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Maintenance and Service Guide

HP Pavilion zv6000 Notebook PC
Compaq Presario R4000 Notebook PC

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This guide is a troubleshooting reference used for maintaining
and servicing the notebook. It provides comprehensive
information on identifying notebook features, components, and
spare parts; troubleshooting notebook problems; and performing
notebook disassembly procedures.

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Compaq Presario R4000 Notebook PC
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1

Product Description

The HP Pavilion zv6000 Notebook PC ❶ and Compaq Presario R4000 Notebook PC ❷ offer advanced modularity, AMD Mobile Athlon™ 64 and Mobile AMD Sempron™ processors, and extensive multimedia support.
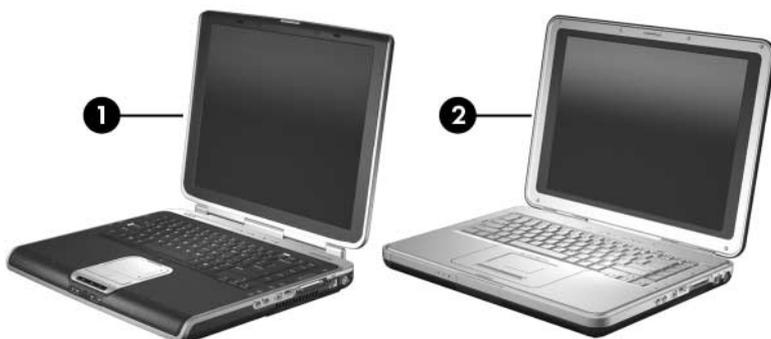
HP Pavilion zv6000 Notebook PC and Compaq Presario R4000 Notebook PC

1.1 Features

- AMD Mobile Athlon 64 4000, 3800, 3500, or 3200 processors, or Mobile AMD Sempron 3200 or 3000 processors, varying by notebook model
- 15.4-inch, WXGA, TFT (1280 × 800) with BrightView display, 15.4-inch, WXGA, TFT (1280 × 800) display, or 15.0-inch, XGA (1024×768), TFT display, varying by notebook model

- 100-, 80-, 60-, or 40-GB high-capacity hard drive, varying by notebook 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 notebook model

- Full-size Windows keyboard with embedded numeric keypad

- TouchPad pointing device, including dedicated horizontal (Compaq Presario R4000 models only) and vertical scroll regions and TouchPad on/off button.

- 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 (selected 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 (selected models only)

- External 120- or 90-watt AC adapter with 3-wire power cord

- 12- or 8-cell Li-Ion battery pack, varying by notebook model

- Stereo speakers

- Volume up, volume mute, and volume down buttons

- Support for the following optical drives:
  - ❏ DVD±RW and CD-RW Double Layer Combo Drive with LightScribe
  - ❏ DVD±RW and CD-RW Combo Drive
  - ❏ DVD/CD-RW Combo Drive
  - ❏ DVD-ROM drive

- Connectors:
  - ❏ Audio-in (microphone)
  - ❏ Audio-out (headphone)

❏ Consumer infrared (full-featured HP Pavilion zv6000 models only)
❏ Digital Media Slot (full-featured HP Pavilion zv6000 models only)
❏ Expansion port 2
❏ ExpressCard slot (full-featured models only)
❏ External monitor
❏ IEEE 1394 (full-featured models only)
❏ Memory Reader (full-featured Compaq Presario R4000 models)
❏ PC Card
❏ Power
❏ Primary battery
❏ RJ-11 (modem)
❏ RJ-45 (network)
❏ S-Video-out
❏ Universal Serial Bus (USB) v. 2.0 (4)

✎ 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 the following components:

■ 128-MB dedicated video frame buffer
■ Digital Media Slot (HP Pavilion zv6000 models)
■ ExpressCard slot
■ IEEE 1394 port
■ Memory Reader (Compaq Presario R4000 models)
■ Quick Launch buttons (HP Pavilion zv6000 models only)

A notebook model is considered to be defeatured if it has none of the components listed above.

1.2 **Resetting the Notebook**

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

1. Prepare the notebook for disassembly (refer to Section 5.3, "Preparing the Notebook for Disassembly," for more information).

2. Remove the real-time clock (RTC) battery (refer to Section 5.22, "System Board," for more information on removing and replacing the RTC battery).

3. Wait approximately 5 minutes.

4. Replace the RTC battery and reassemble the notebook.

5. Connect AC power to the notebook. Do not reinsert any battery packs at this time.

6. Turn on the notebook.

All passwords and all CMOS settings have been cleared.

1.3 **Power Management**

The notebook comes with power management features that extend battery operating time and conserve power. The notebook 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/standby button

■ Advanced Configuration and Power Management (ACPM) compliance

1.4 **External Components**

The external components on the front of the HP Pavilion zv6000 are shown below and described in Table 1-1. Depending on your notebook model, component locations may vary.
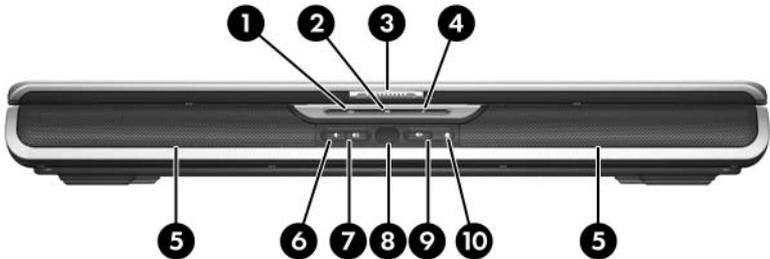
Front Components, HP Pavilion zv6000

Table 1-1

Front Components, HP Pavilion zv6000

Item	Component	Function
1	Power/standby light*	■ On: Notebook is turned on. ■ Blinking: Notebook is in standby. ■ Off: Notebook is off.
2	Integrated Drive Electronics (IDE) drive light	On or blinking: The primary hard drive or an optical drive is being accessed.

* If the power/standby and battery lights are blinking simultaneously, an incorrect power supply is connected to the notebook. The power supply should be disconnected immediately and replaced with the correct power supply.

Table 1-1

Front Components, HP Pavilion zv6000 *(Continued)*

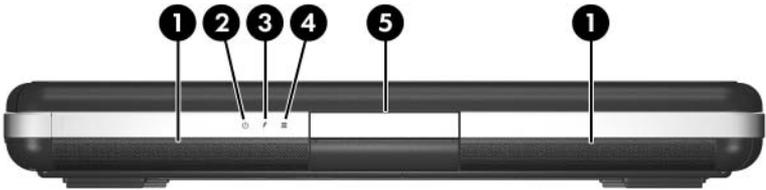| Item	Component	Function
3	Display release latch	Opens the notebook.
4	Battery light*	■ On: The battery pack is charging.
		■ Blinking: The battery pack has reached a low-battery condition.
		■ Off: The battery pack is fully charged or not inserted.
5	Stereo speakers (2)	Produce stereo sound.
6	Volume down button	Decreases system volume.
7	Volume up button	Increases system volume.
8	Consumer infrared (IR) lens	Links the notebook to an optional remote control.
9	Volume mute button	Mutes or restores volume.
10	Mute light	On: Volume is muted.

* If the power/standby and battery lights are blinking simultaneously, an incorrect power supply is connected to the notebook. The power supply should be disconnected immediately and replaced with the correct power supply.

The external components on the front of the Compaq Presario R4000 are shown below and described in Table 1-2. Depending on your notebook model, component locations may vary.

Front Components, Compaq Presario R4000

Table 1-2

Front Components, Compaq Presario R4000

Item	Component	Function
1	Stereo speakers (2)	Produce stereo sound.
2	Power/standby light*	■ On: Notebook is turned on. ■ Blinking: Notebook is in standby. ■ Off: Notebook is off.
3	Battery light*	■ On: The battery pack is charging. ■ Blinking: The battery pack has reached a low-battery condition. ■ Off: The battery pack is fully charged or not inserted.
4	IDE drive light	On or blinking: The primary hard drive or an optical drive is being accessed.
5	Display release button	Opens the notebook.

* If the power/standby and battery lights are blinking simultaneously, an incorrect power supply is connected to the notebook. The power supply should be disconnected immediately and replaced with the correct power supply.

The external components on the rear panel of the notebook are shown below and described in Table 1-3. Depending on your notebook model, component locations may vary.

Rear Panel Components

Table 1-3

Rear Panel Components

Item	Component	Function
1	Power connector	Connects the AC adapter cable.
2	Exhaust vents (2)	Provide airflow to cool internal components.
		✎ 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.
3	External monitor port	Connects an optional VGA monitor or projector.
4	USB port	Connects an optional USB device.
5	RJ-11 (modem) jack	Connects the modem cable.

The external components on the right side of the notebook are shown below and described in Table 1-4. Depending on your notebook model, component locations may vary.
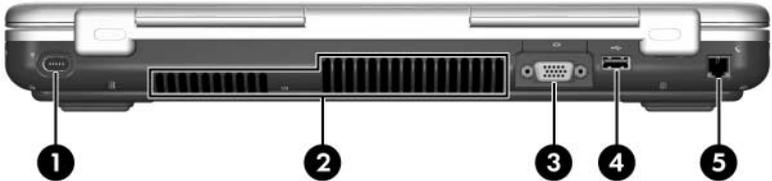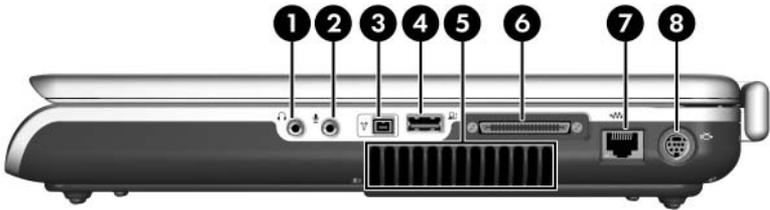

Right-Side Components

Table 1-4

Right-Side Components

Item	Component	Function
1	Audio-out (headphone) jack	Connects optional headphones or powered stereo speakers. Also connects the audio function of an audio/video device, such as a television or VCR.
2	Audio-in (microphone) jack	Connects an optional monaural (single sound channel) microphone.
3	1394 port (select models only)	Connects an optional 1394a device such as a scanner, a digital camera, or a digital camcorder.

Table 1-4

Right-Side Components *(Continued)*

Item	Component	Function
4	USB port	Connects optional USB devices.
5	Exhaust vent	Provides airflow to cool internal components. ✎ 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.
6	Expansion port 2	Connects the notebook to an optional docking device. ✎ The notebook has only one expansion port. The term *expansion port 2* describes the type of expansion port.
7	RJ-45 (network) jack	Connects an optional network cable.
8	S-Video-out jack	Connects an optional S-Video device, such as a television, VCR, camcorder, projector, or video capture card.

The external components on the left side of the notebook are shown below and described in Table 1-5. Depending on your notebook model, component locations may vary.

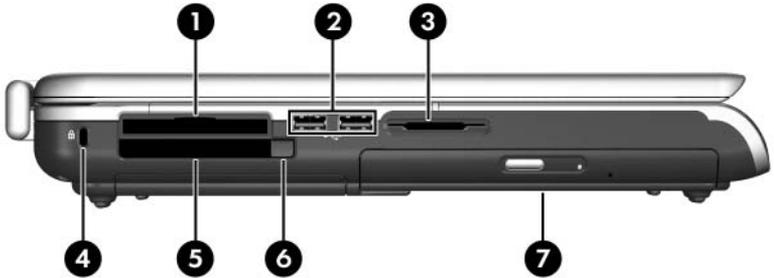*Left-Side Components*

Table 1-5

Left-Side Components

Item	Component	Function
1	ExpressCard slot (select models only)	Supports an optional ExpressCard.
2	USB ports (2)	Connect optional USB devices.

Table 1-5

Left-Side Components *(Continued)*

Item	Component	Function
3	Digital Media Slot (select HP Pavilion zv6000 models only) Memory Reader (select Compaq Presario R4000 models only)	Supports most digital memory cards, including Secure Digital (SD) Memory Card, Memory Stick, Memory Stick Pro, xD-Picture Card, MultiMediaCard, or SmartMedia (SM) card.
4	Security cable slot	Attaches an optional security cable to the notebook. ✎ Security solutions are designed to act as deterrents. These deterrents may not prevent a product from being mishandled or stolen.
5	PC Card slot	■ Supports an optional Type I or Type II 32-bit (CardBus) or 16-bit PC Card. ■ Stores an optional remote control.
6	PC Card eject button	Ejects an optional PC Card from the PC Card slot.
7	Optical drive	Supports an optical disc.

The standard keyboard components on the notebook are shown below and described in Table 1-6.
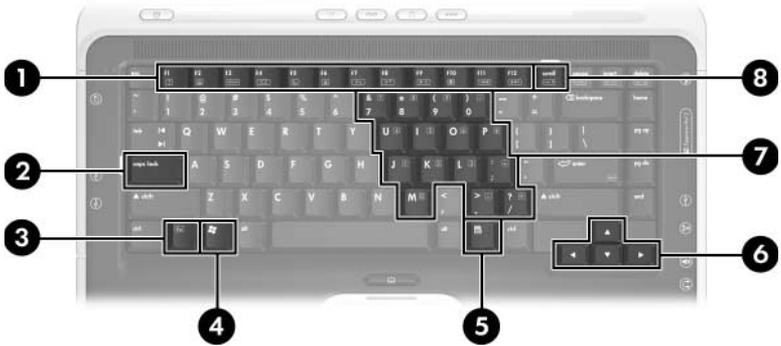
Standard Keyboard Components

Table 1-6

Standard Keyboard Components

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

The top components on the HP Pavilion zv6000 are shown below and described in Table 1-7.

Top Components, HP Pavilion zv6000 Models

Table 1-7

Top Components, HP Pavilion zv6000

Item	Component	Function
1	Digital Media Slot light (select models only)	On: An optional digital memory card is being accessed.
2	Caps lock light	On: Caps lock is on.
3	Exhaust vent	Provides airflow to cool internal components. ✎ 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 1-7

Top Components, HP Pavilion zv6000 *(Continued)*

Item	Component	Function
4	Power/standby button	When the notebook is ■ Off, press to turn on the notebook. ■ 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 Microsoft Windows shutdown procedures cannot be used, press and hold for at least 4 seconds to turn off the notebook.
5	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.
6	Quick Launch buttons (select models only)	Launch default multimedia, digital imaging, or music applications (vary by model).
7	Display switch	If the notebook is closed while on, initiates standby.
8	Num lock light	On: Num lock is on or the embedded numeric keypad is enabled.

The top components on Compaq Presario R4000 models are shown below and described in Table 1-8.
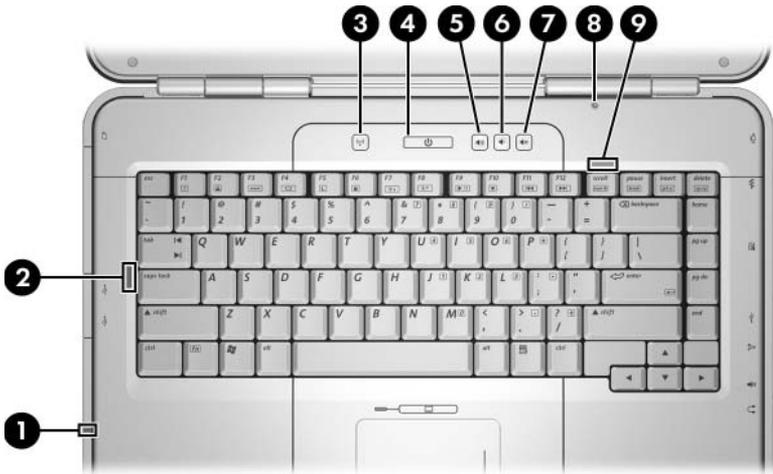
Top Components, Compaq Presario R4000 Models

Table 1-8

Top Components, Compaq Presario R4000
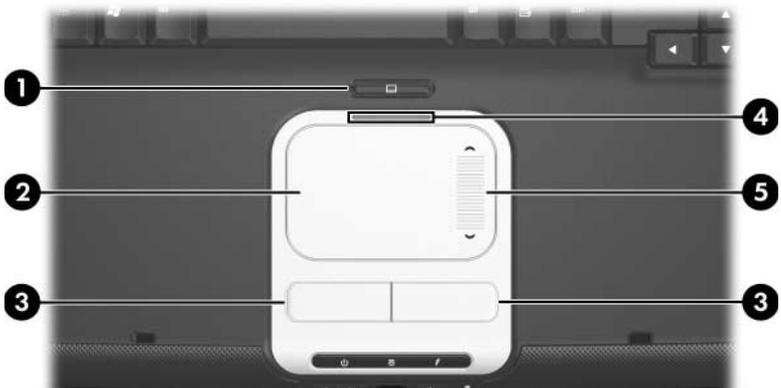
Item	Component	Function
1	Memory Reader light (select models only)	On: A digital memory card is being accessed. (This light is also visible from the left side of the notebook.)
2	Caps lock light	On: Caps lock is on.

Table 1-8

Top Components, Compaq Presario R4000 *(Continued)*

Item	Component	Function
3	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.
4	Power/standby button	When the notebook is ■ Off, press to turn on the notebook. ■ 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 Microsoft Windows shutdown procedures cannot be used, press and hold for at least 4 seconds to turn off the notebook.
5	Volume down button	Decreases system volume.
6	Volume up button	Increases system volume.
7	Volume mute button	Mutes or restores volume.
8	Display switch	If the notebook is closed while on, initiates standby.
9	Num lock light	On: Num lock is on or the embedded numeric keypad is enabled.

The HP Pavilion zv6000 notebook TouchPad components are shown below and described in Table 1-9.

TouchPad Components, HP Pavilion zv6000

Table 1-9

TouchPad Components, HP Pavilion zv6000

Item	Component	Function
1	TouchPad on/off button	Enables/disables the TouchPad.
2	TouchPad	Moves the pointer.
3	Left and right TouchPad buttons	Function like the left and right buttons on an external mouse.
4	TouchPad light	On: TouchPad is enabled.
5	TouchPad vertical scroll zone	Scrolls upward or downward.

The Compaq Presario R4000 notebook TouchPad components are shown below and described in Table 1-10.
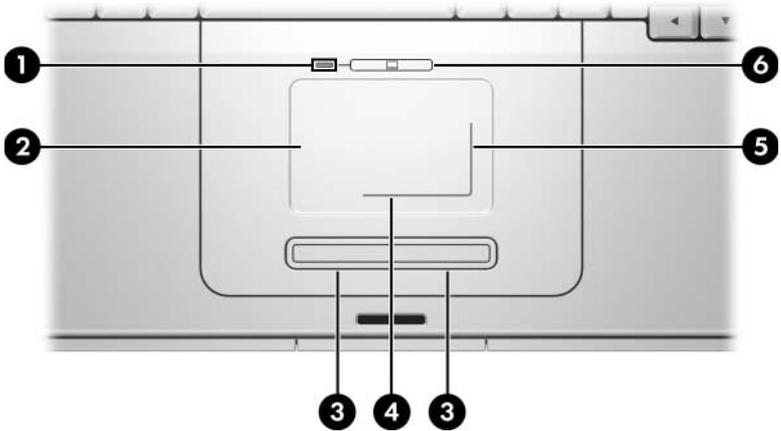
TouchPad Components, Compaq Presario R4000

Table 1-10

TouchPad Components, Compaq Presario R4000

Item	Component	Function
1	TouchPad light	On: TouchPad is enabled.
2	TouchPad	Moves the pointer.
3	Left and right TouchPad buttons	Function like the left and right buttons on an external mouse.
4	TouchPad horizontal scroll zone	Scrolls toward left side or right side.
5	TouchPad vertical scroll zone	Scrolls up or down.
6	TouchPad on/off button	Enables/disables the TouchPad.

The external components on the bottom of the notebook are shown below and described in Table 1-11.
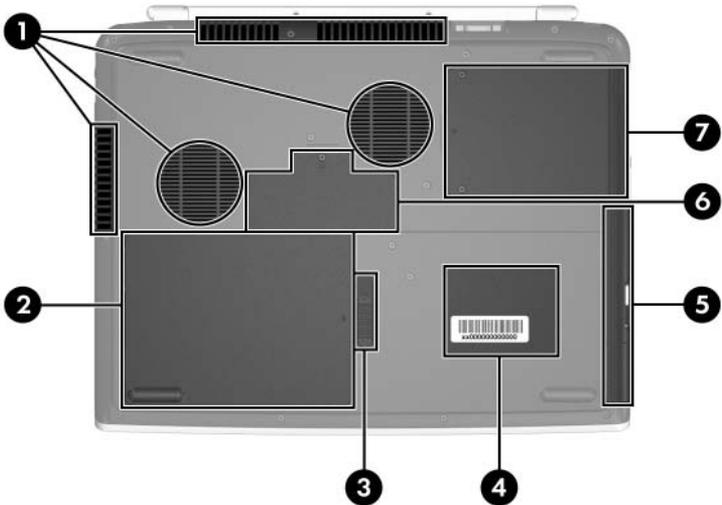
Bottom Components

Table 1-11

Bottom Components

Item	Component	Function
1	Vents (4)	Provide airflow to cool internal components.
		✎ 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.
2	Battery bay	Holds a battery pack.

Table 1-11

Bottom Components *(Continued)*

Item	Component	Function
3	Battery pack release latch	Releases a battery pack from the battery bay.
4	Labels area	Contains the serial number and other information labels.
5	Optical drive	Supports an optical disc, such as a CD or DVD.
6	Memory module compartment cover	Contains a memory module slot that supports a replaceable memory module.
7	Hard drive bay	Holds the primary hard drive.

1.5 **Design Overview**

This section presents a design overview of key parts and features of the notebook. 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:

■ AMD Mobile Athlon 64 and Mobile AMD Sempron processors

■ Audio

■ Display

■ Hard drive

■ Keyboard and TouchPad

■ Memory module

■ Mini PCI communications devices

■ PC Card

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

The notebook 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 notebook.

2

Troubleshooting

⚠️ **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 notebook 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.

Accessing Computer Setup

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

1. Open Computer Setup by turning on or restarting the
   notebook. Press **f10** while the "Press <F10> to enter Setup"
   message is displayed in the lower-left corner of the screen.

   ❏ To change the language, use the arrow keys to select the
   Advanced menu, select **Language Support**, and then
   press **F5** or **F6** until the appropriate language is
   highlighted. Press **F10** to save your selection and exit the
   Advanced menu.

   ❏ To view navigation information, press **f1**.

   ❏ To return to the Computer Setup menu, press **esc**.

2. Select the **Main**, **Security**, **Advanced**, **Tools**, and **Exit**
   menus.

3. To exit Computer Setup, choose one of the following:

   ❏ To exit without saving any changes, use the arrow keys to
   select **Exit > Exit Discarding Changes**, and then follow
   the instructions on the screen.

   ❏ To exit and save all the settings you have entered, use the
   arrow keys to select **Exit > Exit Saving Changes**, and
   then follow the instructions on the screen.

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