essential information for proper and safe removal and replacement service.

4.1 Tools Required

You will need the following tools to complete the removal and replacement procedures:

- Magnetic screwdriver
- Phillips P0 screwdriver
- Flat-bladed screwdriver
- Tool kit—includes connector removal tool, loopback plugs, and case utility tool
4.2 Service Considerations

The following sections include some of the considerations that you should keep in mind during disassembly and assembly procedures.

As you remove each subassembly from the computer, place the subassembly (and all accompanying screws) away from the work area to prevent damage.

Plastic Parts

Using excessive force during disassembly and reassembly can damage plastic parts. Use care when handling the plastic parts. Apply pressure only at the points designated in the maintenance instructions.

Cables and Connectors

CAUTION: When servicing the computer, ensure that cables are placed in their proper locations during the reassembly process. Improper cable placement can damage the computer.

Cables must be handled with extreme care to avoid damage. Apply only the tension required to unseat or seat the cables during removal and insertion. Handle cables by the connector whenever possible. In all cases, avoid bending, twisting, or tearing cables. Ensure that cables are routed in such a way that they cannot be caught or snagged by parts being removed or replaced. Handle flex cables with extreme care; these cables tear easily.
4.3 Preventing Damage to Removable Drives

Removable drives are fragile components that must be handled with care. To prevent damage to the computer, damage to a removable drive, or loss of information, observe the following precautions:

- Before removing or inserting a hard drive, shut down the computer. If you are unsure whether the computer is off or in hibernation, turn the computer on, and then shut it down through the operating system.
- Before removing a diskette drive or optical drive, ensure that a diskette or disc is not in the drive and ensure that the optical drive tray is closed.
- Before handling a drive, ensure that you are discharged of static electricity. While handling a drive, avoid touching the connector.
- Handle drives on surfaces covered with at least one inch of shock-proof foam.
- Avoid dropping drives from any height onto any surface.
- After removing a hard drive, an optical drive, or a diskette drive, place it in a static-proof bag.
- Avoid exposing a hard drive to products that have magnetic fields, such as monitors or speakers.
- Avoid exposing a drive to temperature extremes or liquids.
- If a drive must be mailed, place the drive in a bubble pack mailer or other suitable form of protective packaging and label the package “FRAGILE: Handle With Care.”
4.4 Preventing Electrostatic Damage

Many electronic components are sensitive to electrostatic discharge (ESD). Circuitry design and structure determine the degree of sensitivity. Networks built into many integrated circuits provide some protection, but in many cases, the discharge contains enough power to alter device parameters or melt silicon junctions.

A sudden discharge of static electricity from a finger or other conductor can destroy static-sensitive devices or microcircuitry. Often the spark is neither felt nor heard, but damage occurs.

An electronic device exposed to electrostatic discharge may not be affected at all and can work perfectly throughout a normal cycle. Or the device may function normally for a while, then degrade in the internal layers, reducing its life expectancy.
4.5 Packaging and Transporting Precautions

Use the following grounding precautions when packaging and transporting equipment:

■ To avoid hand contact, transport products in static-safe containers, such as tubes, bags, or boxes.
■ Protect all electrostatic-sensitive parts and assemblies with conductive or approved containers or packaging.
■ Keep electrostatic-sensitive parts in their containers until the parts arrive at static-free workstations.
■ Place items on a grounded surface before removing items from their containers.
■ Always be properly grounded when touching a sensitive component or assembly.
■ Store reusable electrostatic-sensitive parts from assemblies in protective packaging or nonconductive foam.
■ Use transporters and conveyors made of antistatic belts and roller bushings. Ensure that mechanized equipment used for moving materials is wired to ground and that proper materials are selected to avoid static charging. When grounding is not possible, use an ionizer to dissipate electric charges.
4.6 Workstation Precautions

Use the following grounding precautions at workstations:

- Cover the workstation with approved static-shielding material (refer to Table 4-2, “Static-Shielding Materials”).
- Use a wrist strap connected to a properly grounded work surface and use properly grounded tools and equipment.
- Use conductive field service tools such as cutters, screwdrivers, and vacuums.
- When fixtures must directly contact dissipative surfaces, use fixtures made only of static-safe materials.
- Keep the work area free of nonconductive materials such as ordinary plastic assembly aids and Styrofoam.
- Handle electrostatic-sensitive components, parts, and assemblies by the case or PCM laminate. Handle these items only at static-free workstations.
- Avoid contact with pins, leads, or circuitry.
- Turn off power and input signals before inserting or removing connectors or test equipment.
4.7 Grounding Equipment and Methods

Grounding equipment must include either a wrist strap or a foot strap at a grounded workstation.

- When seated, wear a wrist strap connected to a grounded system. Wrist straps are flexible straps with a minimum of one megohm ±10% resistance in the ground cords. To provide proper ground, wear a strap snugly against the skin at all times. On grounded mats with banana-plug connectors, use alligator clips to connect a wrist strap.

- When standing, use foot straps and a grounded floor mat. Foot straps (heel, toe, or boot straps) can be used at standing workstations and are compatible with most types of shoes or boots. On conductive floors or dissipative floor mats, use foot straps on both feet with a minimum of one megohm resistance between the operator and ground. To be effective, the conductive strips must be worn in contact with the skin.

Other grounding equipment recommended for use in preventing electrostatic damage includes:

- Antistatic tape
- Antistatic smocks, aprons, and sleeve protectors
- Conductive bins and other assembly or soldering aids
- Nonconductive foam
- Conductive tabletop workstations with ground cords of one megohm resistance
- Static-dissipative tables or floor mats with hard ties to the ground
- Field service kits
- Static awareness labels
- Material-handling packages
- Nonconductive plastic bags, tubes, or boxes
- Metal tote boxes
- Electrostatic voltage levels and protective materials
Table 4-1 shows how humidity affects the electrostatic voltage levels generated by different activities.

<table>
<thead>
<tr>
<th>Event</th>
<th>Relative Humidity</th>
</tr>
</thead>
<tbody>
<tr>
<td>Walking across carpet</td>
<td>35,000 V 15,000 V 7,500 V</td>
</tr>
<tr>
<td>Walking across vinyl floor</td>
<td>12,000 V 5,000 V 3,000 V</td>
</tr>
<tr>
<td>Motions of bench worker</td>
<td>6,000 V 800 V 400 V</td>
</tr>
<tr>
<td>Removing DIPS from plastic tube</td>
<td>2,000 V 700 V 400 V</td>
</tr>
<tr>
<td>Removing DIPS from vinyl tray</td>
<td>11,500 V 4,000 V 2,000 V</td>
</tr>
<tr>
<td>Removing DIPS from Styrofoam</td>
<td>14,500 V 5,000 V 3,500 V</td>
</tr>
<tr>
<td>Removing bubble pack from PCB</td>
<td>26,500 V 20,000 V 7,000 V</td>
</tr>
<tr>
<td>Packing PCBs in foam-lined box</td>
<td>21,000 V 11,000 V 5,000 V</td>
</tr>
</tbody>
</table>

A product can be degraded by as little as 700 V.

Table 4-2 lists the shielding protection provided by antistatic bags and floor mats.

<table>
<thead>
<tr>
<th>Material</th>
<th>Use</th>
<th>Voltage Protection Level</th>
</tr>
</thead>
<tbody>
<tr>
<td>Antistatic plastic</td>
<td>Bags</td>
<td>1,500 V</td>
</tr>
<tr>
<td>Carbon-loaded plastic</td>
<td>Floor mats</td>
<td>7,500 V</td>
</tr>
<tr>
<td>Metallized laminate</td>
<td>Floor mats</td>
<td>5,000 V</td>
</tr>
</tbody>
</table>
This chapter provides removal and replacement procedures.

There are as many as 95 screws and screw locks, in 11 different sizes, that may have to be removed, replaced, or loosened when servicing the computer. Make special note of each screw and screw lock size and location during removal and replacement.

Refer to Appendix C, “Screw Listing,” for detailed information on screw and screw lock sizes, locations, and usage.
5.1 **Serial Number**

Report the computer serial number to HP when requesting information or ordering spare parts. The serial number is located on the bottom of the computer.

*Serial Number Location*
5.2 Disassembly Sequence Chart

Use the chart below to determine the section number to be referenced when removing computer components.

<table>
<thead>
<tr>
<th>Section</th>
<th>Description</th>
<th># of Screws Removed</th>
</tr>
</thead>
<tbody>
<tr>
<td>5.3</td>
<td>Preparing the Computer for Disassembly Battery pack</td>
<td>0</td>
</tr>
<tr>
<td>5.4</td>
<td>Hard Drive</td>
<td>2 loosened to remove the hard drive cover 4 to remove the hard drive frame</td>
</tr>
<tr>
<td>5.5</td>
<td>Computer Feet</td>
<td>0</td>
</tr>
<tr>
<td>5.6</td>
<td>Optical Drive</td>
<td>1</td>
</tr>
<tr>
<td>5.7</td>
<td>Memory Module</td>
<td>3 loosened to remove the memory module/Mini PCI compartment cover</td>
</tr>
<tr>
<td>5.8</td>
<td>Mini PCI Communications Module</td>
<td>0</td>
</tr>
</tbody>
</table>

⚠️ To prevent an unresponsive system and the display of a warning message, install only a Mini PCI device authorized for use in your computer by the governmental agency that regulates wireless devices in your country. If you install a device and then receive a warning message, remove the device to restore computer functionality. Then contact Customer Care.

| 5.9 | RTC Battery | 0  |
### Disassembly Sequence Chart (Continued)

<table>
<thead>
<tr>
<th>Section</th>
<th>Description</th>
<th># of Screws Removed</th>
</tr>
</thead>
<tbody>
<tr>
<td>5.10</td>
<td>Heat Sink</td>
<td>1 loosened to remove the thermal cover 4 removed to remove the heat sink</td>
</tr>
<tr>
<td>5.11</td>
<td>Processor</td>
<td>1 loosened</td>
</tr>
<tr>
<td>5.12</td>
<td>Switch Cover</td>
<td>3 on Compaq Presario V4000 models</td>
</tr>
<tr>
<td>5.13</td>
<td>Keyboard</td>
<td>4</td>
</tr>
<tr>
<td>5.14</td>
<td>Display Assembly</td>
<td>6</td>
</tr>
<tr>
<td></td>
<td>Display bezel</td>
<td>6</td>
</tr>
<tr>
<td></td>
<td>Display release hook</td>
<td>2</td>
</tr>
<tr>
<td></td>
<td>Display hinges</td>
<td>6</td>
</tr>
<tr>
<td></td>
<td>Display panel</td>
<td>6</td>
</tr>
<tr>
<td></td>
<td>Wireless antenna transceiver and cable</td>
<td>0</td>
</tr>
<tr>
<td>5.15</td>
<td>Top Cover (HP Pavilion dv4000 models)</td>
<td>16</td>
</tr>
<tr>
<td>5.16</td>
<td>Base Enclosure (Compaq Presario V4000 models)</td>
<td>16</td>
</tr>
<tr>
<td>5.17</td>
<td>Modem Board</td>
<td>2</td>
</tr>
<tr>
<td>5.18</td>
<td>System Board</td>
<td>11 on HP Pavilion dv4000 models 4 on Compaq Presario V4000 models</td>
</tr>
<tr>
<td>5.19</td>
<td>Fan Assembly</td>
<td>7</td>
</tr>
<tr>
<td>5.20</td>
<td>Speakers</td>
<td>3</td>
</tr>
<tr>
<td>5.21</td>
<td>USB Board</td>
<td>8</td>
</tr>
<tr>
<td>5.22</td>
<td>Bluetooth Module</td>
<td>2</td>
</tr>
</tbody>
</table>
5.3 Preparing the Computer for Disassembly

Before you begin any removal or installation procedures:

1. Shut down the computer. If you are unsure whether the computer is off or in hibernation, turn the computer on, and then shut it down through the operating system.

2. Disconnect all external devices connected to the computer.

3. Disconnect the power cord.

<table>
<thead>
<tr>
<th>Battery Pack Spare Part Number Information</th>
</tr>
</thead>
<tbody>
<tr>
<td>12-cell, 8.8-AHr</td>
</tr>
<tr>
<td>6-cell, 4.4-AHr</td>
</tr>
</tbody>
</table>

4. Remove the battery pack by following these steps:
   a. Turn the computer upside down with the front toward you.
b. Slide and hold the battery release latch 1 to the left. (The front edge of the battery pack disengages from the computer.)

c. Lift the front edge of the battery pack up and swing it away from you 2.

d. Remove the battery pack.

---

Removing the Battery Pack

Reverse the above procedure to install the battery pack.
5.4 Hard Drive

<table>
<thead>
<tr>
<th>Hard Drive Spare Part Number Information</th>
</tr>
</thead>
<tbody>
<tr>
<td>5400 rpm, 80-GB</td>
</tr>
<tr>
<td>5400 rpm, 60-GB</td>
</tr>
<tr>
<td>4200 rpm, 100-GB</td>
</tr>
<tr>
<td>4200 rpm, 80-GB</td>
</tr>
<tr>
<td>4200 rpm, 60-GB</td>
</tr>
<tr>
<td>4200 rpm, 40-GB</td>
</tr>
</tbody>
</table>

1. Prepare the computer for disassembly (Section 5.3).
2. Loosen the two Phillips PM2.0×5.0 screws 1 that secure the hard drive cover to the computer.
3. Lift the right side of the cover up and swing it to the left 2.
4. Remove the hard drive cover.

*The hard drive cover is included in the Miscellaneous Doors/Covers Kits, spare part number 383469-001 (for use with HP Pavilion dv4000 models) and spare part number 384627-001 (for use with Compaq Presario V4000 models).*

Removing the Hard Drive Cover
5. Use the tab 1 on the right side of the hard drive to pull the hard drive to the left 2 until it disconnects from the computer.

6. Lift the hard drive straight up 3 and remove it from the hard drive bay.
7. Remove the four Phillips PM2.5×4.0 screws 1 that secure the hard drive frame to the hard drive.
8. Slide the frame forward 2 to remove it from the hard drive.

Removing the Hard Drive Frame

Reverse the above procedure to reassemble and install the hard drive.
5.5 Computer Feet

The computer feet are adhesive-backed rubber pads. The feet are included in the Miscellaneous Doors/Covers Kits, spare part number 383469-001 (for use with HP Pavilion dv4000 models) and spare part number 384627-001 (for use with Compaq Presario V4000 models).

Rubber feet can also be ordered using spare part numbers 404369-001 (for use with HP Pavilion dv4000 models) and 404576-001 (for use with Compaq Presario V4000 models).

Replacing the Computer Feet, HP Pavilion dv4000
Replacing the Computer Feet, Compaq Presario V4000
## 5.6 Optical Drive

### Optical Drive Spare Part Number Information

<table>
<thead>
<tr>
<th>For use with HP Pavilion dv4000 models</th>
<th></th>
</tr>
</thead>
<tbody>
<tr>
<td>DVD±RW and CD-RW Double Layer Combo Drive with LightScribe</td>
<td>396704-001</td>
</tr>
<tr>
<td>DVD±RW and CD-RW Double Layer Combo Drive</td>
<td>391743-001</td>
</tr>
<tr>
<td>DVD/CD-RW Combo Drive</td>
<td>383940-001</td>
</tr>
<tr>
<td>DVD-ROM drive</td>
<td>396706-001</td>
</tr>
</tbody>
</table>

<table>
<thead>
<tr>
<th>For use with Compaq Presario V4000 models</th>
<th></th>
</tr>
</thead>
<tbody>
<tr>
<td>DVD±RW and CD-RW Double Layer Combo Drive with LightScribe</td>
<td>396705-001</td>
</tr>
<tr>
<td>DVD±RW and CD-RW Double Layer Combo Drive</td>
<td>391744-001</td>
</tr>
<tr>
<td>DVD/CD-RW Combo Drive</td>
<td>384631-001</td>
</tr>
<tr>
<td>DVD-ROM drive</td>
<td>396707-001</td>
</tr>
</tbody>
</table>

1. Prepare the computer for disassembly (Section 5.3).
2. Remove the hard drive cover (Section 5.4).
3. Remove the Phillips PM2.5×7.0 screw ① that secures the optical drive to the computer.

4. Insert a thin tool, such as a paper clip, into the media tray release hole ②. (The optical drive media tray releases from the optical drive.)

5. Use the media tray frame to slide the optical drive to the left ③.

6. Remove the optical drive.

---

**Removing the Optical Drive**

Reverse the above procedure to install the optical drive.
5.7 Memory Module

<table>
<thead>
<tr>
<th>Memory Module Spare Part Number Information</th>
</tr>
</thead>
<tbody>
<tr>
<td>1024 MB</td>
</tr>
<tr>
<td>512 MB</td>
</tr>
<tr>
<td>256 MB</td>
</tr>
</tbody>
</table>

1. Prepare the computer for disassembly (refer to Section 5.3).
2. Loosen the three Phillips PM2.0×5.0 screws ① that secure the memory module compartment cover to the computer.
3. Lift the left edge of the cover up and swing it to the right ②.
4. Remove the memory module compartment cover.

The memory module compartment cover is included in the Miscellaneous Doors/Covers Kits, spare part number 383469-001 (for use with HP Pavilion dv4000 models) and spare part number 384627-001 (for use with Compaq Presario V4000 models).

Removing the Memory Module Compartment Cover
5. Spread the retaining tabs 1 on each side of the memory module socket to release the memory module. (The side of the module opposite the socket rises away from the computer.)

6. Slide the module away from the socket at an angle 2.

7. Remove the memory module.

Memory modules are designed with a notch 3 to prevent incorrect installation into the memory module socket.

Removing the Memory Module

Reverse the above procedure to install a memory module.
5.8 Mini PCI Communications Module

1. Prepare the computer for disassembly (Section 5.3).
2. Remove the memory module compartment cover (Section 5.7).

Make note of which antenna cable is attached to which antenna clip on the Mini PCI communications module before disconnecting the cables.
3. Disconnect the auxiliary and main antenna cables 1 from the Mini PCI communications module.

4. Spread the retaining tabs 2 on each side of the Mini PCI socket to release the Mini PCI communications module. (The edge of the module opposite the socket rises away from the computer.)

5. Remove the Mini PCI communications module by pulling the card away from the socket at a 45-degree angle 3.

Mini PCI communications modules are designed with notches 4 to prevent incorrect installation.

---

Removing a Mini PCI Communications Module

Reverse the above procedure to install a Mini PCI communications module.
5.9 RTC Battery

RTC Battery Spare Part Number Information

| RTC battery (includes 2-sided tape) | 384626-001 |

1. Prepare the computer for disassembly (Section 5.3).
2. Remove the Mini PCI communications module (Section 5.7).
3. Disconnect the RTC battery cable 1 from the system board.
4. Remove the RTC battery 2 from the system board. (The RTC battery is attached to the system board with two-sided tape.)

Removing the RTC Battery

Reverse the above procedure to install the RTC battery.
5.10 Heat Sink

Heat Sink Spare Part Number Information

| Heat sink (includes fan and thermal paste) | 384622-001 |

1. Prepare the computer for disassembly (Section 5.3).
2. Remove the Phillips PM2.0×5.0 screw ① that secures the thermal cover to the computer.
3. Lift the left edge of the cover up and swing it to the right ②.

The thermal cover is included in the Miscellaneous Doors/Covers Kits, spare part number 383469-001 (for use with HP Pavilion dv4000 models) and spare part number 384627-001 (for use with Compaq Presario V4000 models).

4. Remove the thermal cover.
The following screws should be removed and installed in the 1, 2, 3, 4 sequence stamped on the heat sink.

5. Remove the four Phillips PM2.0×12.0 spring-loaded shoulder screws 1 that secure the heat sink to the computer.

Due to the adhesive quality of the thermal paste located between the heat sink and processor, it may be necessary to move the heat sink from side to side to detach the heat sink from the processor.

6. Remove the heat sink 2.

Removing the Heat Sink
The thermal paste should be thoroughly cleaned from the surfaces of the heat sink 1 and processor 2 each time the heat sink is removed. Thermal paste is included with all heat sink and processor spare part kits.

Thermal Paste Locations

Reverse the above procedure to install the heat sink.
## 5.11 Processor

### Processor Spare Part Number Information

<table>
<thead>
<tr>
<th>Processor</th>
<th>Part Number</th>
</tr>
</thead>
<tbody>
<tr>
<td>Intel Pentium M 2.13-GHz</td>
<td>396700-001</td>
</tr>
<tr>
<td>Intel Pentium M 2.00-GHz</td>
<td>396699-001</td>
</tr>
<tr>
<td>Intel Pentium M 1.86-GHz</td>
<td>393327-001</td>
</tr>
<tr>
<td>Intel Pentium M 1.73-GHz</td>
<td>383474-001</td>
</tr>
<tr>
<td>Intel Pentium M 1.60-GHz</td>
<td>383473-001</td>
</tr>
<tr>
<td>Intel Celeron M 1.50-GHz</td>
<td>383471-001</td>
</tr>
<tr>
<td>Intel Celeron M 1.40-GHz</td>
<td>396697-001</td>
</tr>
<tr>
<td>Intel Celeron M 1.30-GHz</td>
<td>389036-001</td>
</tr>
</tbody>
</table>

1. Prepare the computer for disassembly (Section 5.3).
2. Remove the heat sink (Section 5.10).
3. Use a flat-bladed screwdriver to turn the processor locking screw one-half turn counterclockwise ① until you hear a click.

4. Lift the processor straight up and remove it ②.

The gold triangle ③ on the processor should be aligned in the rear right corner when you install the processor.

Reverse the above procedure to install the processor.
5.12 Switch Cover

Switch Cover Spare Part Number Information

<table>
<thead>
<tr>
<th>Description</th>
<th>Part Number</th>
</tr>
</thead>
<tbody>
<tr>
<td>For use with HP Pavilion dv4000 models with wireless capability</td>
<td>403911-001</td>
</tr>
<tr>
<td>For use with HP Pavilion dv4000 models without wireless capability</td>
<td>403910-001</td>
</tr>
<tr>
<td>For use with Compaq Presario V4000 models with wireless capability</td>
<td>384619-001</td>
</tr>
<tr>
<td>For use with Compaq Presario V4000 models without wireless capability</td>
<td>403004-001</td>
</tr>
</tbody>
</table>

✎ All switch cover spare parts kits include an LED board and LED board cable

1. Prepare the computer for disassembly (Section 5.3).
Steps 2 and 3 apply to Compaq Presario V4000 models.

2. Turn the computer upside down with the rear panel toward you.

3. Remove the three Phillips PM2.5×7.0 screws that secure the switch cover to the computer.
4. Turn the computer right-side up with the front toward you.
5. Open the computer as far as possible.
6. Press and hold down the **insert** key 1.
7. Insert a flat blade tool into the notch in the switch cover behind the **insert** key and lift the switch cover 2.
8. Disengage the center 3 and left side 4 of the switch cover from the computer.
9. Rest the switch cover on the computer.
5.13 Keyboard

Keyboard Spare Part Number Information

For use with HP Pavilion dv4000 models:

<table>
<thead>
<tr>
<th>Country</th>
<th>Part Number 1</th>
<th>Part Number 2</th>
</tr>
</thead>
<tbody>
<tr>
<td>Belgium</td>
<td>383495-181</td>
<td>383495-131</td>
</tr>
<tr>
<td>Denmark</td>
<td>383495-081</td>
<td>383495-171</td>
</tr>
<tr>
<td>Europe</td>
<td>383495-021</td>
<td>383495-071</td>
</tr>
<tr>
<td>France</td>
<td>383495-051</td>
<td>383495-B71</td>
</tr>
<tr>
<td>French Canada</td>
<td>383495-121</td>
<td>383495-111</td>
</tr>
<tr>
<td>Germany</td>
<td>383495-041</td>
<td>383495-AB1</td>
</tr>
<tr>
<td>Greece</td>
<td>383495-151</td>
<td>383495-281</td>
</tr>
<tr>
<td>Israel</td>
<td>383495-BB1</td>
<td>383495-141</td>
</tr>
<tr>
<td>Italy</td>
<td>383495-061</td>
<td>383495-031</td>
</tr>
<tr>
<td>Korea</td>
<td>383495-AD1</td>
<td>383495-001</td>
</tr>
<tr>
<td>Norway</td>
<td>383495-091</td>
<td></td>
</tr>
</tbody>
</table>

For use with Compaq Presario dv4000 models:

<table>
<thead>
<tr>
<th>Country</th>
<th>Part Number 1</th>
<th>Part Number 2</th>
</tr>
</thead>
<tbody>
<tr>
<td>Denmark</td>
<td>384635-081</td>
<td>384635-091</td>
</tr>
<tr>
<td>France</td>
<td>384635-051</td>
<td>384635-071</td>
</tr>
<tr>
<td>French Canada</td>
<td>384635-121</td>
<td>384635-101</td>
</tr>
<tr>
<td>Italy</td>
<td>384635-061</td>
<td>384635-AB1</td>
</tr>
<tr>
<td>Korea</td>
<td>384635-AD1</td>
<td>384635-031</td>
</tr>
<tr>
<td>The Netherlands</td>
<td>384635-331</td>
<td>384635-001</td>
</tr>
</tbody>
</table>
1. Prepare the computer for disassembly (Section 5.3).
2. Release the switch cover (Section 5.12).
3. Remove the four Phillips PM2.0×2.0 screws that secure the keyboard to the computer.

Removing the Keyboard Screws
4. Lift the rear edge of the keyboard and swing it forward until it rests on the palm rest.

*Releasing the Keyboard*
5. Release the ZIF connector 1 to which the keyboard cable is connected and disconnect the keyboard cable 2 from the system board.

6. Remove the keyboard.

Disconnecting the Keyboard Cable
7. Disconnect the LED board cable 1 from the system board.
8. Remove the switch cover 2.

Removing the Switch Cover

Reverse the above procedure to install the keyboard and switch cover.
5.14 Display Assembly

Display Assembly Spare Part Number Information

All display assembly spare part kits include display cable, wireless antenna boards, and antenna cables.

For use with HP Pavilion dv4000 models

<table>
<thead>
<tr>
<th>Display Configuration</th>
<th>Part Number</th>
</tr>
</thead>
<tbody>
<tr>
<td>15.4-inch, WXGA, TFT with BrightView</td>
<td>383477-001</td>
</tr>
<tr>
<td>15.4-inch, WXGA, TFT</td>
<td>383476-001</td>
</tr>
</tbody>
</table>

For use with Compaq Presario V4000 models

<table>
<thead>
<tr>
<th>Display Configuration</th>
<th>Part Number</th>
</tr>
</thead>
<tbody>
<tr>
<td>15.4-inch, WXGA, TFT with BrightView</td>
<td>383479-001</td>
</tr>
<tr>
<td>15.4-inch, WXGA, TFT</td>
<td>383478-001</td>
</tr>
</tbody>
</table>

1. Prepare the computer for disassembly (Section 5.3).
2. Remove the switch cover (Section 5.12).
3. Remove the keyboard (Section 5.13).
4. Turn the computer upside down with the front toward you.
5. Disconnect the wireless antenna cables from the Mini PCI communications module 1.

6. Remove the cables from the clip 2 in the base enclosure.

7. Remove the two Phillips PM2.5×7.0 screws 3 that secure the display assembly to the computer.
8. Turn the computer right-side up with the front toward you.
9. Open the display as far as possible.
10. Remove the wireless antenna cables ① from the clips in the top cover.
11. Disconnect the display cable from the system board ②.

Removing the Wireless Antenna Cables
CAUTION: Support the display assembly when removing the following screws. Failure to support the display assembly can result in damage to the display assembly and other computer components.

12. Remove the four Phillips PM2.5×7.0 screws ① that secure the display assembly to the computer.

13. Remove the display assembly ②.

Removing the Display Assembly

Steps 14 through 25 apply to HP Pavilion dv4000 models. See steps 26 through 38 in this section to disassemble the display assembly on Compaq Presario V4000 models.
14. Remove the six rubber screw covers 1 and 2 and six PM2.5×7.0 screws 3 that secure the display bezel to the display assembly.

The rubber screw covers are included in the Display Screw Kit, spare part number 403923-001. The four taller screw covers 1 should be installed in the screw holes on the top edge of the bezel.
15. Flex the inside edges of the left and right sides 1 of the display bezel and the inside edges of the top and bottom sides 2 of the display bezel until the bezel disengages from the display assembly.

16. Remove the display bezel 3.
Removal and Replacement Procedures

Display Assembly Subcomponents

Spare Part Number Information

| Display Hinge Kit for use with HP Pavilion dv4000 models, includes: | 403921-001 |
| - Display release hooks | |
| - Display hinges | |

17. Remove the Phillips PM2.5×5.0 screws 1 that secure each display release hook to the display enclosure.

18. Remove the display release hooks 2.

Removing the Display Release Hooks, HP Pavilion dv4000 Models
19. Remove the three Phillips PM2.5×7.0 screws that secure each display hinge to the display enclosure.

20. Remove the display hinges.
Removal and Replacement Procedures

Display Assembly Subcomponents
Spare Part Number Information

| Display Panel Kit (includes display inverter and display cable) | 403918-001 |

21. Remove the six Phillips PM2.5×5.0 screws ① that secure the display panel to the display enclosure.

22. Remove the display panel ②.

Removing the Display Panel, HP Pavilion dv4000 Models
23. Release the retention tabs built in to the display enclosure shield that secure the wireless antenna cables to the display enclosure.

24. Detach the wireless antenna transceivers from the display enclosure.

25. Remove the wireless antenna transceivers and cables.

Steps 26 through 38 apply to Compaq Presario V4000 models.
26. Remove the six rubber screw covers ① and ② and six PM2.5×7.0 screws ③ that secure the display bezel to the display assembly.

The rubber screw covers are included in the Display Screw Kit, spare part number 403924-001. The four taller screw covers ① should be installed in the screw holes on the top edge of the bezel.
27. Flex the inside edges of the left and right sides 1 of the display bezel and the inside edges of the top and bottom sides 2 of the display bezel until the bezel disengages from the display assembly.

28. Remove the display bezel 3.

Removing the Display Bezel, Compaq Presario V4000 Models
29. Remove the two Phillips PM2.5×5.0 screws ① that secure the display release loop to the display enclosure.

30. Remove the display release loop ②.
31. Remove the display hinge covers 1.
32. Remove the three Phillips PM2.5x7.0 screws 2 that secure each display hinge to the display enclosure.
33. Remove the display hinges 3.

Removing the Display Hinges, Compaq Presario V4000 Models
34. Remove the six Phillips PM2.5×5.0 screws ① that secure the display panel to the display enclosure.

35. Remove the display panel ②.

Removing the Display Panel, Compaq Presario V4000 Models
36. Release the retention tabs 1 built in to the display enclosure shield that secure the wireless antenna cables to the display enclosure.

37. Detach the wireless antenna transceivers 2 from the display enclosure.

38. Remove the wireless antenna transceivers and cables 3.

_reverse the above procedure to reassemble and install the display assembly.
5.15 Top Cover

The top cover removal procedures in this section apply to HP Pavilion dv4000 models. The spare part number information listed in the following table applies to both HP Pavilion dv4000 and Compaq Presario V4000 models.

<table>
<thead>
<tr>
<th>Top Cover Spare Part Number Information</th>
</tr>
</thead>
<tbody>
<tr>
<td>For use with full-featured HP Pavilion dv4000 models (includes TouchPad)</td>
</tr>
<tr>
<td>For use with defeatured HP Pavilion dv4000 models (includes TouchPad)</td>
</tr>
<tr>
<td>For use with full-featured Compaq Presario V4000 models (does not include TouchPad)</td>
</tr>
<tr>
<td>For use with defeatured Compaq Presario V4000 models (does not include TouchPad)</td>
</tr>
</tbody>
</table>

1. Prepare the computer for disassembly (Section 5.3) and remove the following components:
   a. Hard drive (Section 5.4)
   b. Switch cover (Section 5.12)
   c. Keyboard (Section 5.13)
   d. Display assembly (Section 5.14)
2. Turn the computer upside down with the front toward you.
3. Remove the following:
   1. Eleven Phillips PM2.5×7.0 screws
   2. Two Phillips PM2.0×4.0 screws in the optical drive bay
4. Turn the computer right side up with the front toward you.
5. Release the ZIF connector 1 to which the TouchPad cable is attached and disconnect the cable 2 from the system board.
6. Remove the three Phillips PM2.5×7.0 screws 3 that secure the top cover to the base enclosure.

Removing the Top Cover Screws, Part 2, HP Pavilion dv4000 Models
7. Swing the rear edge of the top cover up and forward ① until it rests at an angle.
8. Lift the top cover up and remove it ②.

Removing the Top Cover, HP Pavilion dv4000 Models

Reverse the above procedure to install the top cover.
5.16 Base Enclosure

The base enclosure removal procedures in this section apply to Compaq Presario V4000 models. The spare part number information listed in the following table applies to both HP Pavilion dv4000 and Compaq Presario V4000 models.

<table>
<thead>
<tr>
<th>Base Enclosure Spare Part Number Information</th>
<th></th>
</tr>
</thead>
<tbody>
<tr>
<td>For use with full-featured HP Pavilion dv4000 models</td>
<td>384629-001</td>
</tr>
<tr>
<td>For use with defeatured HP Pavilion dv4000 models</td>
<td>390917-001</td>
</tr>
<tr>
<td>For use with Compaq Presario V4000 models</td>
<td>385739-001</td>
</tr>
</tbody>
</table>

1. Prepare the computer for disassembly (Section 5.3) and remove the following components:
   a. Hard drive (Section 5.4)
   b. Switch cover (Section 5.12)
   c. Keyboard (Section 5.13)
   d. Display assembly (Section 5.14)
2. Turn the computer right-side up with the front toward you.
3. Remove the following screws:
   1. One Phillips PM2.5×7.0 screw
   2. Two Phillips PM2.0×16.0 screws
4. Turn the computer upside down with the front toward you.
5. Remove the following screws:
   1. Nine Phillips PM2.5×7.0 screws
   2. Four Phillips PM2.0×4.0 screws
6. Disconnect the speaker cable 3.

---

Removing the Base Enclosure Screws, Part 2,
Compaq Presario V4000 Models
7. Lift the left and right rear corners 1 of the base enclosure until the rear edge of the base enclosure disengages from the computer.

8. Swing the rear edge of the base enclosure up and forward 2 until it disengages from the computer.

9. Remove the base enclosure.

Removing the Base Enclosure, Compaq Presario V4000 Models

Reverse the above procedure to install the base enclosure.
5.17 Modem Board

The modem board cannot be removed from Compaq Presario V4000 models until after the system board has been removed.

1. Prepare the computer for disassembly (Section 5.3) and remove the following components:
   a. Hard drive (Section 5.4)
   b. Switch cover (Section 5.12)
   c. Keyboard (Section 5.13)
   d. Display assembly (Section 5.14)
   e. Top cover (HP Pavilion dv4000 models, Section 5.15)
   f. Base enclosure (Compaq Presario V4000 models, Section 5.16)
2. Remove the two Phillips PM2.0×4.0 screws ① that secure the modem board to the system board.

3. Lift the right side of the modem board ② to disconnect the modem board from the system board.

4. Disconnect the modem cable ③ from the modem board.

5. Remove the modem board.

Removing the Modem Board

Reverse the above procedure to install the modem board.
5.18 System Board

System Board Spare Part Number Information

<table>
<thead>
<tr>
<th></th>
<th>Part Number</th>
</tr>
</thead>
<tbody>
<tr>
<td>Full-featured</td>
<td>396696-001</td>
</tr>
<tr>
<td>Defeatured</td>
<td>383462-001</td>
</tr>
</tbody>
</table>

When replacing the system board, ensure that the following components are removed from the defective system board and installed on the replacement system board:

- Memory module (Section 5.7)
- Mini PCI communications module (Section 5.8)
- RTC battery (Section 5.9)
- Processor (Section 5.11)
- Modem board (Section 5.17)
- Fan assembly (Section 5.19)

1. Prepare the computer for disassembly (Section 5.3) and remove the following components:
   a. Hard drive (Section 5.4)
   b. Optical drive (Section 5.6)
   c. Heat sink (Section 5.10)
d. Switch cover (Section 5.12)
e. Keyboard (Section 5.13)
f. Display assembly (Section 5.14)
g. Top cover (HP Pavilion dv4000 models, Section 5.15)
h. Base enclosure (Compaq Presario V4000 models, Section 5.16)

2. Turn the computer upside down with the front toward you.
3. Disconnect the speaker cable from the system board.
Steps 4 through 18 apply to HP Pavilion dv4000 models. See steps 19 through 25 in this section to remove the system board on Compaq Presario V4000 models.

4. Turn the computer top side up with the front toward you.

5. Remove the following screws:
   - 1 Three Phillips PM2.5×7.0 screws that secure the system board and shield to the computer
   - 2 Two Phillips PM2.0×4.0 screws that secure the system board and shield to the computer
   - 3 Two Phillips PM2.0×16.0 screws that secure the system board, shield, and USB board to the computer
   - 4 One Phillips PM2.5×7.0 screw that secures the USB board to the computer

Removing the System Board Screws, HP Pavilion dv4000 Models
6. Slide the system board shield forward 1 and to the right 2 until the tabs 3 on the shield disengage from the base enclosure.

Releasing the System Board Shield, Part 1, HP Pavilion dv4000 Models
7. Lift up on the left side of the USB board frame 1.
8. Press down on the right side of the system board shield 2 until the shield tab 3 disengages from the standoff on the bottom of the USB board frame.

*Releasing the System Board Shield, Part 2, HP Pavilion dv4000 Models*
9. Slide the system board shield to the left 1 until it clears the USB board frame.
10. Remove the system board shield 2.

### System Board Shield Spare Part Number Information

| System board shield (for use with HP Pavilion dv4000 models) | 403915-001 |

---

*Removing the System Board Shield, HP Pavilion dv4000 Models*
Steps 11 through 18 provide instructions for removing the USB board and frame on HP Pavilion dv4000 models. Refer to Section 5.21, “USB Board,” for instructions on removing the USB board and frame on Compaq Presario V4000 models.

11. Disconnect the audio 1, USB 2, and Bluetooth cables 3 from the system board.
12. Lift the left side of the USB board and frame 1 until it rests at an angle.
13. Slide the USB board and frame to the left 2 and remove it.
Removal and Replacement Procedures

14. Remove the two Phillips PM2.5×8.0 round head screws ① and the Phillips PM2.0×4.0 screw ② that secure the USB board to the frame.

Removing the USB Board Screws, HP Pavilion dv4000 Models

15. Lift the left side of the USB board ① until it rests at an angle.
16. Slide the USB board to the left ② and remove it from the frame.

Removing the USB Board, HP Pavilion dv4000 Models
17. Use the hard drive connector 1 to lift the right side of the system board 2 until it rests at an angle.

18. Slide the system board to the right 3 and remove it.
Steps 19 through 25 apply to Compaq Presario V4000 models.

19. Turn the top cover right-side up with the front toward you.
20. Disconnect the audio 1, USB 2, and Bluetooth cables 3 from the system board.
21. Release the ZIF connector to which the TouchPad cable is attached and disconnect the cable 1 from the system board.

22. Remove the two Phillips PM2.0×4.0 screws 2 that secure the system board to the top cover.

Removing the System Board Screws, Part 1, Compaq Presario V4000 Models
23. Turn the top cover upside down with the front toward you.
24. Remove the two Phillips PM2.5×7.0 screws ① that secure the system board to the top cover.
25. Use the hard drive connector ② and fan frame ③ to lift the system board straight up and remove it ④.

Removing the System Board, Compaq Presario V4000 Models

Reverse the above procedure to install the system board.
5.19 Fan Assembly

The fan assembly is included in the heat sink assembly spare part kit, spare part number 384622-001. Refer to Section 5.10, “Heat Sink,” for information on removing the heat sink.

1. Prepare the computer for disassembly (Section 5.3) and remove the following components:
   a. Hard drive (Section 5.4)
   b. Switch cover (Section 5.12)
   c. Keyboard (Section 5.13)
   d. Display assembly (Section 5.14)
   e. Top cover (Section 5.15)
   f. System board (Section 5.18)

2. Turn the system board upside down with the right side toward you.
3. Disconnect the fan cable ① from the system board.
4. Remove the four Phillips PM2.5×7.0 screws ② that secure the fan assembly to the system board.
5. Remove the fan assembly ③.
6. Remove the three Phillips PM2.0×4.0 screws ① that secure the fan to the fan assembly.

7. Remove the fan ②.

*Removing the Fan*

Reverse the above procedure to reassemble and install the fan assembly.
5.20 Speakers

Speakers Spare Part Number Information

| Speakers | 383466-001 |

1. Prepare the computer for disassembly (Section 5.3) and remove the following components:
   a. Hard drive (Section 5.4)
   b. Switch cover (Section 5.12)
   c. Keyboard (Section 5.13)
   d. Display assembly (Section 5.14)
   e. Top cover (Section 5.15)
   f. System board (Section 5.18)
2. Remove the three Phillips PM2.0×4.0 screws ① that secure the left and right speakers to the base enclosure.

3. Remove the left and right speakers ②.

Removing the Speakers

Reverse the above procedure to install the speakers.
5.21 USB Board

This section applies to Compaq Presario V4000 models. Refer to steps 11 through 18 in Section 5.18, “System Board,” for instructions for removing the USB board and frame on HP Pavilion dv4000 models.

USB Board Spare Part Number Information

| USB board (includes frame) | 384625-001 |

1. Prepare the computer for disassembly (Section 5.3) and remove the following components:
   a. Hard drive (Section 5.4)
   b. Switch cover (Section 5.12)
   c. Keyboard (Section 5.13)
   d. Display assembly (Section 5.14)
   e. Top cover (HP Pavilion dv4000 models, Section 5.15)
   f. Base enclosure (Compaq Presario V4000 models, Section 5.16)
   g. System board (Section 5.18)

2. Position the top cover with the left side toward you.
3. Remove the three Phillips PM2.0×4.0 screws ① that secure the USB board and frame to the top cover.

4. Remove the Phillips PM 2.5×7.0 screw ② that secures the USB board and frame to the top cover.

5. Lift the rear edge of the USB board and frame ③ until it disengages from the top cover.

6. Slide the USB board and frame away from you ④ and remove it from the top cover.

Removing the USB Board and Frame, Compaq Presario V4000 Models
7. Remove the Phillips PM2.0×4.0 screw \( \textcircled{1} \) that secures the USB board to the frame.
8. Remove the two Phillips PM2.5×8.0 screws \( \textcircled{2} \) that secure the USB board to the frame.
9. Lift the rear edge of the USB board \( \textcircled{3} \) until it disengages from the frame.
10. Slide the frame away \( \textcircled{4} \) and remove it.

---

Removing the USB Board

Reverse the above procedure to install the USB board.
5.22 Bluetooth Module

Bluetooth Module Spare Part Number Information

<table>
<thead>
<tr>
<th>Bluetooth module</th>
<th>383459-001</th>
</tr>
</thead>
</table>

1. Prepare the computer for disassembly (Section 5.3) and remove the following components:
   a. Hard drive (Section 5.4)
   b. Switch cover (Section 5.12)
   c. Keyboard (Section 5.13)
   d. Display assembly (Section 5.14)
   e. Top cover (HP Pavilion dv4000 models, Section 5.15)
   f. Base enclosure (Compaq Presario V4000 models, Section 5.16)
   g. System board (Section 5.18)
   h. USB board (Section 5.21)
2. Remove the two Phillips PM1.5×4.0 screws 1 that secure the Bluetooth module to the USB board frame.
3. Remove the Bluetooth module 2.

Removing the Bluetooth Module

Reverse the above procedure to install the Bluetooth module.
This chapter provides physical and performance specifications.

<table>
<thead>
<tr>
<th>Table 6-1</th>
</tr>
</thead>
<tbody>
<tr>
<td><strong>Computer</strong></td>
</tr>
<tr>
<td><strong>Dimensions</strong></td>
</tr>
<tr>
<td>Height</td>
</tr>
<tr>
<td>Width</td>
</tr>
<tr>
<td>Depth</td>
</tr>
<tr>
<td><strong>Weight</strong></td>
</tr>
<tr>
<td>Full-featured model with 15.4-inch display, optical drive and 12-cell battery pack</td>
</tr>
<tr>
<td><strong>Input Power</strong></td>
</tr>
<tr>
<td>Operating voltage</td>
</tr>
<tr>
<td>Operating current</td>
</tr>
<tr>
<td><strong>Temperature</strong></td>
</tr>
<tr>
<td>Operating</td>
</tr>
<tr>
<td>Nonoperating</td>
</tr>
</tbody>
</table>
### Table 6-1

**Computer (Continued)**

<table>
<thead>
<tr>
<th>Relative humidity (noncondensing)</th>
<th>Operating</th>
<th>10% to 90%</th>
<th>10% to 90%</th>
</tr>
</thead>
<tbody>
<tr>
<td>Nonoperating</td>
<td>5% to 95%</td>
<td>5% to 95%</td>
<td></td>
</tr>
</tbody>
</table>

<table>
<thead>
<tr>
<th>Maximum altitude (unpressurized)</th>
<th>Operating (14.7 to 10.1 psia)</th>
<th>-15 m to 3,048 m</th>
<th>-50 ft to 10,000 ft</th>
</tr>
</thead>
<tbody>
<tr>
<td>Nonoperating (14.7 to 4.4 psia)</td>
<td>-15 m to 12,192 m</td>
<td>-50 ft to 40,000 ft</td>
<td></td>
</tr>
</tbody>
</table>

<table>
<thead>
<tr>
<th>Shock</th>
<th>Operating</th>
<th>125 g, 2 ms, half-sine</th>
</tr>
</thead>
<tbody>
<tr>
<td>Nonoperating</td>
<td>200 g, 2 ms, half-sine</td>
<td></td>
</tr>
</tbody>
</table>

<table>
<thead>
<tr>
<th>Random Vibration</th>
<th>Operating</th>
<th>0.75 g zero-to-peak, 10 Hz to 500 Hz, 0.25 oct/min sweep rate</th>
</tr>
</thead>
<tbody>
<tr>
<td>Nonoperating</td>
<td>1.50 g zero-to-peak, 10 Hz to 500 Hz, 0.5 oct/min sweep rate</td>
<td></td>
</tr>
</tbody>
</table>

Applicable product safety standards specify thermal limits for plastic surfaces. The computer operates well within this range of temperatures.
### Table 6-2
15.4-inch, WXGA, TFT Display

<table>
<thead>
<tr>
<th>Dimensions</th>
<th></th>
<th></th>
</tr>
</thead>
<tbody>
<tr>
<td>Height</td>
<td>20.9 cm</td>
<td>8.1 in</td>
</tr>
<tr>
<td>Width</td>
<td>33.1 cm</td>
<td>13.0 in</td>
</tr>
<tr>
<td>Diagonal</td>
<td>39.1 cm</td>
<td>15.4 in</td>
</tr>
<tr>
<td>Number of colors</td>
<td>Up to 16.8 million</td>
<td></td>
</tr>
<tr>
<td>Contrast ratio</td>
<td>200:1</td>
<td></td>
</tr>
<tr>
<td>Brightness</td>
<td>180 nits typical</td>
<td></td>
</tr>
<tr>
<td>Pixel resolution</td>
<td></td>
<td></td>
</tr>
<tr>
<td>Pitch</td>
<td>0.259 × 0.259 mm</td>
<td></td>
</tr>
<tr>
<td>Format</td>
<td>1366 × 768</td>
<td></td>
</tr>
<tr>
<td>Configuration</td>
<td>RGB vertical stripe</td>
<td></td>
</tr>
<tr>
<td>Backlight</td>
<td>Edge lit</td>
<td></td>
</tr>
<tr>
<td>Character display</td>
<td>80 × 25</td>
<td></td>
</tr>
<tr>
<td>Total power consumption</td>
<td>5.5 W</td>
<td></td>
</tr>
<tr>
<td>Viewing angle</td>
<td>+/-65° horizontal, +50° vertical typical</td>
<td></td>
</tr>
</tbody>
</table>
# Specifications

## Table 6-3

<table>
<thead>
<tr>
<th>Hard Drives</th>
</tr>
</thead>
<tbody>
<tr>
<td>100-GB*</td>
</tr>
<tr>
<td>80-GB*</td>
</tr>
<tr>
<td>80-GB*</td>
</tr>
</tbody>
</table>

### Dimensions

- **Height**: 9.5 mm, 9.5 mm, 9.5 mm
- **Width**: 70 mm, 70 mm, 70 mm
- **Weight**: 102 g, 99 g, 99 g

### Interface type

- ATA-5, ATA-5, ATA-5

### Transfer rate

- **Synchronous (maximum)**: 100 MB/sec, 100 MB/sec, 100 MB/sec
- **Security**: ATA security, ATA security, ATA security

### Seek times (typical read, including setting)

<table>
<thead>
<tr>
<th></th>
<th>100-GB*</th>
<th>80-GB*</th>
<th>80-GB*</th>
</tr>
</thead>
<tbody>
<tr>
<td>Single track</td>
<td>3 ms</td>
<td>3 ms</td>
<td>3 ms</td>
</tr>
<tr>
<td>Average</td>
<td>13 ms</td>
<td>13 ms</td>
<td>13 ms</td>
</tr>
<tr>
<td>Maximum</td>
<td>24 ms</td>
<td>24 ms</td>
<td>24 ms</td>
</tr>
</tbody>
</table>

### Logical blocks

- **195,364,233**, **156,301,488**, **156,301,488**

### Disc rotational speed

- **4200 rpm**, **5400 rpm**, **4200 rpm**

### Operating temperature

- **5°C to 55°C (41°F to 131°F)**

**Note:** Certain restrictions and exclusions apply. Consult Customer Care for details.

*1 GB = 1 billion bytes when referring to hard drive storage capacity. Actual accessible capacity is less.

† Actual drive specifications may differ slightly.
**Table 6-3**  
Hard Drives (Continued)

<table>
<thead>
<tr>
<th>Dimensions</th>
<th>60-GB*</th>
<th>60-GB*</th>
<th>40-GB*</th>
</tr>
</thead>
<tbody>
<tr>
<td>Height</td>
<td>9.5 mm</td>
<td>9.5 mm</td>
<td>9.5 mm</td>
</tr>
<tr>
<td>Width</td>
<td>70 mm</td>
<td>70 mm</td>
<td>70 mm</td>
</tr>
<tr>
<td>Weight</td>
<td>102 g</td>
<td>99 g</td>
<td>99 g</td>
</tr>
<tr>
<td>Interface type</td>
<td>ATA-5</td>
<td>ATA-5</td>
<td>ATA-5</td>
</tr>
<tr>
<td>Transfer rate</td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Synchronous (maximum)</td>
<td>100 MB/sec</td>
<td>100 MB/sec</td>
<td>100 MB/sec</td>
</tr>
<tr>
<td>Security</td>
<td>ATA security</td>
<td>ATA security</td>
<td>ATA security</td>
</tr>
<tr>
<td>Seek times (typical read, including setting)</td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Single track</td>
<td>3 ms</td>
<td>3 ms</td>
<td>3 ms</td>
</tr>
<tr>
<td>Average</td>
<td>13 ms</td>
<td>13 ms</td>
<td>13 ms</td>
</tr>
<tr>
<td>Maximum</td>
<td>24 ms</td>
<td>24 ms</td>
<td>24 ms</td>
</tr>
<tr>
<td>Logical blocks†</td>
<td>117,210,240</td>
<td>117,210,240</td>
<td>78,140,160</td>
</tr>
<tr>
<td>Disc rotational speed</td>
<td>5400 rpm</td>
<td>4200 rpm</td>
<td>4200 rpm</td>
</tr>
<tr>
<td>Operating temperature</td>
<td>5°C to 55°C (41°F to 131°F)</td>
<td></td>
<td></td>
</tr>
</tbody>
</table>

*1 GB = 1 billion bytes when referring to hard drive storage capacity. Actual accessible capacity is less.
†Actual drive specifications may differ slightly.

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### Specifications

#### Table 6-4

**Primary 6-cell, Li-Ion Battery Pack**

<table>
<thead>
<tr>
<th>Dimensions</th>
<th>Height</th>
<th>2.00 cm</th>
<th>0.79 in</th>
</tr>
</thead>
<tbody>
<tr>
<td></td>
<td>Width</td>
<td>9.40 cm</td>
<td>3.70 in</td>
</tr>
<tr>
<td></td>
<td>Depth</td>
<td>13.40 cm</td>
<td>5.28 in</td>
</tr>
<tr>
<td></td>
<td>Weight</td>
<td>0.34 kg</td>
<td>0.75 lb</td>
</tr>
</tbody>
</table>

<table>
<thead>
<tr>
<th>Energy</th>
<th>Voltage</th>
<th>11.1 V</th>
</tr>
</thead>
<tbody>
<tr>
<td></td>
<td>Amp-hour capacity</td>
<td>4.4 Ah</td>
</tr>
<tr>
<td></td>
<td>Watt-hour capacity</td>
<td>48 Wh</td>
</tr>
</tbody>
</table>

<table>
<thead>
<tr>
<th>Temperature</th>
<th>Operating</th>
<th>5°C to 45°C</th>
<th>41°F to 113°F</th>
</tr>
</thead>
<tbody>
<tr>
<td></td>
<td>Nonoperating</td>
<td>0°C to 60°C</td>
<td>32°F to 140°F</td>
</tr>
<tr>
<td>Specifications</td>
<td></td>
<td></td>
<td></td>
</tr>
</tbody>
</table>

Table 6-5

<table>
<thead>
<tr>
<th>DVD/CD-RW Combo Drive</th>
</tr>
</thead>
<tbody>
<tr>
<td><strong>Applicable disc</strong></td>
</tr>
<tr>
<td>DVD-R, DVD-RW, DVD-ROM</td>
</tr>
<tr>
<td>(DVD-5, DVD-9, DVD-10,</td>
</tr>
<tr>
<td>DVD-18), CD-ROM (Mode 1 and 2)</td>
</tr>
<tr>
<td><strong>Center hole diameter</strong></td>
</tr>
<tr>
<td><strong>Disc diameter</strong></td>
</tr>
<tr>
<td>Standard disc</td>
</tr>
<tr>
<td>Mini disc</td>
</tr>
<tr>
<td><strong>Disc thickness</strong></td>
</tr>
<tr>
<td><strong>Track pitch</strong></td>
</tr>
<tr>
<td><strong>Access time</strong></td>
</tr>
<tr>
<td>Random</td>
</tr>
<tr>
<td>Full stroke</td>
</tr>
<tr>
<td><strong>Audio output level</strong></td>
</tr>
<tr>
<td><strong>Cache buffer</strong></td>
</tr>
<tr>
<td><strong>Data transfer rate</strong></td>
</tr>
<tr>
<td>CD-R (24X)</td>
</tr>
<tr>
<td>CD-RW (10X)</td>
</tr>
<tr>
<td>CD-ROM (24X)</td>
</tr>
<tr>
<td>DVD (8X)</td>
</tr>
<tr>
<td>Multiword DMA mode 2</td>
</tr>
<tr>
<td><strong>Startup time</strong></td>
</tr>
<tr>
<td><strong>Stop time</strong></td>
</tr>
</tbody>
</table>
### Specifications

#### Table 6-6

**DVD-ROM Drive**

<table>
<thead>
<tr>
<th>Applicable disc</th>
<th>DVD-ROM (DVD-5, DVD-9, DVD-10, DVD-18)</th>
</tr>
</thead>
<tbody>
<tr>
<td></td>
<td>CD-ROM (Mode 1 and 2)</td>
</tr>
<tr>
<td></td>
<td>CD Digital Audio</td>
</tr>
<tr>
<td></td>
<td>CD-XA ready (Mode 2, Form 1 and 2)</td>
</tr>
<tr>
<td></td>
<td>CD-I ready (Mode 2, Form 1 and 2)</td>
</tr>
<tr>
<td></td>
<td>CD-RCD-RW Photo CD (single and multisession)</td>
</tr>
<tr>
<td></td>
<td>CD-Bridge</td>
</tr>
<tr>
<td><strong>Center hole diameter</strong></td>
<td>1.5 cm (0.59 in)</td>
</tr>
<tr>
<td><strong>Disc diameter</strong></td>
<td></td>
</tr>
<tr>
<td>Standard disc</td>
<td>12 cm (4.72 in)</td>
</tr>
<tr>
<td>Mini disc</td>
<td>8 cm (3.15 in)</td>
</tr>
<tr>
<td><strong>Disc thickness</strong></td>
<td>1.2 mm (0.047 in)</td>
</tr>
<tr>
<td><strong>Track pitch</strong></td>
<td>0.74 µm</td>
</tr>
</tbody>
</table>
### Table 6-6
**DVD-ROM Drive (Continued)**

<table>
<thead>
<tr>
<th>Access time</th>
<th>CD media</th>
<th>DVD media</th>
</tr>
</thead>
<tbody>
<tr>
<td>Random</td>
<td>&lt; 100 ms</td>
<td>&lt; 125 ms</td>
</tr>
<tr>
<td>Full stroke</td>
<td>&lt; 175 ms</td>
<td>&lt; 225 ms</td>
</tr>
</tbody>
</table>

<table>
<thead>
<tr>
<th>Audio output level</th>
<th>Line-out, 0.7 V rms</th>
</tr>
</thead>
</table>

<table>
<thead>
<tr>
<th>Cache buffer</th>
<th>512 KB</th>
</tr>
</thead>
</table>

<table>
<thead>
<tr>
<th>Data transfer rate</th>
<th></th>
</tr>
</thead>
<tbody>
<tr>
<td>CD-R (24X)</td>
<td>3600 KB/s (150 KB/s at 1X CD rate)</td>
</tr>
<tr>
<td>CD-RW (10X)</td>
<td>1500 KB/s (150 KB/s at 1X CD rate)</td>
</tr>
<tr>
<td>CD-ROM (24X)</td>
<td>3600 KB/s (150 KB/s at 1X CD rate)</td>
</tr>
<tr>
<td>DVD (8X)</td>
<td>10,800 KB/s (1352 KB/s at 1X DVD rate)</td>
</tr>
<tr>
<td>Multiword DMA mode 2</td>
<td>16.6 MB/s</td>
</tr>
</tbody>
</table>

| Startup time | < 10 seconds |
| Stop time    | < 3 seconds  |
### Table 6-7
**DVD±RW and CD-RW Combo Drive**

<table>
<thead>
<tr>
<th>Applicable disc</th>
<th>Read:</th>
<th>Write:</th>
</tr>
</thead>
<tbody>
<tr>
<td></td>
<td>DVD-R, DVD-RW, DVD-ROM (DVD-5, DVD-9, DVD-10, DVD-18), CD-ROM (Mode 1 and 2), CD Digital Audio, CD-XA ready (Mode 2, Form 1 and 2), CD-I ready (Mode 2, Form 1 and 2), CD-R, CD-RW, Photo CD (single and multisession), CD-Bridge</td>
<td>CD-R and CD-RW</td>
</tr>
<tr>
<td></td>
<td></td>
<td>DVD-R and DVD-RW.</td>
</tr>
<tr>
<td>Center hole diameter</td>
<td>1.5 cm (0.59 in)</td>
<td></td>
</tr>
<tr>
<td>Disc diameter</td>
<td></td>
<td></td>
</tr>
<tr>
<td>Standard disc</td>
<td>12 cm (4.72 in)</td>
<td></td>
</tr>
<tr>
<td>Mini disc</td>
<td>8 cm (3.15 in)</td>
<td></td>
</tr>
<tr>
<td>Disc thickness</td>
<td>1.2 mm (0.047 in)</td>
<td></td>
</tr>
<tr>
<td>Track pitch</td>
<td>0.74 µm</td>
<td></td>
</tr>
</tbody>
</table>
### Table 6-7

**DVD±RW and CD-RW Combo Drive (Continued)**

<table>
<thead>
<tr>
<th></th>
<th>CD</th>
<th>DVD</th>
</tr>
</thead>
<tbody>
<tr>
<td><strong>Access time</strong></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Random</td>
<td>&lt; 175 ms</td>
<td>&lt; 230 ms</td>
</tr>
<tr>
<td>Full stroke</td>
<td>&lt; 285 ms</td>
<td>&lt; 335 ms</td>
</tr>
<tr>
<td><strong>Audio output level</strong></td>
<td>Audio-out, 0.7 Vrms</td>
<td></td>
</tr>
<tr>
<td><strong>Cache buffer</strong></td>
<td>2 MB</td>
<td></td>
</tr>
<tr>
<td><strong>Data transfer rate</strong></td>
<td></td>
<td></td>
</tr>
<tr>
<td>CD-R (16X)</td>
<td>2,400 KB/s (150 KB/s at 1X CD rate)</td>
<td></td>
</tr>
<tr>
<td>CD-RW (8X)</td>
<td>1,200 KB/s (150 KB/s at 1X CD rate)</td>
<td></td>
</tr>
<tr>
<td>CD-ROM (24X)</td>
<td>3,600 KB/s (150 KB/s at 1X CD rate)</td>
<td></td>
</tr>
<tr>
<td>DVD (8X)</td>
<td>10,800 KB/s (1,352 KB/s at 1X DVD rate)</td>
<td></td>
</tr>
<tr>
<td>DVD-R (4X)</td>
<td>5,400 KB/s (1,352 KB/s at 1X DVD rate)</td>
<td></td>
</tr>
<tr>
<td>DVD-RW (2X)</td>
<td>2,700 KB/s (1,352 KB/s at 1X DVD rate)</td>
<td></td>
</tr>
<tr>
<td>Multiword DMA mode 2</td>
<td>16.6 MB/s</td>
<td></td>
</tr>
<tr>
<td><strong>Startup time</strong></td>
<td>&lt; 15 seconds</td>
<td></td>
</tr>
<tr>
<td><strong>Stop time</strong></td>
<td>&lt; 6 seconds</td>
<td></td>
</tr>
</tbody>
</table>
## Table 6-8

**System DMA**

<table>
<thead>
<tr>
<th>Hardware DMA</th>
<th>System Function</th>
</tr>
</thead>
<tbody>
<tr>
<td>DMA0</td>
<td>Not applicable</td>
</tr>
<tr>
<td>DMA1*</td>
<td>Not applicable</td>
</tr>
<tr>
<td>DMA2*</td>
<td>Not applicable</td>
</tr>
<tr>
<td>DMA3</td>
<td>Not applicable</td>
</tr>
<tr>
<td>DMA4</td>
<td>Direct memory access controller</td>
</tr>
<tr>
<td>DMA5*</td>
<td>Available for PC Card</td>
</tr>
<tr>
<td>DMA6</td>
<td>Not assigned</td>
</tr>
<tr>
<td>DMA7</td>
<td>Not assigned</td>
</tr>
</tbody>
</table>

*PC Card controller can use DMA 1, 2, or 5.*
Table 6-9
System Interrupts

<table>
<thead>
<tr>
<th>Hardware IRQ</th>
<th>System Function</th>
</tr>
</thead>
<tbody>
<tr>
<td>IRQ0</td>
<td>System timer</td>
</tr>
<tr>
<td>IRQ1</td>
<td>Standard 101-/102-Key or Microsoft Natural Keyboard</td>
</tr>
<tr>
<td>IRQ2</td>
<td>Cascaded</td>
</tr>
<tr>
<td>IRQ3</td>
<td>Intel 82801DB/DBM USB2 Enhanced Host Controller—24CD</td>
</tr>
<tr>
<td>IRQ4</td>
<td>COM1</td>
</tr>
<tr>
<td>IRQ5*</td>
<td>Conexant AC—Link Audio Intel 82801DB/DBM SMBus Controller—24C3 Data Fax Modem with SmartCP</td>
</tr>
<tr>
<td>IRQ6</td>
<td>Diskette drive</td>
</tr>
<tr>
<td>IRQ7*</td>
<td>Parallel port</td>
</tr>
<tr>
<td>IRQ8</td>
<td>System CMOS/real-time clock</td>
</tr>
<tr>
<td>IRQ9*</td>
<td>Microsoft ACPI-compliant system</td>
</tr>
<tr>
<td>IRQ10*</td>
<td>Intel USB UHCI controller—24C2 Intel 82852/82855 GM/GME Graphic Controller Realtek RTL8139 Family PCI fast Ethernet Controller</td>
</tr>
</tbody>
</table>
### Table 6-9

**System Interrupts (Continued)**

| IRQ11          | Intel USB EHCI controller—24CD  
|               | Intel USB UHCI controller—24C4  
|               | Intel USB UHCI controller—24C7  
|               | Intel Pro/Wireless 2200BG        
|               | TI OHCI 1394 host controller     
|               | TI PCI1410 CardBus controller    
| IRQ12          | Synaptics PS/2 TouchPad         
| IRQ13          | Numeric data processor          
| IRQ14          | Primary IDE channel             
| IRQ15          | Secondary IDE channel           

*Default configuration; audio possible configurations are IRQ5, IRQ7, IRQ9, IRQ10, or none.*

PC Cards may assert IRQ3, IRQ4, IRQ5, IRQ7, IRQ9, IRQ10, IRQ11, or IRQ15. Either the infrared or the serial port may assert IRQ3 or IRQ4.
Table 6-10
System I/O Addresses

<table>
<thead>
<tr>
<th>I/O Address (hex)</th>
<th>System Function (shipping configuration)</th>
</tr>
</thead>
<tbody>
<tr>
<td>000 - 00F</td>
<td>DMA controller no. 1</td>
</tr>
<tr>
<td>010 - 01F</td>
<td>Unused</td>
</tr>
<tr>
<td>020 - 021</td>
<td>Interrupt controller no. 1</td>
</tr>
<tr>
<td>022 - 024</td>
<td>Opti chipset configuration registers</td>
</tr>
<tr>
<td>025 - 03F</td>
<td>Unused</td>
</tr>
<tr>
<td>02E - 02F</td>
<td>87334 “Super I/O” configuration for CPU</td>
</tr>
<tr>
<td>040 - 05F</td>
<td>Counter/timer registers</td>
</tr>
<tr>
<td>044 - 05F</td>
<td>Unused</td>
</tr>
<tr>
<td>060</td>
<td>Keyboard controller</td>
</tr>
<tr>
<td>061</td>
<td>Port B</td>
</tr>
<tr>
<td>062 - 063</td>
<td>Unused</td>
</tr>
<tr>
<td>064</td>
<td>Keyboard controller</td>
</tr>
<tr>
<td>065 - 06F</td>
<td>Unused</td>
</tr>
<tr>
<td>070 - 071</td>
<td>NMI enable/RTC</td>
</tr>
<tr>
<td>072 - 07F</td>
<td>Unused</td>
</tr>
<tr>
<td>080 - 08F</td>
<td>DMA page registers</td>
</tr>
<tr>
<td>090 - 091</td>
<td>Unused</td>
</tr>
<tr>
<td>092</td>
<td>Port A</td>
</tr>
<tr>
<td>093 - 09F</td>
<td>Unused</td>
</tr>
<tr>
<td>0A0 - 0A1</td>
<td>Interrupt controller no. 2</td>
</tr>
</tbody>
</table>
### Table 6-10

**System I/O Addresses (Continued)**

<table>
<thead>
<tr>
<th>I/O Address (hex)</th>
<th>System Function (shipping configuration)</th>
</tr>
</thead>
<tbody>
<tr>
<td>0A2 - 0BF</td>
<td>Unused</td>
</tr>
<tr>
<td>0C0 - 0DF</td>
<td>DMA controller no. 2</td>
</tr>
<tr>
<td>0E0 - 0EF</td>
<td>Unused</td>
</tr>
<tr>
<td>0F0 - 0F1</td>
<td>Coprocessor busy clear/reset</td>
</tr>
<tr>
<td>0F2 - 0FF</td>
<td>Unused</td>
</tr>
<tr>
<td>100 - 16F</td>
<td>Unused</td>
</tr>
<tr>
<td>170 - 177</td>
<td>Secondary fixed disk controller</td>
</tr>
<tr>
<td>178 - 1EF</td>
<td>Unused</td>
</tr>
<tr>
<td>1F0 - 1F7</td>
<td>Primary fixed disk controller</td>
</tr>
<tr>
<td>1F8 - 200</td>
<td>Unused</td>
</tr>
<tr>
<td>201</td>
<td>Joystick (decoded in ESS1688)</td>
</tr>
<tr>
<td>202 - 21F</td>
<td>Unused</td>
</tr>
<tr>
<td>220 - 22F</td>
<td>Entertainment audio</td>
</tr>
<tr>
<td>230 - 26D</td>
<td>Unused</td>
</tr>
<tr>
<td>26E - 26</td>
<td>Unused</td>
</tr>
<tr>
<td>278 - 27F</td>
<td>Unused</td>
</tr>
<tr>
<td>280 - 2AB</td>
<td>Unused</td>
</tr>
<tr>
<td>2A0 - 2A7</td>
<td>Unused</td>
</tr>
<tr>
<td>2A8 - 2E7</td>
<td>Unused</td>
</tr>
<tr>
<td>2E8 - 2EF</td>
<td>Reserved serial port</td>
</tr>
</tbody>
</table>
### Table 6-10
System I/O Addresses (Continued)

<table>
<thead>
<tr>
<th>I/O Address (hex)</th>
<th>System Function (shipping configuration)</th>
</tr>
</thead>
<tbody>
<tr>
<td>2F0 - 2F7</td>
<td>Unused</td>
</tr>
<tr>
<td>2F8 - 2FF</td>
<td>Infrared port</td>
</tr>
<tr>
<td>300 - 31F</td>
<td>Unused</td>
</tr>
<tr>
<td>320 - 36F</td>
<td>Unused</td>
</tr>
<tr>
<td>370 - 377</td>
<td>Secondary diskette drive controller</td>
</tr>
<tr>
<td>378 - 37F</td>
<td>Parallel port (LPT1/default)</td>
</tr>
<tr>
<td>380 - 387</td>
<td>Unused</td>
</tr>
<tr>
<td>388 - 38B</td>
<td>FM synthesizer—OPL3</td>
</tr>
<tr>
<td>38C - 3AF</td>
<td>Unused</td>
</tr>
<tr>
<td>3B0 - 3BB</td>
<td>VGA</td>
</tr>
<tr>
<td>3BC - 3BF</td>
<td>Reserved (parallel port/no EPP support)</td>
</tr>
<tr>
<td>3C0 - 3DF</td>
<td>VGA</td>
</tr>
<tr>
<td>3E0 - 3E1</td>
<td>PC Card controller in CPU</td>
</tr>
<tr>
<td>3E2 - 3E3</td>
<td>Unused</td>
</tr>
<tr>
<td>3E8 - 3EF</td>
<td>Internal modem</td>
</tr>
<tr>
<td>3F0 - 3F7</td>
<td>“A” diskette controller</td>
</tr>
<tr>
<td>3F8 - 3FF</td>
<td>Serial port (COM1/default)</td>
</tr>
<tr>
<td>CF8 - CFB</td>
<td>PCI configuration index register (PCIDIVO-1)</td>
</tr>
<tr>
<td>CFC - CFF</td>
<td>PCI configuration data register (PCIDIVO-1)</td>
</tr>
</tbody>
</table>
### Table 6-11

#### System Memory Map

<table>
<thead>
<tr>
<th>Size</th>
<th>Memory Address</th>
<th>System Function</th>
</tr>
</thead>
<tbody>
<tr>
<td>640 KB</td>
<td>00000000-0009FFFF</td>
<td>Base memory</td>
</tr>
<tr>
<td>128 KB</td>
<td>000A0000-000BFFFF</td>
<td>Video memory</td>
</tr>
<tr>
<td>48 KB</td>
<td>000C0000-000CBFFF</td>
<td>Video BIOS</td>
</tr>
<tr>
<td>160 KB</td>
<td>000C8000-000E7FFF</td>
<td>Unused</td>
</tr>
<tr>
<td>64 KB</td>
<td>000E8000-000FFFFF</td>
<td>System BIOS</td>
</tr>
<tr>
<td>15 MB</td>
<td>00100000-00FFFFFF</td>
<td>Extended memory</td>
</tr>
<tr>
<td>58 MB</td>
<td>01000000-047FFFFFFF</td>
<td>Super extended memory</td>
</tr>
<tr>
<td>58 MB</td>
<td>04800000-07FFFFFFF</td>
<td>Unused</td>
</tr>
<tr>
<td>2 MB</td>
<td>08000000-080FFFFFFF</td>
<td>Video memory (direct access)</td>
</tr>
<tr>
<td>4 GB</td>
<td>08200000-FFFFFFF</td>
<td>Unused</td>
</tr>
<tr>
<td>64 KB</td>
<td>FFFF0000-FFFFFFFFFF</td>
<td>System BIOS</td>
</tr>
</tbody>
</table>
## Connector Pin Assignments

### Table A-1

Audio-Out (Headphone)

<table>
<thead>
<tr>
<th>Pin</th>
<th>Signal</th>
<th>Pin</th>
<th>Signal</th>
</tr>
</thead>
<tbody>
<tr>
<td>1</td>
<td>Audio out, left channel</td>
<td>3</td>
<td>Ground</td>
</tr>
<tr>
<td>2</td>
<td>Audio out, right channel</td>
<td></td>
<td></td>
</tr>
</tbody>
</table>
Table A-2
Audio-In (Microphone)

<table>
<thead>
<tr>
<th>Pin</th>
<th>Signal</th>
<th>Pin</th>
<th>Signal</th>
</tr>
</thead>
<tbody>
<tr>
<td>1</td>
<td>Audio signal in</td>
<td>3</td>
<td>Ground</td>
</tr>
<tr>
<td>2</td>
<td>Audio signal in</td>
<td></td>
<td></td>
</tr>
</tbody>
</table>

Table A-3
Universal Serial Bus

<table>
<thead>
<tr>
<th>Pin</th>
<th>Signal</th>
</tr>
</thead>
<tbody>
<tr>
<td>1</td>
<td>+5 VDC</td>
</tr>
<tr>
<td>2</td>
<td>Data –</td>
</tr>
</tbody>
</table>

<table>
<thead>
<tr>
<th>Pin</th>
<th>Signal</th>
</tr>
</thead>
<tbody>
<tr>
<td>3</td>
<td>Data +</td>
</tr>
<tr>
<td>4</td>
<td>Ground</td>
</tr>
</tbody>
</table>
## Table A-4

**External Monitor**

<table>
<thead>
<tr>
<th>Pin</th>
<th>Signal</th>
<th>Pin</th>
<th>Signal</th>
</tr>
</thead>
<tbody>
<tr>
<td>1</td>
<td>Red analog</td>
<td>9</td>
<td>+5 VDC</td>
</tr>
<tr>
<td>2</td>
<td>Green analog</td>
<td>10</td>
<td>Ground</td>
</tr>
<tr>
<td>3</td>
<td>Blue analog</td>
<td>11</td>
<td>Monitor detect</td>
</tr>
<tr>
<td>4</td>
<td>Not connected</td>
<td>12</td>
<td>DDC 2B data</td>
</tr>
<tr>
<td>5</td>
<td>Ground</td>
<td>13</td>
<td>Horizontal sync</td>
</tr>
<tr>
<td>6</td>
<td>Ground analog</td>
<td>14</td>
<td>Vertical sync</td>
</tr>
<tr>
<td>7</td>
<td>Ground analog</td>
<td>15</td>
<td>DDC 2B clock</td>
</tr>
<tr>
<td>8</td>
<td>Ground analog</td>
<td></td>
<td></td>
</tr>
</tbody>
</table>
## Connector Pin Assignments

### Table A-5
RJ-45 (Network)

<table>
<thead>
<tr>
<th>Pin</th>
<th>Signal</th>
<th>Pin</th>
<th>Signal</th>
</tr>
</thead>
<tbody>
<tr>
<td>1</td>
<td>Transmit +</td>
<td>5</td>
<td>Unused</td>
</tr>
<tr>
<td>2</td>
<td>Transmit –</td>
<td>6</td>
<td>Receive –</td>
</tr>
<tr>
<td>3</td>
<td>Receive +</td>
<td>7</td>
<td>Unused</td>
</tr>
<tr>
<td>4</td>
<td>Unused</td>
<td>8</td>
<td>Unused</td>
</tr>
</tbody>
</table>
Table A-6
RJ-11 (Modem)

<table>
<thead>
<tr>
<th>Pin</th>
<th>Signal</th>
<th>Pin</th>
<th>Signal</th>
</tr>
</thead>
<tbody>
<tr>
<td>1</td>
<td>Unused</td>
<td>4</td>
<td>Unused</td>
</tr>
<tr>
<td>2</td>
<td>Tip</td>
<td>5</td>
<td>Unused</td>
</tr>
<tr>
<td>3</td>
<td>Ring</td>
<td>6</td>
<td>Unused</td>
</tr>
</tbody>
</table>
### Table A-7

**S-Video-Out**

<table>
<thead>
<tr>
<th>Pin</th>
<th>Signal</th>
<th>Pin</th>
<th>Signal</th>
</tr>
</thead>
<tbody>
<tr>
<td>1</td>
<td>S-VHS color (C) signal</td>
<td>5</td>
<td>TV-CD</td>
</tr>
<tr>
<td>2</td>
<td>Composite video signal</td>
<td>6</td>
<td>S-VHS intensity ground</td>
</tr>
<tr>
<td>3</td>
<td>S-VHS intensity (Y) signal</td>
<td>7</td>
<td>Composite video ground</td>
</tr>
<tr>
<td>4</td>
<td>S-VHS color ground</td>
<td></td>
<td></td>
</tr>
</tbody>
</table>
Power Cord Set Requirements

3-Conductor Power Cord Set

The wide range input feature of the computer permits it to operate from any line voltage from 100 to 120 or 220 to 240 volts AC.

The power cord set included with the computer meets the requirements for use in the country where the equipment is purchased.

Power cord sets for use in other countries must meet the requirements of the country where the computer is used.
General Requirements

The requirements listed below are applicable to all countries.

■ The length of the power cord set must be at least 1.5 m (5.0 ft) and a maximum of 2.0 m (6.5 ft).

■ All power cord sets must be approved by an acceptable accredited agency responsible for evaluation in the country where the power cord set will be used.

■ The power cord sets must have a minimum current capacity of 10 amps and a nominal voltage rating of 125 or 250 V AC, as required by each country’s power system.

■ The appliance coupler must meet the mechanical configuration of an EN 60 320/IEC 320 Standard Sheet C13 connector for mating with the appliance inlet on the back of the computer.
### Country-Specific Requirements

<table>
<thead>
<tr>
<th>Country/Region</th>
<th>Accredited Agency</th>
<th>Applicable Note Number</th>
</tr>
</thead>
<tbody>
<tr>
<td>Australia</td>
<td>EANSW</td>
<td>1</td>
</tr>
<tr>
<td>Austria</td>
<td>OVE</td>
<td>1</td>
</tr>
<tr>
<td>Belgium</td>
<td>CEBC</td>
<td>1</td>
</tr>
<tr>
<td>Canada</td>
<td>CSA</td>
<td>2</td>
</tr>
<tr>
<td>Denmark</td>
<td>DEMKO</td>
<td>1</td>
</tr>
<tr>
<td>Finland</td>
<td>FIMKO</td>
<td>1</td>
</tr>
<tr>
<td>France</td>
<td>UTE</td>
<td>1</td>
</tr>
<tr>
<td>Germany</td>
<td>VDE</td>
<td>1</td>
</tr>
<tr>
<td>Italy</td>
<td>IMQ</td>
<td>1</td>
</tr>
<tr>
<td>Japan</td>
<td>METI</td>
<td>3</td>
</tr>
</tbody>
</table>

**NOTES:**

1. The flexible cord must be Type HO5VV-F, 3-conductor, 1.0 mm² conductor size. Power cord set fittings (appliance coupler and wall plug) must bear the certification mark of the agency responsible for evaluation in the country where it will be used.

2. The flexible cord must be Type SPT-3 or equivalent, No. 18 AWG, 3-conductor. The wall plug must be a two-pole grounding type with a NEMA 5-15P (15 A, 125 V) or NEMA 6-15P (15 A, 250 V) configuration.

3. The appliance coupler, flexible cord, and wall plug must bear a “T” mark and registration number in accordance with the Japanese Dentori Law. The flexible cord must be Type VCT or VCTF, 3-conductor, 1.00 mm² conductor size. The wall plug must be a two-pole grounding type with a Japanese Industrial Standard C8303 (7 A, 125 V) configuration.
### 3-Conductor Power Cord Set Requirements (Continued)

<table>
<thead>
<tr>
<th>Country/Region</th>
<th>Accredited Agency</th>
<th>Applicable Note Number</th>
</tr>
</thead>
<tbody>
<tr>
<td>Korea</td>
<td>EK</td>
<td>4</td>
</tr>
<tr>
<td>The Netherlands</td>
<td>KE A</td>
<td>1</td>
</tr>
<tr>
<td>Norway</td>
<td>NEMKO</td>
<td>1</td>
</tr>
<tr>
<td>People’s Republic of China</td>
<td>CCC</td>
<td>5</td>
</tr>
<tr>
<td>Sweden</td>
<td>SEMKO</td>
<td>1</td>
</tr>
<tr>
<td>Switzerland</td>
<td>SEV</td>
<td>1</td>
</tr>
<tr>
<td>Taiwan</td>
<td>BSMI</td>
<td>4</td>
</tr>
<tr>
<td>United Kingdom</td>
<td>BSI</td>
<td>1</td>
</tr>
<tr>
<td>United States</td>
<td>UL</td>
<td>2</td>
</tr>
</tbody>
</table>

**NOTES:**

1. The flexible cord must be Type HO5VV-F, 3-conductor, 1.0 mm² conductor size. Power cord set fittings (appliance coupler and wall plug) must bear the certification mark of the agency responsible for evaluation in the country where it will be used.

2. The flexible cord must be Type SPT-3 or equivalent, No. 18 AWG, 3-conductor. The wall plug must be a two-pole grounding type with a NEMA 5-15P (15 A, 125 V) or NEMA 6-15P (15 A, 250 V) configuration.

3. The appliance coupler, flexible cord, and wall plug must bear a “T” mark and registration number in accordance with the Japanese Dentori Law. The flexible cord must be Type VCT or VCTF, 3-conductor, 1.00 mm² conductor size. The wall plug must be a two-pole grounding type with a Japanese Industrial Standard C8303 (7 A, 125 V) configuration.

4. The flexible cord must be Type RVV, 3-conductor, 0.75 mm² conductor size. Power cord set fittings (appliance coupler and wall plug) must bear the certification mark of the agency responsible for evaluation in the country where it will be used.

5. The flexible cord must be Type VCTF, 3-conductor, 0.75 mm² conductor size. Power cord set fittings (appliance coupler and wall plug) must bear the certification mark of the agency responsible for evaluation in the country where it will be used.
C

Screw Listing

This appendix provides specification and reference information for the screws and screw locks used in the computer. All screws and screw locks listed in this appendix are available in the following Screw Kits:

- Computer Screw Kit, spare part number 382692-001
- Display Screw Kit for use with HP Pavilion dv4000 models, spare part number 403923-001
- Display Screw Kit for use with Compaq Presario V4000 models, spare part number 403924-001
## Table C-1

**Phillips PM2.0×5.0 Screw**

<table>
<thead>
<tr>
<th>Color</th>
<th>Qty.</th>
<th>Length</th>
<th>Thread</th>
<th>Head Width</th>
</tr>
</thead>
<tbody>
<tr>
<td>Black</td>
<td>6</td>
<td>5.0 mm</td>
<td>2.0 mm</td>
<td>5.0 mm</td>
</tr>
</tbody>
</table>

### Where used:

1. Two screws that secure the hard drive cover to the computer (screws are captured on the cover by C clips; documented in Section 5.4)
2. Three screws that secure the memory module compartment cover to the computer (screw is captured on the cover by C clips; documented in Section 5.7)
3. One screw that secures the thermal cover to the computer (screw is captured on the cover by C clips; documented in Section 5.10)
Table C-2
Phillips PM2.5×4.0 Screw

<table>
<thead>
<tr>
<th>Color</th>
<th>Qty.</th>
<th>Length</th>
<th>Thread</th>
<th>Head Width</th>
</tr>
</thead>
<tbody>
<tr>
<td>Black</td>
<td>4</td>
<td>4.0 mm</td>
<td>2.5 mm</td>
<td>4.5 mm</td>
</tr>
</tbody>
</table>

Where used:
4 screws that secure the hard drive frame to the hard drive (documented in Section 5.4)
## Screw Listing

### Phillips PM2.5×7.0 Screw

<table>
<thead>
<tr>
<th>Color</th>
<th>Qty.</th>
<th>Length</th>
<th>Thread</th>
<th>Head Width</th>
</tr>
</thead>
<tbody>
<tr>
<td>Black</td>
<td>56</td>
<td>7.0 mm</td>
<td>2.5 mm</td>
<td>4.5 mm</td>
</tr>
</tbody>
</table>

**Where used:**

1. One screw that secures the optical drive to the computer (documented in Section 5.6)
2. Three screws that secure the switch cover on Compaq Presario V4000 models computer (documented in Section 5.12)
3. Two screws that secure the display assembly to the computer (documented in Section 5.14)

---

**Phillips PM2.5×7.0 Screw Locations**
### Table C-3

**Phillips PM2.5×7.0 Screw (Continued)**

<table>
<thead>
<tr>
<th>Color</th>
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<th>Length</th>
<th>Thread</th>
<th>Head Width</th>
</tr>
</thead>
<tbody>
<tr>
<td>Black</td>
<td>56</td>
<td>7.0 mm</td>
<td>2.5 mm</td>
<td>4.5 mm</td>
</tr>
</tbody>
</table>

**Where used:**

4 screws that secure the display assembly to the computer (documented in Section 5.14)

---

*Phillips PM2.5×7.0 Screw Locations*
### Table C-3

**Phillips PM2.5×7.0 Screw (Continued)**

<table>
<thead>
<tr>
<th>Color</th>
<th>Qty.</th>
<th>Length</th>
<th>Thread</th>
<th>Head Width</th>
</tr>
</thead>
<tbody>
<tr>
<td>Black</td>
<td>56</td>
<td>7.0 mm</td>
<td>2.5 mm</td>
<td>4.5 mm</td>
</tr>
</tbody>
</table>

**Where used:**

6 screws that secure the display bezel to the display assembly (documented in Section 5.14)
### Table C-3

**Phillips PM2.5×7.0 Screw (Continued)**

<table>
<thead>
<tr>
<th>Color</th>
<th>Qty.</th>
<th>Length</th>
<th>Thread</th>
<th>Head Width</th>
</tr>
</thead>
<tbody>
<tr>
<td>Black</td>
<td>56</td>
<td>7.0 mm</td>
<td>2.5 mm</td>
<td>4.5 mm</td>
</tr>
</tbody>
</table>

**Where used:**

6 screws that secure the display hinges to the display enclosure (documented in Section 5.14)
**Table C-3**

**Phillips PM2.5×7.0 Screw (Continued)**

<table>
<thead>
<tr>
<th>Color</th>
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<th>Length</th>
<th>Thread</th>
<th>Head Width</th>
</tr>
</thead>
<tbody>
<tr>
<td>Black</td>
<td>56</td>
<td>7.0 mm</td>
<td>2.5 mm</td>
<td>4.5 mm</td>
</tr>
</tbody>
</table>

**Where used:**
11 screws that top cover to the HP Pavilion dv4000 (documented in Section 5.15)
### Table C-3

**Phillips PM2.5×7.0 Screw (Continued)**

<table>
<thead>
<tr>
<th>Color</th>
<th>Qty.</th>
<th>Length</th>
<th>Thread</th>
<th>Head Width</th>
</tr>
</thead>
<tbody>
<tr>
<td>Black</td>
<td>56</td>
<td>7.0 mm</td>
<td>2.5 mm</td>
<td>4.5 mm</td>
</tr>
</tbody>
</table>

**Where used:**

3 screws that secure the top cover to the HP Pavilion dv4000 (documented in Section 5.15)

---

*Phillips PM2.5×7.0 Screw Locations*
### Table C-3

**Phillips PM2.5×7.0 Screw (Continued)**

<table>
<thead>
<tr>
<th>Color</th>
<th>Qty.</th>
<th>Length</th>
<th>Thread</th>
<th>Head Width</th>
</tr>
</thead>
<tbody>
<tr>
<td>Black</td>
<td>56</td>
<td>7.0 mm</td>
<td>2.5 mm</td>
<td>4.5 mm</td>
</tr>
</tbody>
</table>

**Where used:**

One that secures the base enclosure to the Compaq Presario V4000 (documented in Section 5.16)
### Table C-3
**Phillips PM2.5×7.0 Screw (Continued)**

<table>
<thead>
<tr>
<th>Color</th>
<th>Qty.</th>
<th>Length</th>
<th>Thread</th>
<th>Head Width</th>
</tr>
</thead>
<tbody>
<tr>
<td>Black</td>
<td>56</td>
<td>7.0 mm</td>
<td>2.5 mm</td>
<td>4.5 mm</td>
</tr>
</tbody>
</table>

**Where used:**
9 screws that secure the base enclosure to the Compaq Presario V4000 (documented in Section 5.16)

---

*Phillips PM2.5×7.0 Screw Locations*
### Table C-3
**Phillips PM2.5×7.0 Screw (Continued)**

<table>
<thead>
<tr>
<th>Color</th>
<th>Qty.</th>
<th>Length</th>
<th>Thread</th>
<th>Head Width</th>
</tr>
</thead>
<tbody>
<tr>
<td>Black</td>
<td>56</td>
<td>7.0 mm</td>
<td>2.5 mm</td>
<td>4.5 mm</td>
</tr>
</tbody>
</table>

**Where used:**
4 screws that secure the system board on HP Pavilion dv4000 models (documented in Section 5.18)

---

*Phillips PM2.5×7.0 Screw Locations*
### Table C-3
**Phillips PM2.5×7.0 Screw (Continued)**

<table>
<thead>
<tr>
<th>Color</th>
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<th>Length</th>
<th>Thread</th>
<th>Head Width</th>
</tr>
</thead>
<tbody>
<tr>
<td>Black</td>
<td>56</td>
<td>7.0 mm</td>
<td>2.5 mm</td>
<td>4.5 mm</td>
</tr>
</tbody>
</table>

**Where used:**
2 screws that secure the system board to the top cover on the Compaq Presario V4000 (documented in Section 5.18)
Table C-3

Phillips PM2.5×7.0 Screw (Continued)

<table>
<thead>
<tr>
<th>Color</th>
<th>Qty</th>
<th>Length</th>
<th>Thread</th>
<th>Head Width</th>
</tr>
</thead>
<tbody>
<tr>
<td>Black</td>
<td>56</td>
<td>7.0 mm</td>
<td>2.5 mm</td>
<td>4.5 mm</td>
</tr>
</tbody>
</table>

Where used:
4 screws that secure the fan assembly to the system board (documented in Section 5.19)
### Table C-4

**Phillips PM2.5×5.0 Screw**

<table>
<thead>
<tr>
<th>Color</th>
<th>Qty.</th>
<th>Length</th>
<th>Thread</th>
<th>Head Width</th>
</tr>
</thead>
<tbody>
<tr>
<td>Silver</td>
<td>8</td>
<td>5.0 mm</td>
<td>2.5 mm</td>
<td>4.0 mm</td>
</tr>
</tbody>
</table>

**Where used:**

2 screws that secure the display release hooks to the display enclosure (documented in Section 5.14)

---

*Phillips PM2.5×5.0 Screw Locations*
### Phillips PM2.5x5.0 Screw (Continued)

<table>
<thead>
<tr>
<th>Color</th>
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<th>Thread</th>
<th>Head Width</th>
</tr>
</thead>
<tbody>
<tr>
<td>Silver</td>
<td>8</td>
<td>5.0 mm</td>
<td>2.5 mm</td>
<td>4.0 mm</td>
</tr>
</tbody>
</table>

**Where used:**
6 screws that secure the display panel to the display enclosure on (documented in Section 5.14)

![Phillips PM2.5x5.0 Screw Locations](image-url)
### Table C-5

**Phillips PM2.0×12.0 Spring-Loaded Screw**

<table>
<thead>
<tr>
<th>Color</th>
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<th>Length</th>
<th>Thread</th>
<th>Head Width</th>
</tr>
</thead>
<tbody>
<tr>
<td>Silver</td>
<td>4</td>
<td>12.0</td>
<td>2.0 mm</td>
<td>5.0 mm</td>
</tr>
</tbody>
</table>

**Where used:**

4 screws that secure the heat sink to the computer (documented in Section 5.10)

*Phillips PM2.0×12.0 Spring-Loaded Screw Locations*
Screw Listing

Table C-6
Black Phillips PM2.0×2.0 Screw

<table>
<thead>
<tr>
<th>Color</th>
<th>Qty.</th>
<th>Length</th>
<th>Thread</th>
<th>Head Width</th>
</tr>
</thead>
<tbody>
<tr>
<td>Black</td>
<td>4</td>
<td>2.0 mm</td>
<td>2.0 mm</td>
<td>5.0 mm</td>
</tr>
</tbody>
</table>

Where used:
4 screws that secure the keyboard on Compaq Presario V4000 models (documented in Section 5.13)
## Table C-7
Silver Phillips PM2.0×2.0 Screw

<table>
<thead>
<tr>
<th>Color</th>
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<th>Thread</th>
<th>Head Width</th>
</tr>
</thead>
<tbody>
<tr>
<td>Silver</td>
<td>4</td>
<td>2.0 mm</td>
<td>2.0 mm</td>
<td>7.0 mm</td>
</tr>
</tbody>
</table>

### Where used:
4 screws that secure the keyboard on HP Pavilion dv4000 models (documented in Section 5.13)
### Phillips PM2.0×4.0 Screw

<table>
<thead>
<tr>
<th>Color</th>
<th>Qty.</th>
<th>Length</th>
<th>Thread</th>
<th>Head Width</th>
</tr>
</thead>
<tbody>
<tr>
<td>Black</td>
<td>22</td>
<td>4.0 mm</td>
<td>2.0 mm</td>
<td>4.0 mm</td>
</tr>
</tbody>
</table>

**Where used:**
2 screws that secure the top cover HP Pavilion dv4000 models (documented in Section 5.15)

![Phillips PM2.0×4.0 Screw Locations](image)
### Table C-8

**Phillips PM2.0×4.0 Screw (Continued)**

<table>
<thead>
<tr>
<th></th>
<th>Color</th>
<th>Qty.</th>
<th>Length</th>
<th>Thread</th>
<th>Head Width</th>
</tr>
</thead>
<tbody>
<tr>
<td></td>
<td>Black</td>
<td>22</td>
<td>4.0 mm</td>
<td>2.0 mm</td>
<td>4.0 mm</td>
</tr>
</tbody>
</table>

**Where used:**

4 screws that secure the base enclosure on Compaq Presario V4000 models (documented in Section 5.16)

*Phillips PM2.0×4.0 Screw Locations*
### Phillips PM2.0×4.0 Screw (Continued)

<table>
<thead>
<tr>
<th>Color</th>
<th>Qty.</th>
<th>Length</th>
<th>Thread</th>
<th>Head Width</th>
</tr>
</thead>
<tbody>
<tr>
<td>Black</td>
<td>22</td>
<td>4.0 mm</td>
<td>2.0 mm</td>
<td>4.0 mm</td>
</tr>
</tbody>
</table>

**Where used:**

2 screws that secure the modem board to the system board (documented in Section 5.17)

---

*Phillips PM2.0×4.0 Screw Locations*
Table C-8
Phillips PM2.0×4.0 Screw (Continued)

<table>
<thead>
<tr>
<th>Color</th>
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<th>Length</th>
<th>Thread</th>
<th>Head Width</th>
</tr>
</thead>
<tbody>
<tr>
<td>Black</td>
<td>22</td>
<td>4.0 mm</td>
<td>2.0 mm</td>
<td>4.0 mm</td>
</tr>
</tbody>
</table>

Where used:
2 screws that secure the system board to the base enclosure on HP Pavilion dv4000 computers (documented in Section 5.18)
## Phillips PM2.0×4.0 Screw (Continued)

<table>
<thead>
<tr>
<th>Color</th>
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<th>Length</th>
<th>Thread</th>
<th>Head Width</th>
</tr>
</thead>
<tbody>
<tr>
<td>Black</td>
<td>22</td>
<td>4.0 mm</td>
<td>2.0 mm</td>
<td>4.0 mm</td>
</tr>
</tbody>
</table>

**Where used:**

One screw that secures the USB board and frame to the base enclosure on HP Pavilion dv4000 computers (documented in Section 5.18) and to the top cover on Compaq Presario V4000 computers (documented in Section 5.21)
### Table C-8

**Phillips PM2.0×4.0 Screw (Continued)**

<table>
<thead>
<tr>
<th>Color</th>
<th>Qty.</th>
<th>Length</th>
<th>Thread</th>
<th>Width</th>
</tr>
</thead>
<tbody>
<tr>
<td>Black</td>
<td>22</td>
<td>4.0 mm</td>
<td>2.0 mm</td>
<td>4.0 mm</td>
</tr>
</tbody>
</table>

Where used:

2 screws that secure the system board to the top cover (documented in Section 5.18)
Table C-8
Phillips PM2.0×4.0 Screw (Continued)

<table>
<thead>
<tr>
<th>Color</th>
<th>Qty.</th>
<th>Length</th>
<th>Thread</th>
<th>Head Width</th>
</tr>
</thead>
<tbody>
<tr>
<td>Black</td>
<td>22</td>
<td>4.0 mm</td>
<td>2.0 mm</td>
<td>4.0 mm</td>
</tr>
</tbody>
</table>

Where used:
3 screws that secure the fan to the fan assembly (documented in Section 5.19)
### Table C-8

**Phillips PM2.0×4.0 Screw (Continued)**

<table>
<thead>
<tr>
<th>Color</th>
<th>Qty.</th>
<th>Length</th>
<th>Thread</th>
<th>Head Width</th>
</tr>
</thead>
<tbody>
<tr>
<td>Black</td>
<td>22</td>
<td>4.0 mm</td>
<td>2.0 mm</td>
<td>4.0 mm</td>
</tr>
</tbody>
</table>

**Where used:**
3 screws that secure the speaker to the base enclosure (documented in Section 5.20)
### Table C-8

**Phillips PM2.0×4.0 Screw (Continued)**

<table>
<thead>
<tr>
<th>Color</th>
<th>Qty</th>
<th>Length</th>
<th>Thread</th>
<th>Head Width</th>
</tr>
</thead>
<tbody>
<tr>
<td>Black</td>
<td>22</td>
<td>4.0 mm</td>
<td>2.0 mm</td>
<td>4.0 mm</td>
</tr>
</tbody>
</table>

**Where used:**

3 screws that secure the USB board and frame to the computer (documented in Section 5.21)

---

*Phillips PM2.0×4.0 Screw Locations*
### Table C-9
**Phillips PM2.0×16.0 Screw**

<table>
<thead>
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</tr>
</thead>
<tbody>
<tr>
<td>Black</td>
<td>2</td>
<td>16.0 mm</td>
<td>2.0 mm</td>
<td>4.5 mm</td>
</tr>
</tbody>
</table>

**Where used:**
2 screws that secure the base enclosure on Compaq Presario V4000 models (documented in Section 5.16) and the system board on HP Pavilion dv4000 models (documented in Section 5.18)
### Table C-10

**Phillips PM2.5×8.0 Screw**

<table>
<thead>
<tr>
<th>Color</th>
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<th>Thread</th>
<th>Head Width</th>
</tr>
</thead>
<tbody>
<tr>
<td>Silver</td>
<td>2</td>
<td>8.0 mm</td>
<td>2.5 mm</td>
<td>5.0 mm</td>
</tr>
</tbody>
</table>

**Where used:**

2 screws that secure the USB board to the frame on HP Pavilion dv4000 computers (documented in Section 5.18) and Compaq Presario V4000 computers (documented in Section 5.21)

"Phillips PM2.5×8.0 Screw Locations"
### Table C-11
**Phillips PM1.5×4.0 Screw**

<table>
<thead>
<tr>
<th>Color</th>
<th>Qty.</th>
<th>Length</th>
<th>Thread</th>
<th>Head Width</th>
</tr>
</thead>
<tbody>
<tr>
<td>Silver</td>
<td>2</td>
<td>4.0 mm</td>
<td>1.5 mm</td>
<td>3.0 mm</td>
</tr>
</tbody>
</table>

Where used:

2 screws that secure the Bucktooth board to the USB board frame (documented in Section 5.22)

*Phillips PM1.5×4.0 Screw Locations*
Display Component Recycling

**WARNING:** The backlight contains mercury. Caution should be exercised when removing and handling the backlight to avoid damaging this component and causing exposure to the mercury.

**CAUTION:** The procedures in this appendix can result in damage to display components. The only components intended for recycling purposes are the liquid crystal display (LCD) panel and the backlight. Careful handling should be exercised when removing these components.

**Materials Disposal**
This HP product contains mercury in the backlight in the display assembly and may require special handling at end-of-life.

Disposal of mercury may be regulated because of environmental considerations. For disposal or recycling information, contact your local authorities or visit the Electronic Industries Alliance (EIA) at [http://www.eiae.org](http://www.eiae.org).
This appendix provides disassembly instructions for the display assembly. The display assembly must be disassembled to gain access to the backlight 1 and the liquid crystal display (LCD) panel 2.

Disassembly procedures differ from one display assembly to another. The procedures provided in this appendix are general disassembly instructions. Specific details, such as screw sizes, quantities, and locations, and component shapes and sizes, can vary from one computer model to another.
Perform the following steps to disassemble the display assembly:

1. Remove all screw covers \( 1 \) and screws \( 2 \) that secure the display bezel to the display assembly.

![Removing the Display Bezel Screw Covers and Screws](image)
2. Lift up and out on the left and right inside edges ① and the top and bottom inside edges ② of the display bezel until the bezel disengages from the display assembly.

3. Remove the display bezel ③.

Removing the Display Bezel
4. Disconnect all display panel cables ① from the display inverter and remove the inverter ②.

Removing the Display Inverter
5. Remove all screws ① that secure the display panel assembly to the display enclosure.
6. Remove the display panel assembly ② from the display enclosure.

Removing the Display Panel Assembly
7. Turn the display panel assembly upside down.
8. Remove all screws that secure the display panel frame to the display panel.

Removing the Display Panel Frame Screws
9. Use a sharp-edged tool to cut the tape ① that secures the side of the display panel to the display panel frame.

10. Remove the display panel frame ② from the display panel.

Removing the Display Frame
11. Remove the screws ① that secure the backlight cover to the display panel.

12. Lift the top edge of the backlight cover ② and swing it forward.

13. Remove the backlight cover.
Display Component Recycling

14. Turn the display panel right-side up.
15. Remove the backlight cables ① from the clip ② in the display panel.

Releasing the Backlight Cables
16. Turn the display panel upside down.
17. Remove the backlight frame from the display panel.

Removing the Backlight Frame
**WARNING:** The backlight contains mercury. Caution should be exercised when removing and handling the backlight to avoid damaging this component and causing exposure to the mercury.

18. Slide the backlight out of the backlight frame.

*Removing the Backlight*
19. Disconnect the display cable 1 from the LCD panel.
20. Remove the screws 2 that secure the LCD panel to the display rear panel.
21. Release the LCD panel 3 from the display rear panel.
22. Release the tape 4 that secures the LCD panel to the display rear panel.

Releasing the LCD Panel
23. Remove the LCD panel.

24. Recycle the backlight and LCD panel.
1394 port 1–13, 1–15

A
All-in-One Media Cable II, spare part number 3–25, 3–26
arrow keys 1–17
audio board cable 3–21
audio troubleshooting 2–23
Audio Y-Cable 2, spare part number 3–25, 3–26
audio-in jack
  location 1–9, 1–11, 1–13, 1–15
  pin assignments A–2
audio-out jack
  location 1–9, 1–11, 1–13, 1–15
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