HP G62 Notebook PC

Maintenance and Service Guide

SUMMARY

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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Safety warning notice

⚠ **WARNING!** To reduce the possibility of heat-related injuries or of overheating the computer, do not place the computer directly on your lap or obstruct the computer air vents. Use the computer only on a hard, flat surface. Do not allow another hard surface, such as an adjoining optional printer, or a soft surface, such as pillows or rugs or clothing, to block airflow. Also, do not allow the AC adapter to contact the skin or a soft surface, such as pillows or rugs or clothing, during operation. The computer and the AC adapter comply with the user-accessible surface temperature limits defined by the International Standard for Safety of Information Technology Equipment (IEC 60950).

MSG revision history

Revision	Publication date	Description
A	October 2010	• Added newly supported hard drives to spare parts listings in the following locations: Computer major components on page 17, Mass storage devices on page 26, Sequential part number listing on page 29, Hard drive on page 42. • Added newly supported memory modules to spare parts listings in the following locations: Computer major components on page 17, Mass storage devices on page 26, Sequential part number listing on page 29, Memory module on page 50. • Added newly supported WLAN modules to spare parts listings in the following locations: Computer major components on page 17, Mass storage devices on page 26, Sequential part number listing on page 29, WLAN module on page 47. • Added newly supported processors to spare parts listings in the following locations: Computer major components on page 17, Mass storage devices on page 26, Sequential part number listing on page 29, Processor on page 81. • Added newly supported system boards to spare parts listings in the following locations: Computer major components on page 17, Mass storage devices on page 26, Sequential part number listing on page 29, System board on page 74.

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1 Product description

Category	Description	HP G62	HP G62
		UMA	Discrete
Product Name	**Compaq Presario CQ62 Notebook PC**		√
	HP G62 Notebook PC	√	
Processors	Intel Arrandale™ i7–620M Processor (2.66 GHz, 4 MB total L3 cache, 1066 MHz)—Dual core 35 W	√	√
	Intel Arrandale i5–540M Processor (2.53 GHz, 3 MB total L3 cache, 1066 MHz)—Dual core 35 W	√	√
	Intel Arrandale i5–520M Processor (2.4 GHz, 3 MB total L3 cache, 1066 MHz)—Dual Core 35 W	√	√
	Intel Arrandale i5–450M Processor (2.4 GHz, 3 MB total L3 cache, 1066 MHz)—Dual Core 35 W	√	√
	Intel Arrandale i5–430 Processor (2.26 GHz, 3 MB total L3 cache, 1066 MHz)—Dual Core 35 W	√	√
	Intel Arrandale i3–370 Processor (2.4 GHz, 3 MB L3 cache, 1066 MHz)—Dual Core 35 W	√	√
	Intel Arrandale i3–350 Processor (2.26 GHz, 3 MB L3 cache, 1066 MHz)—Dual Core 35 W	√	√
Chipset	Intel® HM55 Express Chipset	√	
Graphics	Intel HD Graphics Media Accelerator	√	
	ATI Mobility Radeon™ HD5470 with 512 MB dedicated video memory		√
	ATI Mobility Radeon HD 545v with 512 MB for vision label mapping		√
	Support for BD or HD-DVD playback with HD decoder and DX10 support		√
Panel	**39.6-cm** (15.6-in) HD LED BrightView (1366 x 768)	√	√
	16:9 wide aspect ratio	√	√
Memory	2 customer-accessible/upgradable SODIMM slots	√	√
	Supports dual-channel memory DDR3, 1066 MHz	√	√
	Supports up to 8 GB of system memory	√	√

Category	Description	HP G62 UMA	HP G62 Discrete
	Supports the following configurations:		
	• 4096 MB (2048 MB × 2)	√	√
	• 3072 MB (1024 MB × 1 + 2048 MB × 1)	√	√
	• 2048 MB (2048 MB × 1)	√	√
	• 2048 MB (1024 MB × 2)	√	√
Hard drives	Supports **9.5-mm**, **6.35-cm** (2.5-in) SATA hard drive	√	√
	Customer accessible	√	√
	Supports the following drives:		
	• 750 GB, 5400 rpm	√	√
	• 640 GB, 5400 rpm	√	√
	• 500 GB, 5400 rpm	√	√
	• 500 GB, 7200 rpm	√	√
	• 320 GB, 5400 rpm	√	√
	• 320 GB, 7200 rpm	√	√
	• 250 GB, 5400 rpm	√	√
	• 250 GB, 7200 rpm	√	√
	• 160 GB, 7200 rpm	√	√
Optical drives	**12.7-mm** (0.50-in) fixed SATA tray load	√	√
	DVD±RW and CD-RW SuperMulti Double-Layer Combo Drive with LightScribe	√	√
	Blu-ray ROM with LightScribe DVD±R/RW SuperMulti Double-Layer Drive	√	√
Webcam (select models only)	VGA camera, fixed angle with activity light and single analog microphone	√	√
Microphone	Integrated single analog microphone (for models with no webcam)	√	√
Audio	High-definition audio supports Microsoft® premium requirements with Presario/HP Altec Lansing speakers	√	√
Modem (select models only)	56K V.92 data/fax MDC modem (computer models not equipped with a modem have a cover over the RJ-11 jack opening)	√	√
	Supports all worldwide certification requirements	√	√
Ethernet	Integrated 10/100 network interface card (NIC)	√	√
	Integrated wireless local area network (WLAN) options by way of wireless module:		
	2 wireless antennas built into display assembly	√	√
	Support for no-WLAN option	√	√

Category	Description	HP G62	HP G62
		UMA	Discrete
	Support for the following WLAN formats:		
	Atheros AR9285 802.11 a/b/g/n 2x2	√	√
	Intel WiFi Link 5100 802.11/b/g/n WLAN module	√	√
	Broadcom 4313 802.11b/g/n 1x1	√	√
	Broadcom 4313 802.11b/g/n 1x1 WiFi and 2070 Bluetooth 2.1+EDR Combo adapter (BT3.0+HS ready)	√	√
	Ralink RT3090BC4 802.11b/g/n 1x1 WiFi and Bluetooth 2.1+EDR Combo Adapter (BT3.0+HS ready)	√	√
	Realtek RTL8191SE 802.11b/g/n 1x1 WiFi Adapter	√	√
External media card (select models only)	Digital Media Slot supporting SD, MMC, MS, MSPro, xD cards. Supports mini versions of SD, MMC, MS Duo with adapter, not included	√	√
Ports	Audio-in (stereo microphone)	√	√
	Audio-out (stereo headphone)	√	√
	High-Definition Multimedia Interface (HDMI) version 1.3 supporting 1080p with High-bandwidth Digital Content Protection (HDCP) key (select models only)	√	√
	Hot plug/unplug with auto-detect	√	√
	RJ-11 (modem, select models only)	√	√
	RJ-45 (Ethernet)	√	√
	USB (Three USB ports; one is an eSATA/USB port)	√	√
	VGA (Dsub 15-pin) supporting 1600 × 1200 external resolution at 75 Hz	√	√
	Multi-pin AC power	√	√
Keyboard/pointing devices	**39.62-cm** (15.6-in), Full-size keyboard	√	√
	TouchPad with 2 buttons and 2-way scroll (taps enabled as default)	√	√
Power requirements	6-cell, 2.20–Ah, 47 Wh battery	√	√
	6-cell, 2.55–Ah, 55 Wh battery	√	√
	6-cell, 2.8–Ah, 62 Wh battery	√	√
	9-cell, 2.8–Ah, 93 Wh battery	√	√
	65-W AC adapter with localized cable plug support	√	
	90-W AC adapter with localized cable plug support		√
Security	Kensington Security Lock	√	√
Operating system	**Preinstalled:**		
	Windows 7® Home Premium (32 & 64 bit)	√	√
	Windows 7 Home Basic (32 & 64 bit)	√	√

Category	Description	HP G62	HP G62
		UMA	Discrete
	Free DOS	√	√
Serviceability	**End-user replaceable parts:**		
	AC adapter	√	√
	Battery (system)	√	√
	Hard drive	√	√
	Memory module	√	√
	Optical drive	√	√
	Mini-card devices	√	√

2 External component identification

Identifying the hardware

Components included with the computer might vary by region and model. The illustrations in this chapter identify the standard features on most computer models.

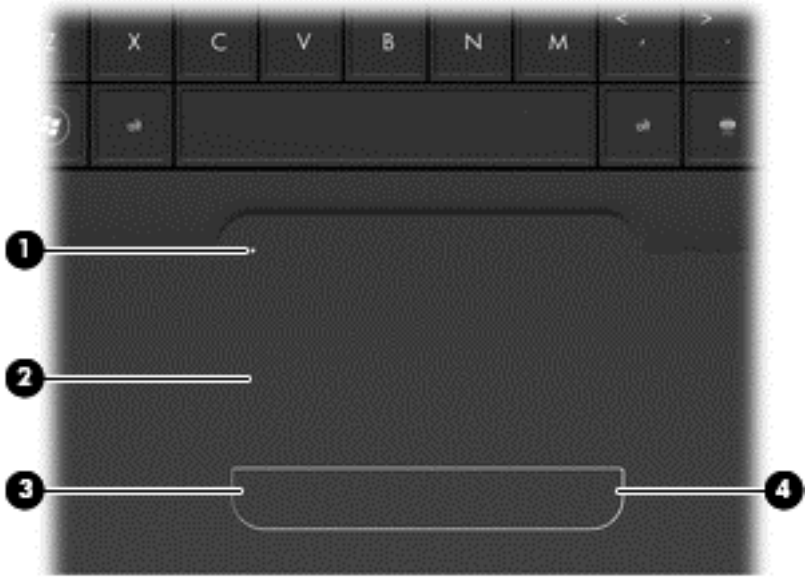
To see a list of hardware installed in the computer:

1. Select **Start > My Computer**.
2. In the left pane of the System Tasks window, select **View system information**.
3. Select **Hardware tab > Device Manager**.

Add hardware or modify computer configurations using Device Manager.

Top components

TouchPad

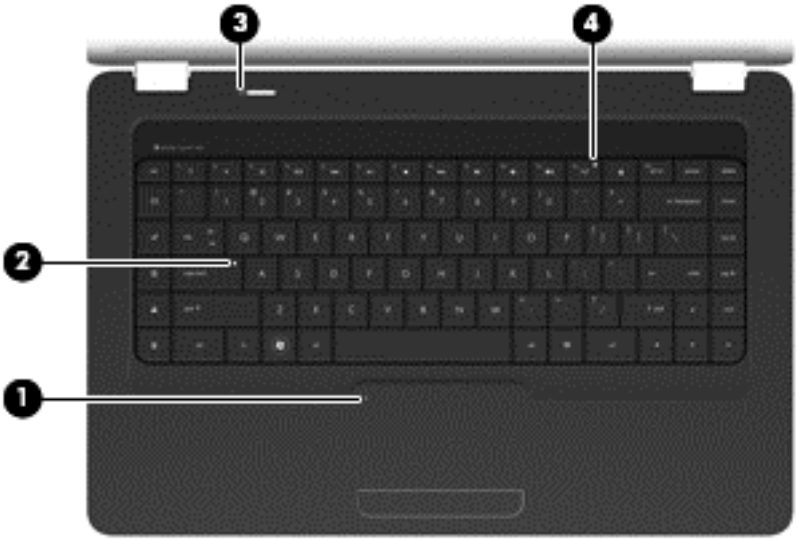


Component		Description
(1)	TouchPad light	Off—Touchpad is on. Amber—Touchpad is off.
(2)	TouchPad zone	Moves the pointer and selects or activates items on the screen.
(3)	Left TouchPad button	Press the left side of the TouchPad button to execute functions like the left button on an external mouse.
(4)	Right TouchPad button	Press the right side of the TouchPad button to execute functions like the right button on an external mouse.
*This table describes factory settings.		

To view or change the pointing device preferences:

1. Select **Start > Devices and Printers.**
2. Right-click the device representing the computer.
3. Select **Mouse settings.**

Lights



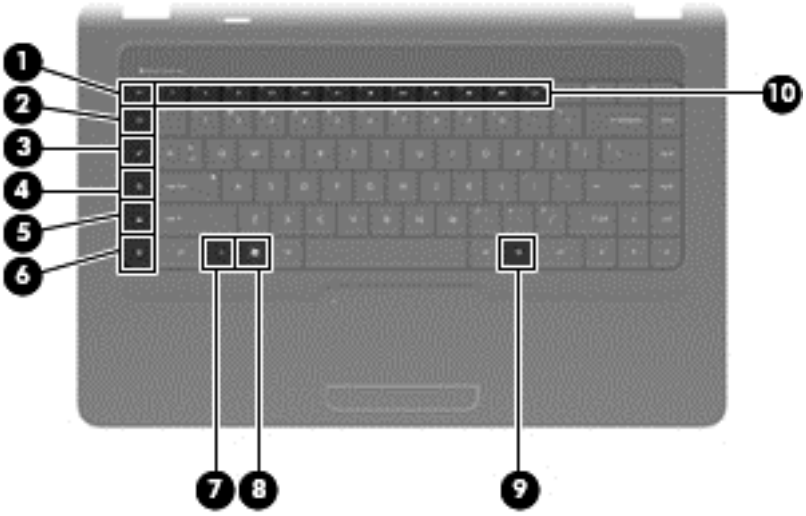
Component		Description
(1)	TouchPad light	• Off—TouchPad is enabled. • Amber—TouchPad is disabled.
(2)	Caps lock light	On—Caps lock is on
(3)	Power light	• On—The computer is on. • Flashing—The computer is in Sleep. • Off—The computer is off or in Hibernation.
(4)	Wireless light	• White—An integrated wireless device, such as a wireless local area network (WLAN) device and/or a Bluetooth® device, is on. • Amber—No wireless devices are detected.

Button and speakers

Component		Description
(1)	Power button	• When the computer is off, press the button to turn on the computer. • When the computer is on, press the button to initiate Sleep. • When the computer is in Sleep, press the button to exit Sleep. • When the computer is in Hibernation, press the button to exit Hibernation. If the computer has stopped responding and Windows shutdown procedures are ineffective, press and hold the power button for at least five seconds to turn off the computer. To learn more about your power settings, select **Start > Control Panel > System and Security > Power Options**.
(2)	Speakers grill	Two integrated speakers produce sound.

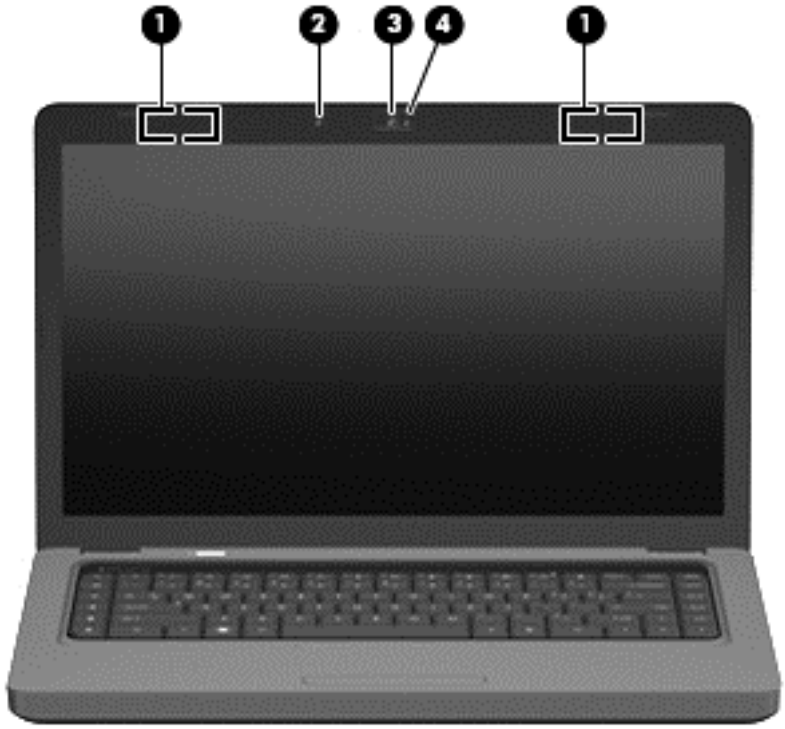
*This table describes factory settings. For information about changing factory settings, see the user guides located in Help and Support.

Keys



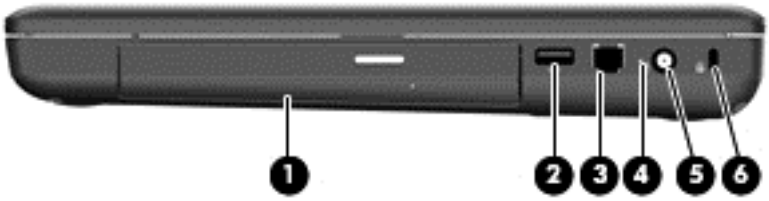
Component		Description
(1)	esc key	Displays system information when pressed in combination with the fn key.
(2)	Send e-mail key	Opens a new e-mail in your default e-mail client.
(3)	Media application key	Launches CyberLink PowerDVD.
(4)	Web browser key	Launches default web browser.
(5)	Print key	Sends the currently-active document to the default printer.
(6)	Calculator key	Launches the calculator application.
(7)	fn key	Displays system information when pressed in conjunction with the esc key.
(8)	Windows logo key	Displays the Windows Start menu.
(9)	Windows applications key	Displays a shortcut menu for items where the cursor is positioned
(10)	Action keys	Executes frequently-used system actions.

Display



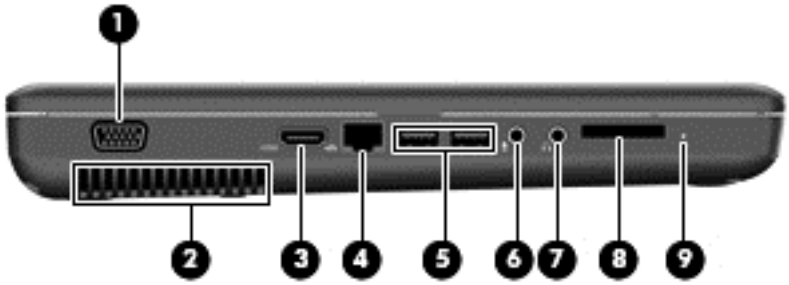
Component		Description
(1)	Wireless antenna (2)	Sends and receives signals from one or more wireless devices.
(2)	Internal microphone	Records sound.
(3)	Integrated webcam (select models only)	Records audio and video and captures still photographs.
(4)	Webcam light (select models only)	On—The webcam is in use.

Right-side components



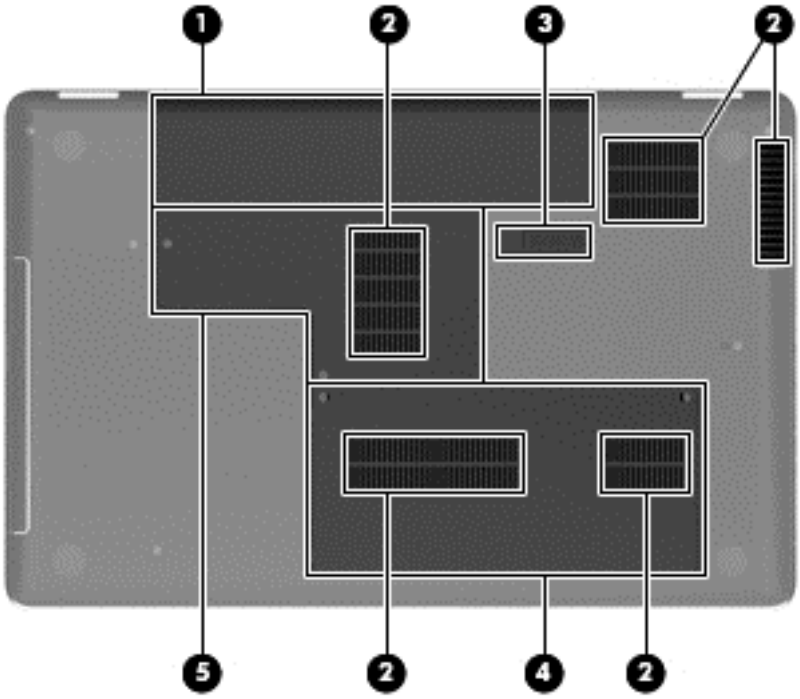
Component		Description
(1)	Optical drive	Reads and writes to optical discs.
(2)	USB port	Connects an optional USB device.
(3)	RJ-11 (modem) jack (select models only)	Connects a modem cable.
(4)	AC adapter light	• Flashing white—The computer is in Sleep. • On white—The computer is connected to external power. • Flashing amber—The computer is charged. • Off—The computer is not connected to external power.
(5)	Power connector	Connects an AC adapter.
(6)	Security cable slot	Attaches an optional security cable to the computer. **NOTE:** The security cable is designed to act as a deterrent, but it might not prevent the computer from being mishandled or stolen.

Left-side components



Component		Description
(1)	External monitor port	Connects an external VGA monitor or projector.
(2)	Vent	Enables airflow to cool internal components. **NOTE:** The computer fan starts up automatically to cool internal components and prevent overheating. It is normal for the internal fan to cycle on and off during routine operation.
(3)	HDMI port (select models only)	Connects an optional video or audio device, such as a high-definition television, or any compatible digital or audio component. **NOTE:** Depending on the computer model, the computer might include an HDMI port or a USB port at this location.
(4)	RJ-45 (network) jack	Connects a network cable.
(5)	USB ports (2)	Connects an optional USB devices.
(6)	Audio-in (microphone) jack	Connects an optional computer headset microphone, stereo array microphone, or monaural microphone.
(7)	Audio-out (headphone) jack	Produces sound when connected to optional powered stereo speakers, headphones, earbuds, a headset, or television audio.
(8)	Digital Media Slot (select models only)	Supports the following optional digital card formats: • Memory Stick (MS) • Memory Stick Pro (MSP) • MultiMediaCard (MMC) • Secure Digital (SD) Memory Card • xD-Picture Card (XD)
(9)	Drive light	On—The hard drive is in use.

Bottom components



Component		Description
(1)	Battery bay	Holds the battery.
(2)	Vents (4)	Enable airflow to cool internal components. **NOTE:** The computer fan starts up automatically to cool internal components and prevent overheating. It is normal for the internal fan to cycle on and off during routine operation.
(3)	Battery release latch	Releases the battery from the battery bay.
(4)	Memory module compartment	Contains two memory module slots and, on select models, the wireless LAN (WLAN) device. **CAUTION:** To prevent an unresponsive system, replace the wireless module only with a wireless module authorized for use in the computer by the governmental agency that regulates wireless devices in your country or region. If you replace the module and then receive a warning message, remove the module to restore computer functionality, and then contact technical support through Help and Support.
(5)	Hard drive bay	Holds the hard drive.

Wireless antennas

At least two antennas send and receive signals from one or more wireless devices. These antennas are not visible from the outside of the computer.

NOTE: For optimal transmission, keep the areas immediately around the antennas free from obstructions.

To review the wireless regulatory notices, see to the section of the *Regulatory, Safety and Environmental Notices* that applies to your country or region. These notices are located in Help and Support.

Additional hardware components

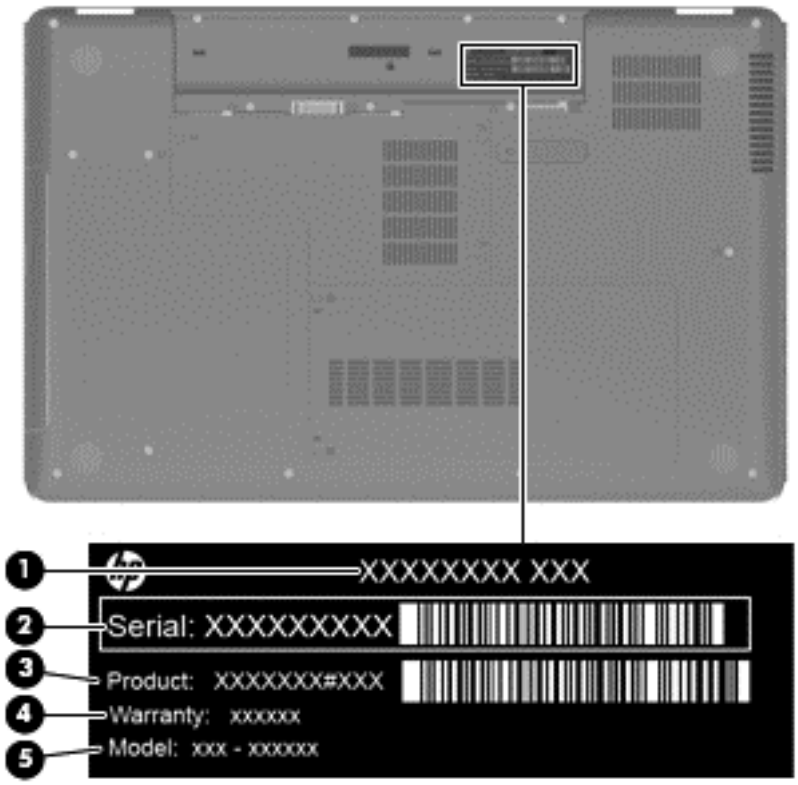
Component		Description
(1)	Power cord*	Connects an AC adapter to an AC outlet.
(2)	AC adapter	Converts AC power to DC power.
(3)	Battery*	Powers the computer when the computer is not plugged into external power.

*Power cords vary in appearance by country or region.

3 Illustrated parts catalog

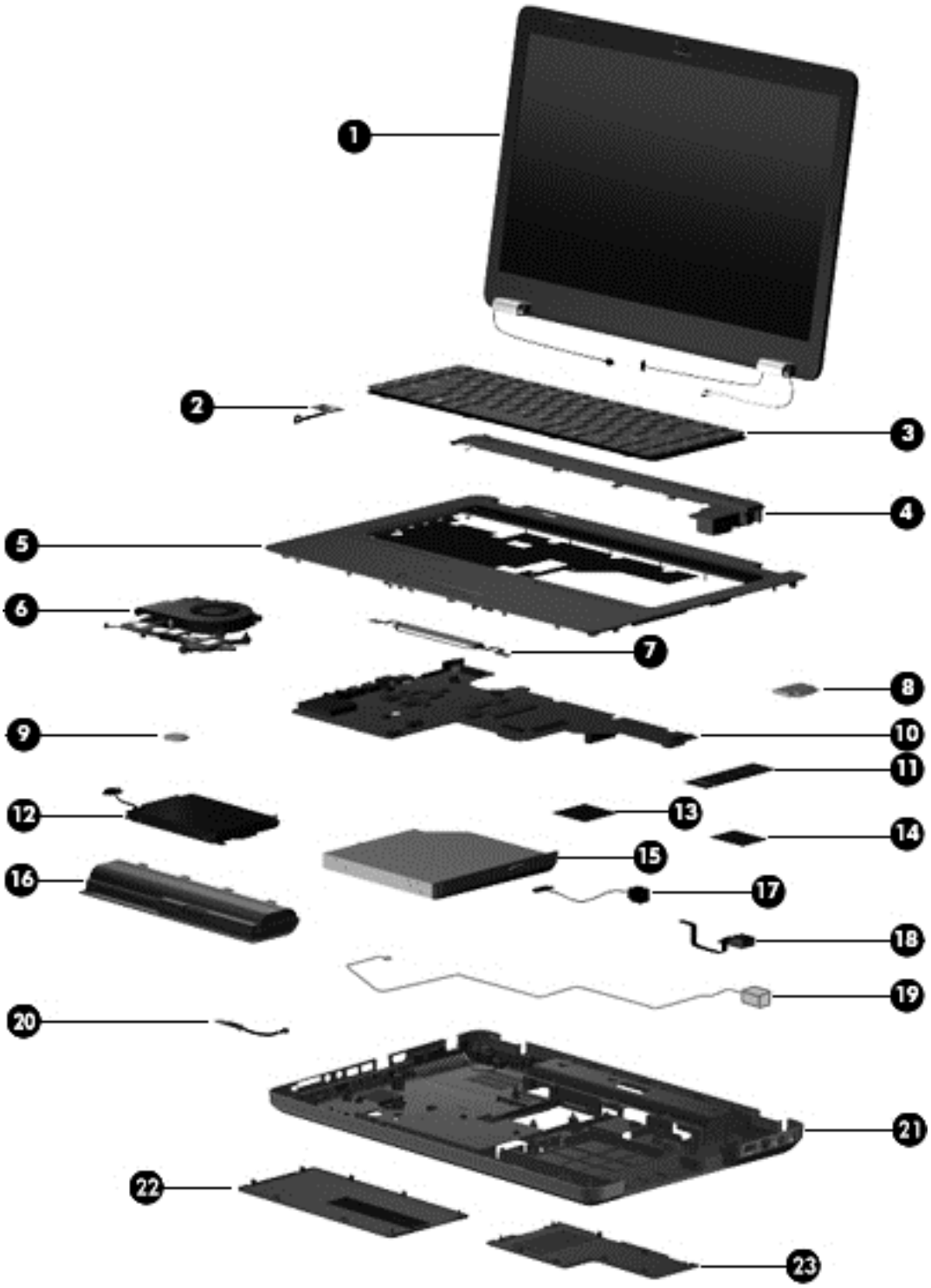
Serial number location

When ordering parts or requesting information, provide the computer serial number and model number located in the battery bay of the computer.



Component		Description
(1)	Product name	The name affixed to the front of the computer.
(2)	Serial number (s/n)	An alphanumeric identifier that is unique to each product.
(3)	Part number/Product number (p/n)	This number provides specific information about the product's hardware components. The part number helps a service technician to determine what components and parts are needed.
(4)	Warranty period	The duration of the warranty period for the computer.
(5)	Model description	An alphanumeric identifier used to locate documents, drivers, and support for the computer.

Computer major components



Item	Description	Spare part number
(1)	**39.6-cm (15.6-in) High Definition (HD), light-emitting diode (LED) display assembly for use in:** **NOTE:** For more information on the display assembly internal component spare part information, See Display assembly components on page 23.	
	• HP G62 biscotti computer models	605906-001
	• HP G62 silver computer models	605907-001
	• HP G62 white computer models	605908-001
	• HP G62 matte black computer models	608444-001
	• HP G62 red computer models	615423-001
	• HP G62 blue computer models	615424-001
(2)	**Power button board**	606008-001
(3)	**Keyboard** (includes keyboard cable) for use in:	
	• Adriatics	605922-BA1
	• Belgium	605922-A41
	• Czech Republic	605922-221
	• France	605922-051
	• Germany	605922-041
	• Greece	605922-DJ1
	• Hungry	605922-211
	• for International use	605922-B31
	• Israel	605922-BB1
	• Italy	605922-061
	• North America	605922–001
	• Norway	605922-DH1
	• Portugal	605922-131
	• Russia	605922-251
	• Saudi Arabia	605922-171
	• Spain	605922-071
	• Switzerland	605922-BG1
	• Turkey	605922-141
	• United Kingdom	605922-031
(4)	**Speaker assembly** (includes cable)	606007-001
(5)	**Top cover** (includes TouchPad board) for use in:	
	• Matte black computer models	606004-001
	• Biscotti computer models	610567-001

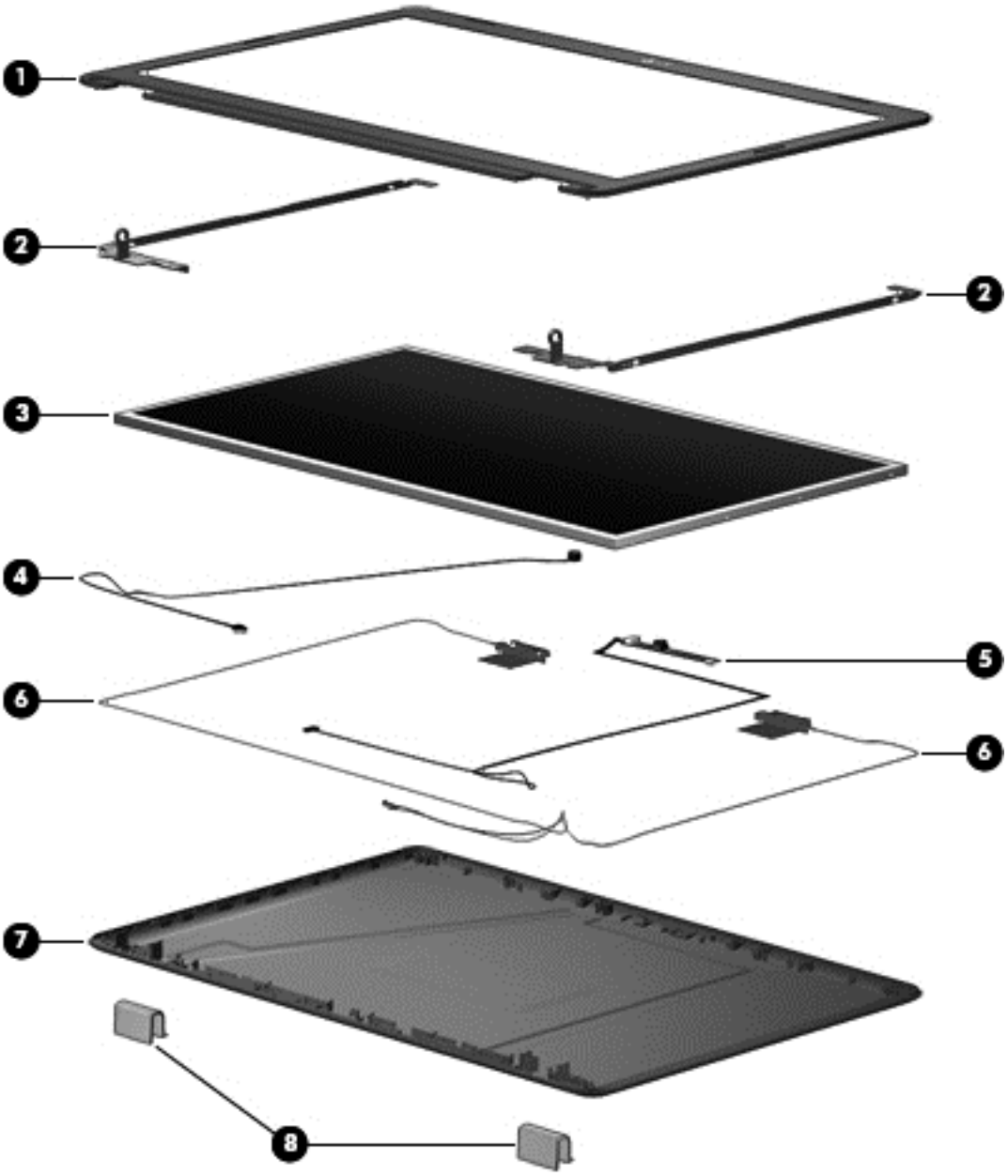
Item	Description	Spare part number
	• Silver computer models	610568-001
	• White computer models	610569-001
	• Red computer models	615433–001
	• Blue computer models	615434–001
(6)	**Fan/heat sink assembly** (includes replacement thermal material) for use with:	
	• UMA systems	606013-001
	• Discrete systems	606014-001
	Thermal pad	634363–001
(7)	**Touchpad button board** (includes bracket and cable)	606005-001
(8)	**Modem module** (select models only) (for model 1.0 only)	510110–001
(9)	**RTC battery** (includes mounting adhesive)	606015-001
(10)	**System board** (includes replacement thermal material) for use in:	
	• HD UMA system board with card reader	605903–001
	• HD 5470/512 MB discrete system board with card reader	605902-001
	• HD 5470/1 GB discrete system board with card reader	608340-001
	• HD 5470/ 512 MB discrete system board with card reader (for model 1.1 only)	615381-001
	• HD 5470/1 GB discrete system board with card reader (for model 1.1 only)	615382–001
(11)	**Memory module** (1066 MHz, DDR3)	
	• 1 GB	598859-001
	• 2 GB	598856-001
	• 4 GB (for model 1.1 only)	599092-001
(12)	**Hard drive**	
	• 750 GB, 5400 rpm	619686–001
	• 640 GB, 5400 rpm	603785–001
	• 500 GB, 5400 rpm (for model 1.1 only)	634638-001
	• 500 GB, 7200 rpm	610583-001
	• 320 GB, 5400 rpm (for model 1.1 only)	622643-001
	• 320 GB, 7200 rpm	603783-001
	• 250 GB, 5400 rpm (for model 1.1 only)	622641-001
	• 250 GB, 7200 rpm	635225-001
	• 160 GB, 7200 rpm	615076-001
	• Hard Drive Hardware Kit (not illustrated, includes bracket and screws)	605919-001
(13)	**Processor** (includes replacement thermal material)	
	• Intel Arrandale i5–520M Processor (2.4 GHz, 3 MB total L3 cache, 1066 MHz)—Dual Core 35 W	594187-001

Item	Description	Spare part number
	• Intel Arrandale i5–540M Processor (2.53 GHz, 3 MB total L3 cache, 1066 MHz)—Dual core 35 W	594188-001
	• Intel Arrandale i3–330 Processor (2.13 GHz, 3 MB L3 cache, 1066 MHz)—Dual Core 35 W (for model 1.0 only)	597622-001
	• Intel Arrandale i3–350 Processor (2.26 GHz, 3 MB L3 cache, 1066 MHz)—Dual Core 35 W	597623-001
	• Intel Arrandale i5–430 Processor (2.26 GHz, 3 MB total L3 cache, 1066 MHz)—Dual Core 35 W	597624-001
	• Intel Arrandale i3–370 Processor (2.4 GHz, 3 MB L3 cache, 1066 MHz)—Dual Core 35 W	613584-001
	• Intel Arrandale i5–450 Processor (2.4 GHz, 3 MB L3 cache, 1066 MHz)—Dual Core 35 W	613585-001
	• Pentium Arrandale P6000 Processor (1.86 GHz, 3 MB L3 cache, 1066 MHz)—Dual Core 35 W	613586-001
	• Pentium Arrandale P6100 Processor (2.0 GHz, 3 MB L3 cache, 1066 MHz)—Dual Core 35 W (for model 1.1 only)	613587-001
	• Intel Arrandale i3–380 Processor (2.53 GHz, 3 MB L3 cache, 1066 MHz)—Dual Core 35 W (for model 1.1 only)	625823-001
	• Intel Arrandale i5–560 Processor (2.66–3.2 GHz, 3 MB L3 cache, 1066 MHz)—Dual Core 35 W (for model 1.1 only)	625824-001
	• Intel Arrandale i5–580 Processor (2.66–3.33 GHz, 3 MB L3 cache, 1066 MHz)—Dual Core 35 W (for model 1.1 only)	625825-001
	• Intel Pentium P6200 Processor (2.13 GHz, 3 MB L3 cache, 1066 MHz)—Dual Core 35 W (for model 1.1 only)	625831-001
	• Intel Core i5–460 Processor (2.53 GHz, 3 MB L3 cache, 1066 MHz)—Dual Core 35 W (for model 1.1 only)	626039-001
(14)	**Wireless (WLAN) module**	
	• Atheros AR9285 802.11 a/b/g/n 2x2 WiFi adapter for use in Canada, the Cayman Islands, Guam, Puerto Rico, the United States, and the US Virgin Islands	580101-001

Item	Description	Spare part number
	• Intel WiFi Link 5100 802.11/b/g/n WLAN module for use in Afghanistan, Albania, Algeria, Andorra, Angola, Antigua and Barbuda, Argentina, Armenia, Aruba, Australia, Austria, Azerbaijan, the Bahamas, Bahrain, Bangladesh, Barbados, Belarus, Belgium, Belize, Benin, Bermuda, Bhutan, Bolivia, Bosnia and Herzegovina, Botswana, Brazil, the British Virgin Islands, Brunei, Bulgaria, Burkina Faso, Burundi, Cameroon, Canada, Cape Verde, the Cayman Islands, the Central African Republic, Chad, Chile, Colombia, Comoros, the Congo, Costa Rica, Croatia, Cyprus, the Czech Republic, Denmark, Djibouti, Dominica, the Dominican Republic, East Timor, Ecuador, Egypt, El Salvador, Equitorial Guinea, Eritrea, Estonia, Ethiopia, Fiji, Finland, France, French Guiana, Gabon, Gambia, Georgia, Germany, Ghana, Gibraltar, Greece, Grenada, Guadeloupe, Guatemala, Guam, Guinea, Guinea-Bissau, Guyana, Haiti, Honduras, Hong Kong, Hungary, Iceland, India, Ireland, Israel, Italy, the Ivory Coast, Jamaica, Jordan, Kazakhstan, Kenya, Kiribati, Kyrgyzstan, Laos, Latvia, Lebanon, Lesotho, Liberia, Liechtenstein, Lithuania, Luxembourg, Macedonia, Madagascar, Malawi, Malaysia, the Maldives, Mali, Malta, the Marshall Islands, Martinique, Mauritania, Mauritius, Mexico, Micronesia, Monaco, Mongolia, Montenegro, Morocco, Mozambique, Namibia, Nauru, Nepal, the Nether Antilles, the Netherlands, New Zealand, Nicaragua, Niger, Nigeria, Norway, Oman, Palau, Panama, Papua New Guinea, Paraguay, the People's Republic of China, Peru, the Philippines, Poland, Portugal, Puerto Rico, the Republic of Moldova, Romania, Rwanda, Samoa, San Marino, Sao Tome and Principe, Saudi Arabia, Senegal, Serbia and Montenegro, the Seychelles, Sierra Leone, Singapore, Slovakia, Slovenia, the Solomon Islands, Somalia, South Africa, South Korea, Spain, Sri Lanka, St. Kitts and Nevis, St. Lucia, St. Vincent and the Grenadines, Suriname, Swaziland, Sweden, Switzerland, Taiwan, Tajikistan, Tanzania, Togo, Tonga, Trinidad and Tobago, Tunisia, Turkey, Turkmenistan, Tuvalu, Uganda, the United Arab Emirates, the United Kingdom, Uruguay, the U.S. Virgin Islands, the United States, Uzbekistan, Vanuatu, Venezuela, Vietnam, Yemen, Zaire, Zambia, and Zimbabwe	593530–001
	• Realtek RTL8191SE 802.11b/g/n 1x1 WiFi Adapter	593533–001
	• Broadcom 4313 802.11b/g/n 1x1 WiFi Adapter	593836-001
	• Broadcom 4313 802.11b/g/n 1x1 WiFi and 2070 Bluetooth 2.1+EDR Combo adapter (BT3.0+HS ready) (for model 1.1 only)	600370–001
	• Ralink RT3090BC4 802.11b/g/n 1x1 WiFi and Bluetooth 2.1+EDR Combo Adapter (BT3.0+HS ready) (for model 1.1 only)	602992-001
(15)	**Optical drive** (includes optical drive bezel and bracket)	
	DVD±RW and CD-RW SuperMulti Double-Layer Combo Drive with LightScribe for use with:	
	• Matte black computer models	605920-001
	• Biscotti computer models	610558-001
	• Silver computer models	610559-001
	• White computer models	610560-001
	• Red computer models	615435–001
	• Blue computer models	615436–001
	Blu-ray ROM with LightScribe DVD±R/RW SuperMulti Double-Layer Drive for use with:	
	• Matte black computer models	605921-001
	• Biscotti computer models	610561-001
	• Silver computer models	610562-001

Item	Description	Spare part number
	• White computer models	610563-001
	• Red computer models	615437–001
	• Blue computer models	615438–001
(16)	**Battery**	
	• 6-cell Li-Ion, 2.20 Ah, 47 Wh	593553-001
	• 6-cell Li-Ion, 2.55 Ah, 55 Wh	593554-001
(17)	**Power connector** (includes cable)	609154-001
(18)	**USB board**	606011-001
(19)	**RJ-11 connector** included in Cable Kit	606009-001
(20)	**Bluetooth module** (for model 1.0 only)	537921–001
	Bluetooth module cable	605904–001
(21)	**Base enclosure** for use with:	
	• Matte black computer models	606018-001
	• Biscotti computer models	610564-001
	• Silver computer models	610565-001
	• White computer models	610566-001
	• Red computer models	615427-001
	• Blue computer models	615428-001
	Rubber Kit (not illustrated, includes four rubber feet)	606012-001
	Plastics Kit	606006-001
(21)	• Hard drive cover	
(23)	• Memory module cover	

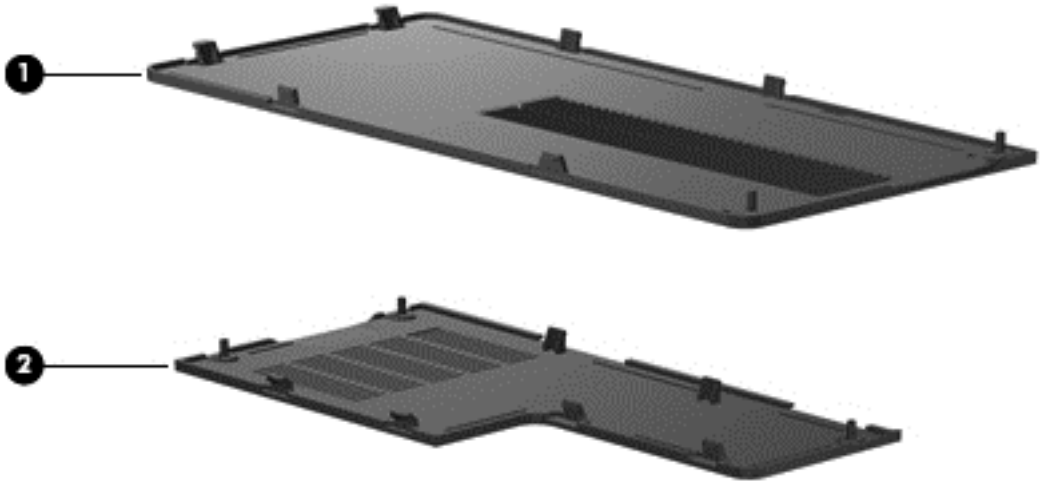
Display assembly components



Item	Description	Spare part number
(1)	**Display bezel**	605913–001
(2)	**Display bracket** (with hinges)	605915-001
(3)	**39.6-cm** (15.6-in) high definition, Brightview, display panel (includes display panel cable)	595130-001
(4)	**Microphone**(includes calbe)	606002–001
(5)	**Webcam module**	606001-001
	Webcam module cable	605916–001

Item	Description	Spare part number
(6)	**Wireless antenna** (includes wireless antenna transceivers and cable)	606016-001
(7)	**Display back cover** (includes logo) for use with:	
	• Matte black computer models	608445-001
	• Biscotti computer models	605910-001
	• Silver computer models	605911-001
	• White computer models	605912-001
	• Red computer models	615425-001
	• Blue computer models	615426-001
(8)	**Display hinge covers**	606017-001
	Display screw kit (not illustrated)	605918-001
	Display rubber display kit (not illustrated, includes display bezel rubber screw covers)	605917-001

Plastics Kit



Item	Description	Spare part number
	Plastics kit	606006-001
(1)	Hard drive bay cover (includes captive screws)	
(2)	Wireless/memory module mini-card compartment cover (includes captive screw)	

Mass storage devices

Item	Description	Spare part number
(1)	**Optical drive** (12.7 mm, SATA, fixed, includes bezel and bracket)	
	DVD±RW and CD-RW SuperMulti Double-Layer Combo Drive with LightScribe for use with:	
	• Matte black computer models	605920-001
	• Biscotti computer models	610558-001
	• Silver computer models	610559-001
	• White computer models	610560-001
	• Red computer models	615435–001
	• Blue computer models	615436–001
	Blu-ray ROM with LightScribe DVD±R/RW SuperMulti Double-Layer Drive for use with:	
	• Matte black computer models	605921-001
	• Biscotti computer models	610561-001
	• Silver computer models	610562-001
	• White computer models	610563-001
	• Red computer models	615437–001
	• Blue computer models	615438–001
(2)	**Hard drive**	
	• 750 GB, 5400 rpm	619686–001

Item	Description	Spare part number
	• 640 GB, 5400 rpm	603785–001
	• 500 GB, 5400 rpm (for model 1.1 only)	634638-001
	• 500 GB, 7200 rpm	610583-001
	• 320 GB, 5400 rpm (for model 1.1 only)	622643-001
	• 320 GB, 7200 rpm	603783-001
	• 250 GB, 5400 rpm (for model 1.1 only)	622641-001
	• 250 GB, 7200 rpm	6335225-001
	• 160 GB, 7200 rpm	615076-001
	Hard drive hardware kit (not illustrated, includes bracket and screws)	605919-001

Miscellaneous parts

Description	Spare part number
AC adapters	
• 65-W AC adapter	609939-001
• 90-W AC adapter	609940-001
Power cord, AC, 3 wire, black, 1.83-m (for use with both HP G62 and Presario CQ 62 computer models) for use in:	
• Denmark	490371-081
• Europe	490371-021
• Israel	490371-BB1
• Italy	490371-061
• North America	430971-001
• South Africa	490371-AR1
• Switzerland	490371-111
• the United Kingdom and Singapore	490371-031
Cable Kit	606009-001
• Optical drive connector cable	
• Power button cable	
• RJ-11 cable	
• TouchPad cable	
• USB cable	
Screw kit	606010-001
• Phillips M2.0x3.0 screw	
• Phillips M2.5x3.0 screw	
• Phillips M2.5x4.0 screw	
• Phillips M2.5x5.0 screw	
• Phillips M2.5x6.5 screw	

Sequential part number listing

Spare part number	Description
490371-001	Power cord for use in North America with HP G62 computer models
490371-021	Power cord for use in Europe with HP G62 computer models
490371-031	Power cord for use in the United Kingdom and Singapore with HP G62 computer models
490371-061	Power cord for use in Italy with HP G62 computer models
490371-081	Power cord for use in Denmark with HP G62 computer models
490371-111	Power cord for use in Switzerland with HP G62 computer models
490371-AR1	Power cord for use in South Africa with HP G62 computer models
490371-BB1	Power cord for use in Israel with HP G62 computer models
510110–001	56K V.92 data/fax modem (select models only) (for model 1.0 only)
537921-001	Bluetooth module (for model 1.0 only)
580101-001	Atheros AR9285 802.11 a/b/g/n 2x2 WiFi adapter for use in Canada, the Cayman Islands, Guam, Puerto Rico, the United States, and the US Virgin Islands
587259-011	Intel Arrandale i7–620M Processor (2.66 GHz, 4 MB total L3 cache, 1066 MHz)—Dual core 35 W
593530-001	Intel WiFi Link 5100 802.11/b/g/n WLAN module for use in Afghanistan, Albania, Algeria, Andorra, Angola, Antigua and Barbuda, Argentina, Armenia, Aruba, Australia, Austria, Azerbaijan, the Bahamas, Bahrain, Bangladesh, Barbados, Belarus, Belgium, Belize, Benin, Bermuda, Bhutan, Bolivia, Bosnia and Herzegovina, Botswana, Brazil, the British Virgin Islands, Brunei, Bulgaria, Burkina Faso, Burundi, Cameroon, Canada, Cape Verde, the Cayman Islands, the Central African Republic, Chad, Chile, Colombia, Comoros, the Congo, Costa Rica, Croatia, Cyprus, the Czech Republic, Denmark, Djibouti, Dominica, the Dominican Republic, East Timor, Ecuador, Egypt, El Salvador, Equitorial Guinea, Eritrea, Estonia, Ethiopia, Fiji, Finland, France, French Guiana, Gabon, Gambia, Georgia, Germany, Ghana, Gibraltar, Greece, Grenada, Guadeloupe, Guatemala, Guam, Guinea, Guinea-Bissau, Guyana, Haiti, Honduras, Hong Kong, Hungary, Iceland, India, Ireland, Israel, Italy, the Ivory Coast, Jamaica, Jordan, Kazakhstan, Kenya, Kiribati, Kyrgyzstan, Laos, Latvia, Lebanon, Lesotho, Liberia, Liechtenstein, Lithuania, Luxembourg, Macedonia, Madagascar, Malawi, Malaysia, the Maldives, Mali, Malta, the Marshall Islands, Martinique, Mauritania, Mauritius, Mexico, Micronesia, Monaco, Mongolia, Montenegro, Morocco, Mozambique, Namibia, Nauru, Nepal, the Nether Antilles, the Netherlands, New Zealand, Nicaragua, Niger, Nigeria, Norway, Oman, Palau, Panama, Papua New Guinea, Paraguay, the People's Republic of China, Peru, the Philippines, Poland, Portugal, Puerto Rico, the Republic of Moldova, Romania, Rwanda, Samoa, San Marino, Sao Tome and Principe, Saudi Arabia, Senegal, Serbia and Montenegro, the Seychelles, Sierra Leone, Singapore, Slovakia, Slovenia, the Solomon Islands, Somalia, South Africa, South Korea, Spain, Sri Lanka, St. Kitts and Nevis, St. Lucia, St. Vincent and the Grenadines, Suriname, Swaziland, Sweden, Switzerland, Taiwan, Tajikistan, Tanzania, Togo, Tonga, Trinidad and Tobago, Tunisia, Turkey, Turkmenistan, Tuvalu, Uganda, the United Arab Emirates, the United Kingdom, Uruguay, the U.S. Virgin Islands, the United States, Uzbekistan, Vanuatu, Venezuela, Vietnam, Yemen, Zaire, Zambia, and Zimbabwe
593533–001	Realtek RTL8191SE 802.11b/g/n 1x1 WiFi Adapter
593553–001	Battery, 6-cell, 2.20 Ah, 47 Wh
593554-001	Battery, 6-cell, 2.55 Ah, 55 Wh
593836-001	Broadcom 4313 802.11b/g/n 1x1 WiFi Adapter
594187-001	Intel Arrandale i5–520M Processor (2.4 GHz, 3 MB total L3 cache, 1066 MHz)—Dual Core 35 W

Spare part number	Description
594188-001	Intel Arrandale i5–540M Processor (2.53 GHz, 3 MB total L3 cache, 1066 MHz)—Dual core 35 W
595130-001	High Definition display panel (includes display panel and backlight cables)
597622-001	Intel Arrandale i3–330 Processor (2.13 GHz, 3 MB L3 cache, 1066 MHz)—Dual Core 35 W (for model 1.0 only)
597623-001	Intel Arrandale i3–350 Processor (2.26 GHz, 3 MB L3 cache, 1066 MHz)—Dual Core 35 W
597624-001	Intel Arrandale i5–430 Processor (2.26 GHz, 3 MB total L3 cache, 1066 MHz)—Dual Core 35 W
598856-001	2 GB memory module (1066 MHz, DDR3)
598859-001	1 GB memory module (1066 MHz, DDR3)
599092-001	4 GB memory module (1066 MHz, DDR3) (for model 1.1 only)
600370-001	Broadcom 4313 802.11b/g/n 1x1 WiFi and 2070 Bluetooth 2.1+EDR Combo adapter (BT3.0+HS ready) (for model 1.1 only)
602992-001	Ralink RT3090BC4 802.11b/g/n 1x1 WiFi and Bluetooth 2.1+EDR Combo Adapter (BT3.0+HS ready) (for model 1.1 only)
605902–001	HD 5470/512 MB discrete system board with card reader
605903-001	HD UMA system board with card reader
605904-001	Bluetooth module cable
605906-001	**39.6-cm** (15.6-in) HD, light-emitting diode display assembly for HP G62 biscotti computer models
605907-001	**39.6-cm** (15.6-in) HD, light-emitting diode display assembly for HP G62 silver computer models
605908-001	**39.6-cm** (15.6-in) HD, light-emitting diode display assembly for HP G62 white computer models
605910-001	Display back cover for use with HP G62 biscotti computer models
605911-001	Display back cover for use with HP G62 silver computer models
605912-001	Display back cover for use with HP G62 white computer models
605913-001	Display bezel
605915–001	Display hinge kit (includes left and right display hinges)
605916-001	Webcam module cable
605917-001	Display rubber kit
605918-001	Display screw kit
605919-001	Hard Drive Hardware Kit (includes bracket and screws)
605920-001	DVD±RW and CD-RW SuperMulti Double-Layer Combo Drive with LightScribe for use with matte black computer models
605921-001	Blu-ray ROM with LightScribe DVD±R/RW SuperMulti Double-Layer Drive for use with matte black computer models
605922–001	Keyboard for use in North America (includes keyboard cable)
605922–031	Keyboard for use in the United Kingdom (includes keyboard cable)
605922–041	Keyboard for use in Germany (includes keyboard cable)

Spare part number	Description
605922–051	Keyboard for use in France (includes keyboard cable)
605922–061	Keyboard for use in Italy (includes keyboard cable)
605922–071	Keyboard for use in Spain (includes keyboard cable)
605922–131	Keyboard for use in Portugal (includes keyboard cable)
605922–141	Keyboard for use in Turkey (includes keyboard cable)
605922–171	Keyboard for use in Saudi Arabia (includes keyboard cable)
605922–211	Keyboard for use in the Hungary (includes keyboard cable)
605922–221	Keyboard for use in Czech Republic (includes keyboard cable)
605922–251	Keyboard for use in Russia (includes keyboard cable)
605922–A41	Keyboard for use in Belgium (includes keyboard cable)
605922–B31	Keyboard for international use (includes keyboard cable)
605922–BA1	Keyboard for use in Adriatics (includes keyboard cable)
605922–BB1	Keyboard for use in Israel (includes keyboard cable)
605922–BG1	Keyboard for use in Switzerland (includes keyboard cable)
605922–DH1	Keyboard for use in Norway (includes keyboard cable)
605922–DJ1	Keyboard for use in Greece (includes keyboard cable)
606001–001	Webcam module
606002–001	Microphone (includes cable)
606003–001	High Definition display panel (includes display panel and backlight cables)
606004–001	Top cover (includes TouchPad board) for use in matte black computer models
606005–001	Touchpad button board (includes bracket and cable)
606006–001	Plastics kit
606007–001	Speaker assembly (includes cable)
606008–001	Power button board
606009–001	Cable kit
606010–001	Screw kit
606011–001	USB board
606012–001	Rubber kit (includes four rubber feet)
606013–001	Fan/heat sink assembly (includes replacement thermal material) for use with UMA systems
606014–001	Fan/heat sink assembly (includes replacement thermal material) for use with discrete systems
606015–001	RTC battery
606016–001	Wireless antenna kit (includes wireless antenna transceivers and cable)
606017–001	Display hinge covers
606018–001	Base enclosure with HDMI card reader for matte black computer models

Spare part number	Description
608340–001	HD 5470/1 G discrete system board with card reader
608444–001	**39.6-cm** (15.6-in) HD, light-emitting diode display assembly for HP G62 matte black computer models
608445–001	Display back cover for use with HP G62 matte black computer models
609154–001	Power connector (includes cable)
609939–001	65-W AC adapter
609940–001	90-W AC adapter
610558–001	DVD±RW and CD-RW SuperMulti Double-Layer Combo Drive with LightScribe for use with biscotti computer models
610559–001	DVD±RW and CD-RW SuperMulti Double-Layer Combo Drive with LightScribe for use with silver computer models
610560–001	DVD±RW and CD-RW SuperMulti Double-Layer Combo Drive with LightScribe for use with white computer models
610561–001	Blu-ray ROM with LightScribe DVD±R/RW SuperMulti Double-Layer Drive for use with biscotti computer models
610562–001	Blu-ray ROM with LightScribe DVD±R/RW SuperMulti Double-Layer Drive for use with silver computer models
610563–001	Blu-ray ROM with LightScribe DVD±R/RW SuperMulti Double-Layer Drive for use with white computer models
610564–001	Base enclosure with HDMI card reader for biscotti computer models
610565–001	Base enclosure with HDMI card reader for silver computer models
610566–001	Base enclosure with HDMI card reader for white computer models
610567–001	Top cover (includes TouchPad board) for use in biscotti computer models
610568–001	Top cover (includes TouchPad board) for use in silver computer models
610569–001	Top cover (includes TouchPad board) for use in white computer models
610583–001	500 GB, 7200 rpm hard drive
613584-001	Intel Arrandale i3–370 Processor (2.4 GHz, 3 MB L3 cache, 1066 MHz)—Dual Core 35 W
613585-001	Intel Arrandale i5–450 Processor (2.4 GHz, 3 MB L3 cache, 1066 MHz)—Dual Core 35 W
613586-001	Pentium Arrandale P6000 Processor (1.86 GHz, 3 MB L3 cache, 1066 MHz)—Dual Core 35 W
613587-001	Pentium Arrandale P6100 Processor (2.0 GHz, 3 MB L3 cache, 1066 MHz)—Dual Core 35 W (for model 1.1 only)
615076–001	160 GB, 7200 rpm hard drive
615381–001	HD 5470/ 512 MB discrete system board with card reader (for model 1.1 only)
615382–001	HD 5470/1 G discrete system board with card reader (for model 1.1 only)
615423–001	**39.6-cm** (15.6-in) HD, light-emitting diode display assembly for HP G62 red computer models
615424–001	**39.6-cm** (15.6-in) HD, light-emitting diode display assembly for HP G62 blue computer models
615425–001	Display back cover for use with HP G62 red computer models
615426–001	Display back cover for use with HP G62 blue computer models

Spare part number	Description
615427–001	Base enclosure with HDMI card reader for red computer models
615428–001	Base enclosure with HDMI card reader for blue computer models
615433–001	Top cover (includes TouchPad board) for use in red computer models
615434–001	Top cover (includes TouchPad board) for use in blue computer models
615435–001	DVD±RW and CD-RW SuperMulti Double-Layer Combo Drive with LightScribe for use with red computer models
615436–001	DVD±RW and CD-RW SuperMulti Double-Layer Combo Drive with LightScribe for use with blue computer models
615437–001	Blu-ray ROM with LightScribe DVD±R/RW SuperMulti Double-Layer Drive for use with red computer models
615438–001	Blu-ray ROM with LightScribe DVD±R/RW SuperMulti Double-Layer Drive for use with blue computer models
619686–001	750 GB, 5400 rpm hard drive
622641–001	250 GB, 5400 rpm hard drive (for model 1.1 only)
622643–001	320 GB, 5400 rpm hard drive (for model 1.1 only)
625823-001	Intel Arrandale i3–380 Processor (2.53 GHz, 3 MB L3 cache, 1066 MHz)—Dual Core 35 W (for model 1.1 only)
625824-001	Intel Arrandale i5–560 Processor (2.66–3.2 GHz, 3 MB L3 cache, 1066 MHz)—Dual Core 35 W (for model 1.1 only)
625825-001	Intel Arrandale i5–580 Processor (2.66–3.33 GHz, 3 MB L3 cache, 1066 MHz)—Dual Core 35 W (for model 1.1 only)
625831-001	Intel Pentium P6200 Processor (2.13 GHz, 3 MB L3 cache, 1066 MHz)—Dual Core 35 W (for model 1.1 only)
626039-001	Intel Core i5–460 Processor (2.53 GHz, 3 MB L3 cache, 1066 MHz)—Dual Core 35 W (for model 1.1 only)
634363–001	Thermal pads
634638–001	500 GB, 5400 rpm hard drive (for model 1.1 only)
635225–001	250 GB, 7200 rpm hard drive

4 Removal and replacement procedures

Preliminary replacement requirements

Tools required

The following tools are needed to complete the removal and replacement procedures:

- Flat-bladed screwdriver
- Magnetic screwdriver
- Phillips P0 and P1 screwdrivers

Service considerations

Before disassembly or assembly procedures, review and adhere to all service considerations.

NOTE: 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, be sure 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. Be sure 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.

Drive handling

△ **CAUTION:** Drives are fragile components that must be handled with care. To prevent damage to the computer, damage to a drive, or loss of information, observe these 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 handling a drive, be sure that you are discharged of static electricity. While handling a drive, avoid touching the connector.

Before removing a diskette drive or optical drive, be sure that a diskette or disc is not in the drive and be sure that the optical drive tray is closed.

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.”

Grounding guidelines

Electrostatic discharge damage

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, ESD contains enough power to alter device parameters or melt silicon junctions.

A discharge of static electricity from a finger or other conductor can destroy static-sensitive devices or microcircuitry. Even if the spark is neither felt nor heard, damage might have occurred.

An electronic device exposed to ESD might not be affected at all and can work perfectly throughout a normal cycle. Or the device might function normally for a while, then degrade in the internal layers, reducing its life expectancy.

△ **CAUTION:** To prevent damage to the computer when removing or installing internal components, observe these precautions:

Keep components in their electrostatic-safe containers until you are ready to install them.

Use nonmagnetic tools.

Before touching an electronic component, discharge static electricity by using the guidelines described in this section.

Avoid touching pins, leads, and circuitry. Handle electronic components as little as possible.

If you remove a component, place it in an electrostatic-safe container.

The following table shows how humidity affects the electrostatic voltage levels generated by different activities.

△ **CAUTION:** A product can be degraded by as little as 700 V.

Typical electrostatic voltage levels

	Relative humidity		
Event	**10%**	**40%**	**55%**
Walking across carpet	35,000 V	15,000 V	7,500 V
Walking across vinyl floor	12,000 V	5,000 V	3,000 V
Motions of bench worker	6,000 V	800 V	400 V
Removing DIPS from plastic tube	2,000 V	700 V	400 V
Removing DIPS from vinyl tray	11,500 V	4,000 V	2,000 V
Removing DIPS from Styrofoam	14,500 V	5,000 V	3,500 V
Removing bubble pack from PCB	26,500 V	20,000 V	7,000 V
Packing PCBs in foam-lined box	21,000 V	11,000 V	5,000 V

Packaging and transporting guidelines

Follow these grounding guidelines when packaging and transporting equipment:

- To avoid hand contact, transport products in static-safe tubes, bags, or boxes.
- Protect ESD-sensitive parts and assemblies with conductive or approved containers or packaging.
- Keep ESD-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 component or assembly.
- Store reusable ESD-sensitive parts from assemblies in protective packaging or nonconductive foam.
- Use transporters and conveyors made of antistatic belts and roller bushings. Be sure 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.

Workstation guidelines

Follow these grounding workstation guidelines:

- Cover the workstation with approved static-shielding material.
- 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 ESD-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.

Equipment guidelines

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.

The following grounding equipment is recommended to prevent electrostatic damage:

- 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

The following table lists the shielding protection provided by antistatic bags and floor mats.

Material	Use	Voltage protection level
Antistatic plastic	Bags	1,500 V
Carbon-loaded plastic	Floor mats	7,500 V
Metallized laminate	Floor mats	5,000 V

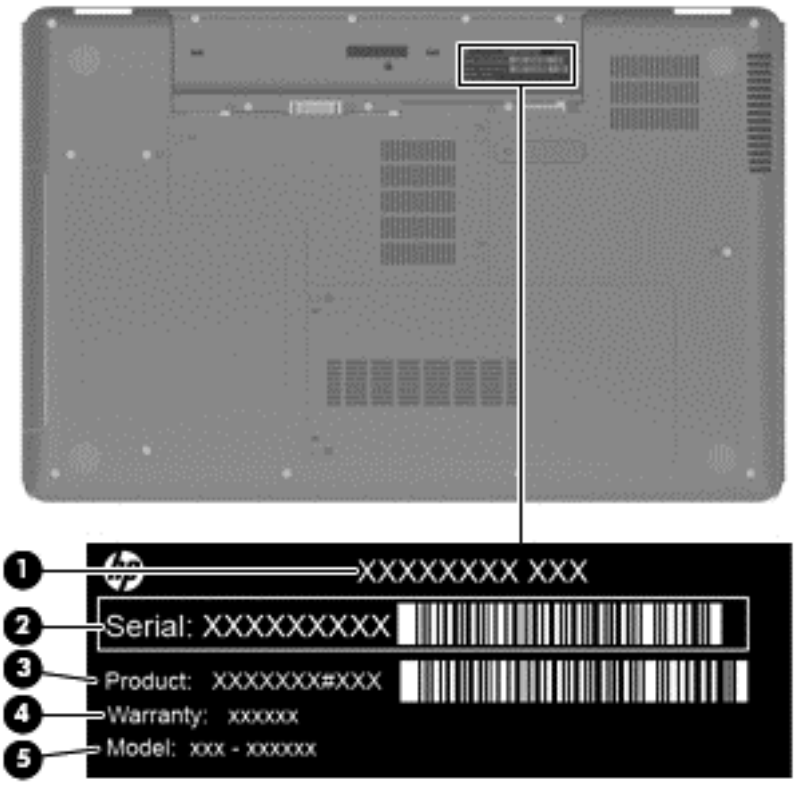
Component replacement procedures

This chapter provides removal and replacement procedures.

There are as many as 75 screws, in 12 different sizes, that must be removed, replaced, or loosened when servicing the computer. Make special note of each screw size and location during removal and replacement.

Serial number

The serial number label, located in the battery bay of the computer, provides important information that you may need when contacting technical support.

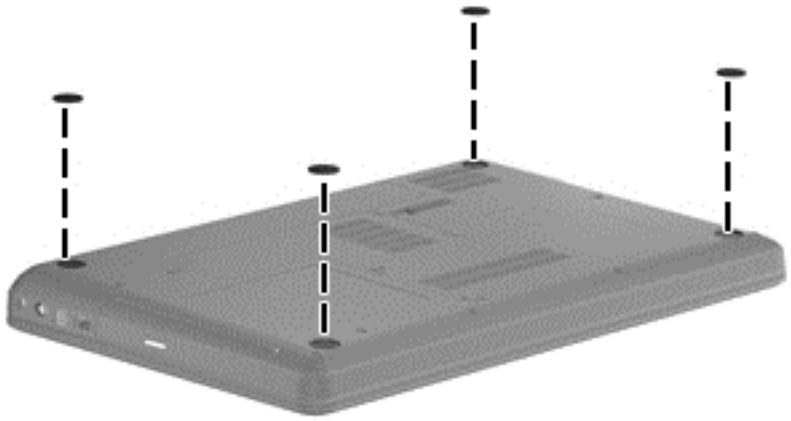


(1) Product name	(4) Warranty period
(2) Serial number	(5) Model description (select models)
(3) Product number	

Computer feet

Description	Spare part number
Rubber Feet Kit	606012-001

The computer feet are adhesive-backed rubber pads. The feet attach to the base enclosure in the locations illustrated below.



Battery

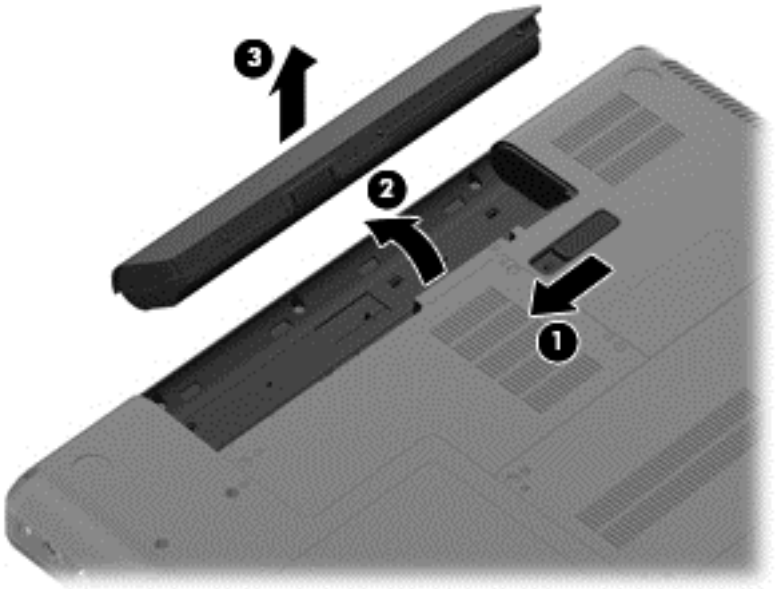
Description	Spare part number
6 cell, 2.20 Ah, 47 Wh	593553-001
6 cell, 2.55 Ah, 55 Wh	593554-001

Before disassembling the computer:

1. Shut down the computer. If you are unsure whether the computer is off or in Hibernation, turn on the computer, and then shut it down through the operating system.
2. Disconnect all external devices connected to the computer.
3. Disconnect the power from the computer by first disconnecting the power cord from the AC outlet and then disconnecting the AC adapter from the computer.

Remove the battery:

1. Turn the computer upside down on a flat surface.
2. Slide the battery release latch **(1)** to release the battery.
3. Pivot the battery **(2)** upward and lift it out of the computer **(3)**.



To insert the battery, insert the rear edge of the battery into the battery bay and pivot the front edge downward until the battery is seated. The battery release latch automatically locks the battery into place.

Hard drive

NOTE: The hard drive spare part kit includes a hard drive bracket and hard drive connector. The hard drive bracket and hard drive connector, as well as the hard drive bracket screws, are also available in the Hard Drive Hardware Kit.

Description	Spare part number
750 GB, 5400 rpm	619686–001
640 GB, 5400 rpm	603785–001
500 GB, 5400 rpm (for models 1.1 only)	634638-001
500 GB, 7200 rpm	610583-001
0 GB, 5400 rpm (for models 1.1 only)	622643-001
320 GB, 7200 rpm	603783-001
0 GB, 5400 rpm (for models 1.1 only)	622641-001
250 GB, 7200 rpm	635225-001
160 GB, 7200 rpm	615076-001
Hard drive hardware kit (not illustrated, includes connector, bracket, and screws)	605919-001

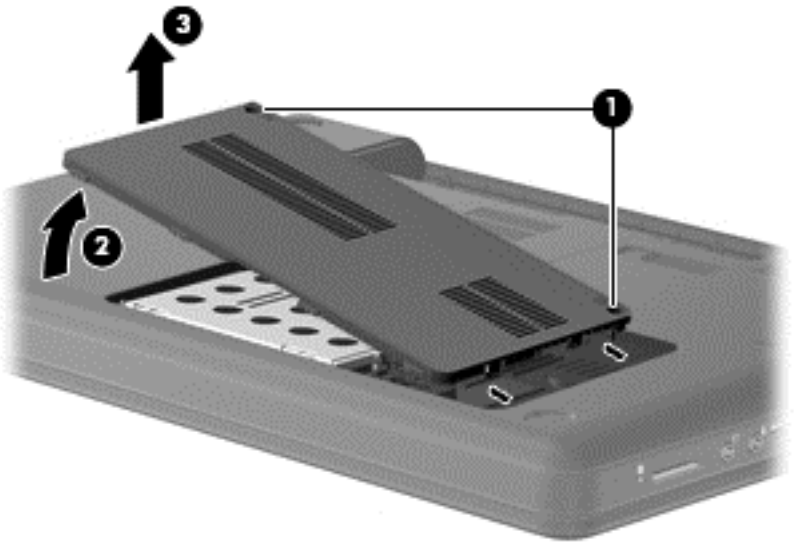
Before removing the hard drive:

1. Shut down the computer. If you are unsure whether the computer is off or in Hibernation, turn on the computer, and then shut it down through the operating system.
2. Disconnect all external devices connected to the computer.
3. Disconnect the power from the computer by first disconnecting the power cord from the AC outlet and then disconnecting the AC adapter from the computer.
4. Remove the battery (see Battery on page 41).

Remove the hard drive:

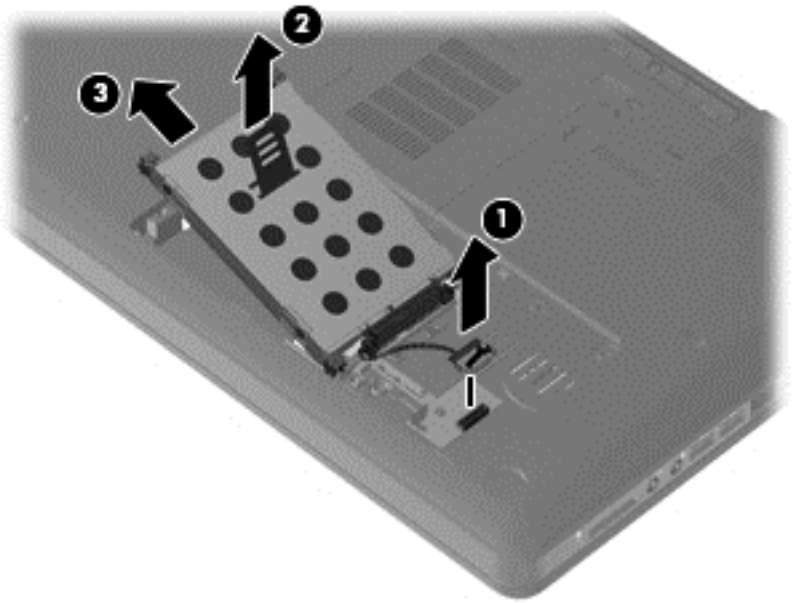
1. Position the computer with the front toward you.
2. Loosen the two Phillips PM2.5×6.0 captive screws **(1)** that secure the hard drive cover to the computer.

3. Lift the left side of the hard drive cover **(2)**, swing it forward, and remove the cover **(3)**. The hard drive cover is included in the plastics kit, spare part number 606006-001.



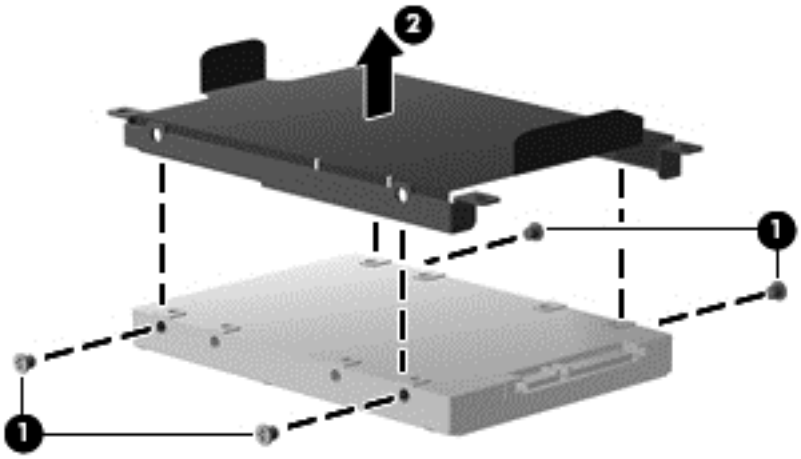
4. Disconnect the hard drive cable from the system board **(1)**.

5. Use the mylar tab on the hard drive bracket to move the hard drive to the right **(2)** bracket to lift the hard drive out **(3)** of the hard drive bay.



6. To replace the hard drive bracket, remove the four Phillips PM3.0×4.0 screws **(1)** that secure the hard drive bracket to the hard drive

7. Grasp the two attached Mylar tabs and pull the bracket straight up to remove it from the hard drive **(2)**.



Reverse this procedure to install the hard drive.

Optical drive

NOTE: The optical drive spare part kit includes an optical drive bezel and optical drive bracket.

Description	Spare part number
DVD±RW and CD-RW SuperMulti Double-Layer Combo Drive with LightScribe for use with:	
• Biscotti computer models	610558-001
• Matte black computer models	605920-001
• Silver computer models	610559-001
• White computer models	610560-001
• Red computer models	615435–001
• Blue computer models	615436–001
Blu-ray ROM with LightScribe DVD±R/RW SuperMulti Double-Layer Drive for use with:	
• Biscotti computer models	610561-001
• Matte black computer models	605921-001
• Silver computer models	610562-001
• White computer models	610563-001
• Red computer models	615437–001
• Blue computer models	615438–001

Before removing the optical drive:

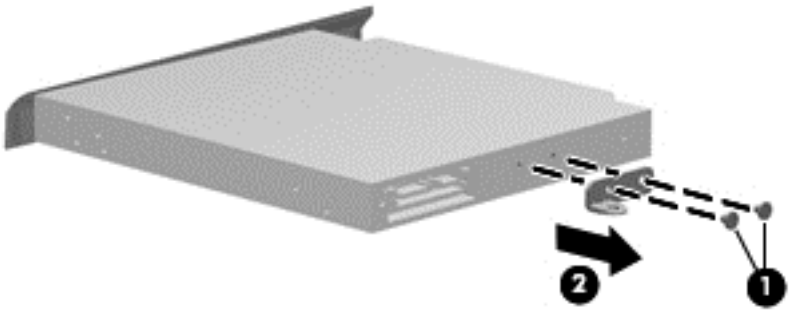
1. Shut down the computer. If you are unsure whether the computer is off or in Hibernation, turn on the computer, and then shut it down through the operating system.
2. Disconnect all external devices connected to the computer.
3. Disconnect the power from the computer by first disconnecting the power cord from the AC outlet and then disconnecting the AC adapter from the computer.
4. Remove the battery (see Battery on page 41).
5. Remove the hard drive (see Hard drive on page 42).

Remove the optical drive:

1. Position the computer upside down with the front toward you.
2. Insert a thin tool, such as a screw driver **(1)**, into the release access slot in the hard drive bay.

3. Grasp the bezel and slide the optical drive out of the computer **(2)**.

4. To replace the optical drive bracket, position the optical drive with the optical drive bracket toward you.
5. Remove the two Phillips PM2.0×3.0 screws **(1)** that secure the optical drive bracket to the optical drive.
6. Remove the optical drive bracket **(2)**.



Reverse the above procedure to reassemble and install the optical drive.

WLAN module

Description	Spare part number
Atheros AR9285 802.11 a/b/g/n 2x2 WiFi adapter	580101-001
Intel WiFi Link 5100 802.11/b/g/n WLAN module	593530-001
Realtek RTL8191SE 802.11b/g/n 1x1 WiFi Adapter	593533-001
Broadcom 4313 802.11b/g/n 1x1 WiFi Adapter	593836-001
Broadcom 4313 802.11b/g/n 1x1 WiFi and 2070 Bluetooth 2.1+EDR Combo adapter (BT3.0+HS ready) (for model 1.1 only)	600370-001
Ralink RT3090BC4 802.11b/g/n 1x1 WiFi and Bluetooth 2.1+EDR Combo Adapter (BT3.0+HS ready) (for model 1.1 only)	602992-001

Before removing the WLAN module:

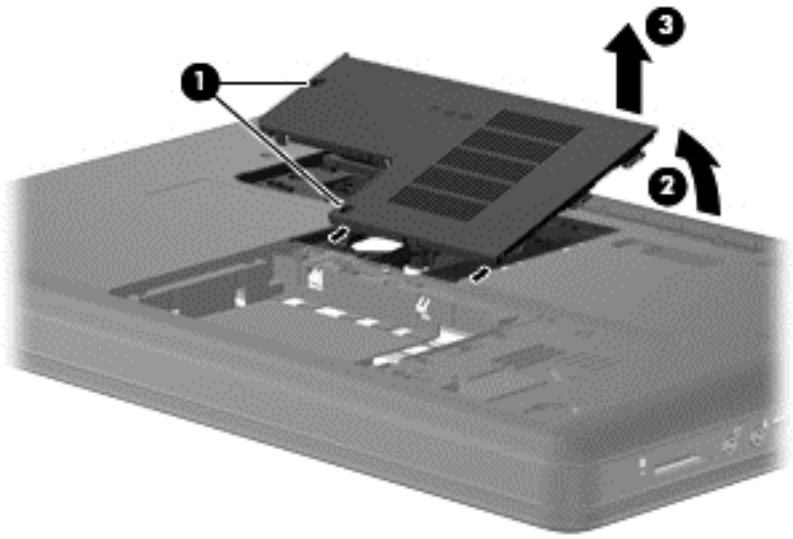
1. Shut down the computer. If you are unsure whether the computer is off or in Hibernation, turn on the computer, and then shut it down through the operating system.
2. Disconnect all external devices connected to the computer.
3. Disconnect the power from the computer by first disconnecting the power cord from the AC outlet and then disconnecting the AC adapter from the computer.
4. Remove the battery (see Battery on page 41).

Remove the WLAN module:

1. Turn the computer upside down with the front toward you.
2. Loosen the two Phillips PM2.5×6.0 captive screws **(1)** that secure the mini-card compartment cover.
3. Lift the back side of the memory module cover **(2)**

   .

4. Lift the cover off the computer **(3)**. The mini-card compartment cover is included in the plastics kit, spare part number 606006-001.



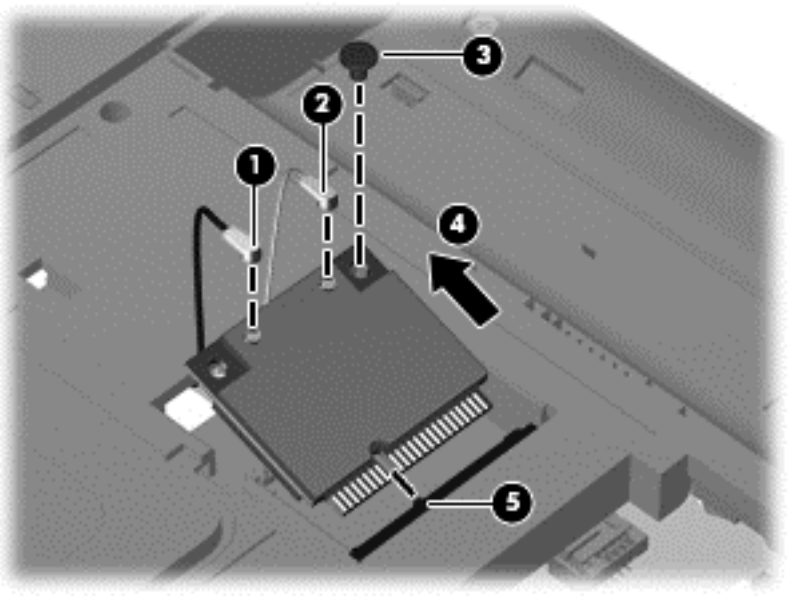
5. Disconnect the main antenna cable **(1)** and the auxiliary antenna cable **(2)** from the wireless module.

6. Remove the Phillips PM2.0×3.0 screw **(3)** that secures the WLAN module to the computer. (The edge of the module opposite the slot rises away from the computer.)

7. Remove the WLAN module **(4)** by pulling it away from the slot at an angle.

△ **CAUTION:** To prevent an unresponsive system, replace the wireless module only with a wireless module authorized for use in the computer by the governmental agency that regulates wireless devices in your country or region. If you replace the module and then receive a warning message, remove the module to restore computer functionality, and then contact technical support through Help and Support.

NOTE: WLAN modules are designed with a notch **(5)** to prevent incorrect insertion into the WLAN module slot.



Reverse this procedure to install a WLAN module.

Memory module

Description	Spare part number
1 GB, 1066 MHz DDR3	598859-001
2 GB, 1066 MHz DDR3	598856-001
4 GB, 1066 MHz DDR3 (for model 1.1 only)	599092-001

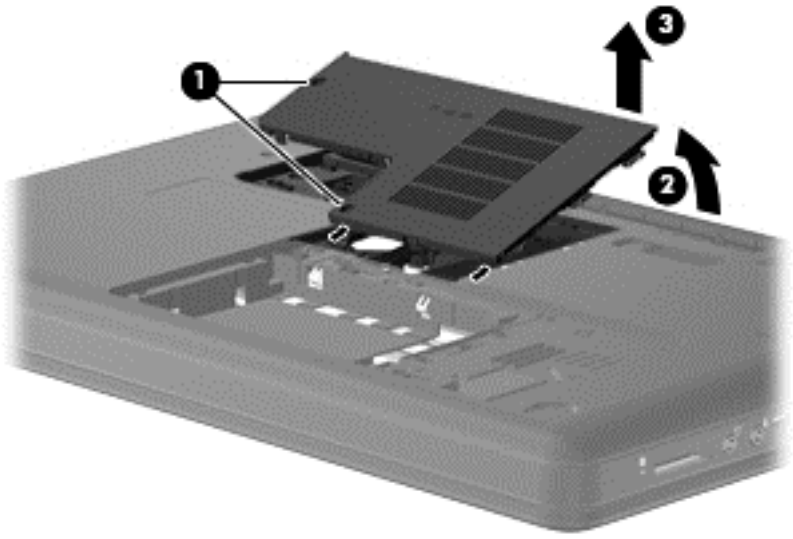
Before removing the memory module:

1. Shut down the computer. If you are unsure whether the computer is off or in Hibernation, turn on the computer, and then shut it down through the operating system.
2. Disconnect all external devices connected to the computer.
3. Disconnect the power from the computer by first disconnecting the power cord from the AC outlet and then disconnecting the AC adapter from the computer.
4. Remove the battery (see Battery on page 41).

Remove the memory module:

1. Turn the computer upside down with the front toward you.
2. Loosen the two Phillips PM2.5×6.0 captive screws **(1)** that secure the mini-card compartment cover to the computer.
3. Lift the back side of the memory module cover **(2)**
4. Lift the cover off the computer **(3)**. The mini-card compartment cover is included in the plastics kit, spare part number 606006-001.

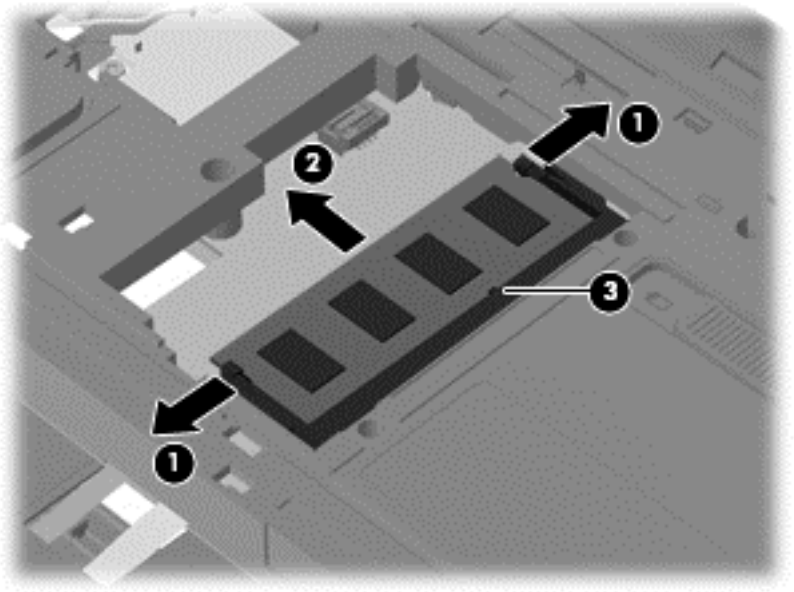
NOTE: Small tabs hold the cover in place. Firmly pull up on the cover to release the tabs.



5. Spread the retaining tabs **(1)** on each side of the memory module slot to release the memory module. (The edge of the module opposite the slot rises away from the computer.)

6. Remove the module **(2)** by pulling it away from the slot at an angle.

NOTE: Memory modules are designed with a notch **(3)** to prevent incorrect insertion into the memory module slot.



Reverse this procedure to install a memory module.

RTC battery

Description	Spare part number
RTC battery	606015-001

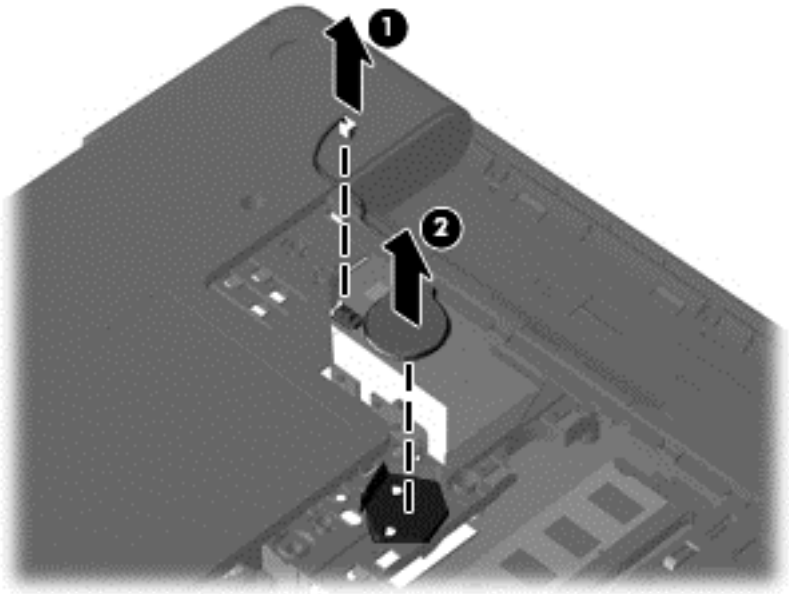
Before removing the RTC battery:

1. Shut down the computer. If you are unsure whether the computer is off or in Hibernation, turn on the computer, and then shut it down through the operating system.
2. Disconnect all external devices connected to the computer.
3. Disconnect the power from the computer by first disconnecting the power cord from the AC outlet and then disconnecting the AC adapter from the computer.
4. Remove the battery (see Battery on page 41).

Remove the RTC battery:

1. Unplug the RTC battery from the system board **(1)**.
2. Use a sharp, non-conductive, tool to release the RTC battery from the adhesive material that secures the RTC battery to the system board..

3. Lift the battery **(2)** out of the computer.



Reverse this procedure to install the RTC battery.

Keyboard

Description	Spare part number
For use in Adriatics	605922-BA1
For use in Belgium	605922-A41
For use in the Czech Republic	605922-221
For use in France	605922-051
For use in Germany	605922-041
For use in Greece	605922-DJ1
For use in Hungary	605922-211
For International use	605922-B31
For use in Israel	605922-BB1
For use in Italy	605922-061
For use in North America	605922-001
For use in Norway	605922-DH1
For use in Portugal	605922-131
For use in Russia	605922-251
For use in Saudi Arabia	605922-171
For use in Spain	605922-071
For use in Switzerland	605922-BG1
For use in Turkey	595199-141
For use in the United Kingdom	595199-031

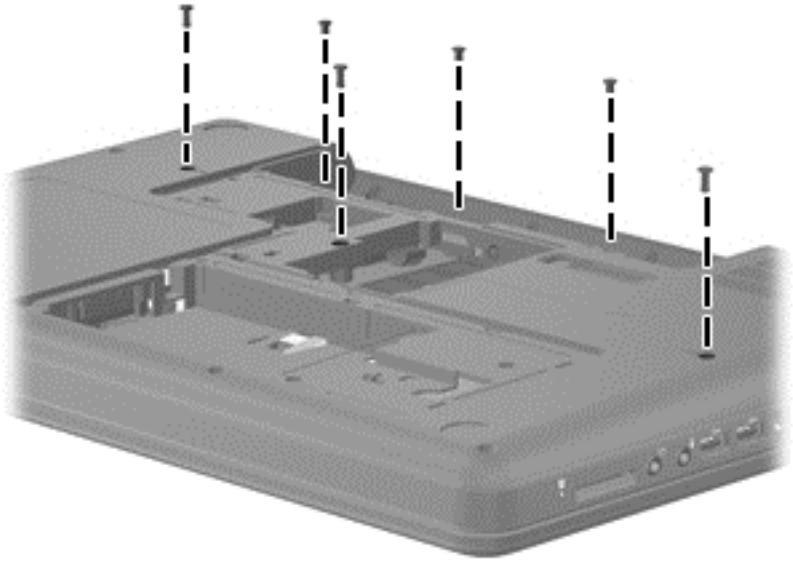
Before removing the keyboard:

1. Shut down the computer. If you are unsure whether the computer is off or in Hibernation, turn on the computer, and then shut it down through the operating system.
2. Disconnect all external devices connected to the computer.
3. Disconnect the power from the computer by first disconnecting the power cord from the AC outlet and then disconnecting the AC adapter from the computer.
4. Remove the battery (see Battery on page 41).
5. Remove the hard drive (see Hard drive on page 42).
6. Remove the WLAN/Memory Module compartment cover (see WLAN module on page 47).

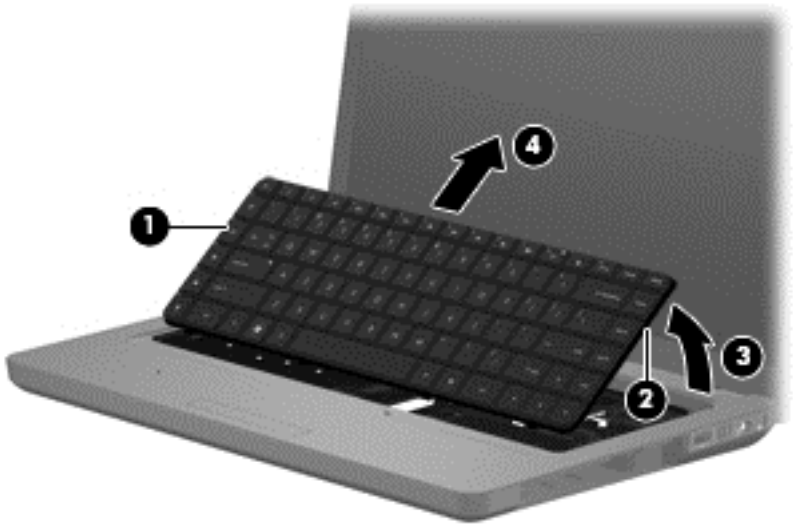
Remove the keyboard:

1. Turn the computer upside down with the front toward you.

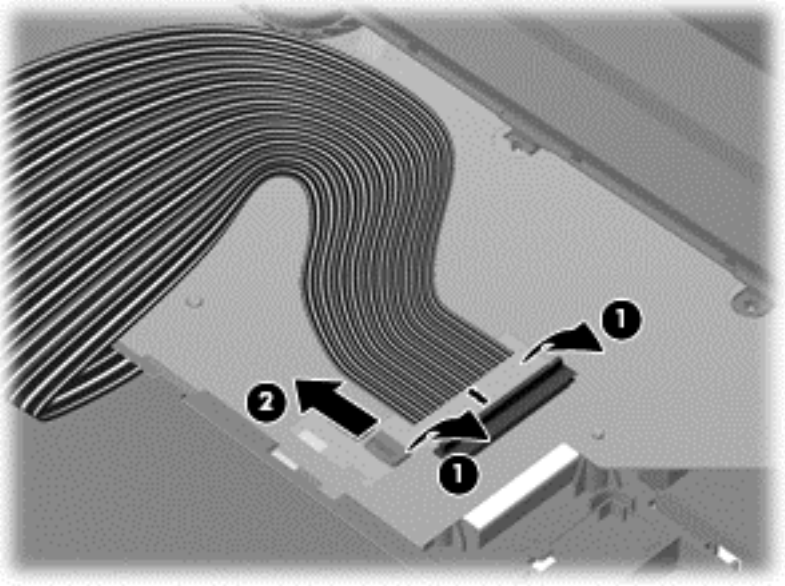
2. Remove the three Phillips PM2.5×5.0 and three Phillips PM2.5x6.5 screws that secure the keyboard to the computer.



3. Turn the computer display-side up with the front toward you.
4. Open the computer as far as possible.
5. Release the tabs along the left **(1)** and right **(2)** edges of the keyboard using a thin flat-bladed screwdriver.
6. Lift the rear edge of the keyboard **(3)**, and set the keyboard back towards the display **(4)**.



7. Release the zero insertion force (ZIF) connector **(1)** to which the keyboard cable is attached and disconnect the keyboard cable **(2)** from the system board.



8. Remove the keyboard.

Reverse this procedure to install the keyboard.

Top cover

Description	Spare part number
For use with biscotti computer models	610567-001
For use with matte black computer models	606004-001
For use with silver computer models	610568-001
For use with white computer models	610569-001
For use with red computer models	615433–001
For use with blue computer models	615434–001

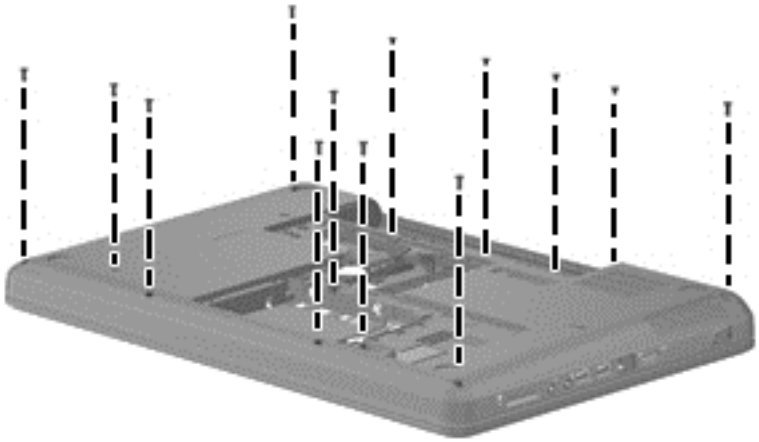
Before removing the switch cover:

1. Shut down the computer. If you are unsure whether the computer is off or in Hibernation, turn on the computer, and then shut it down through the operating system.
2. Disconnect all external devices connected to the computer.
3. Disconnect the power from the computer by first disconnecting the power cord from the AC outlet and then disconnecting AC adapter from the computer.
4. Remove the following components:
   a. Battery (see Battery on page 41).
   b. Hard drive (See Hard drive on page 42).
   c. Optical drive (see Optical drive on page 45).
   d. WLAN module (see WLAN module on page 47).
   e. Memory module (see Memory module on page 50).
   f. Keyboard (see Keyboard on page 53).

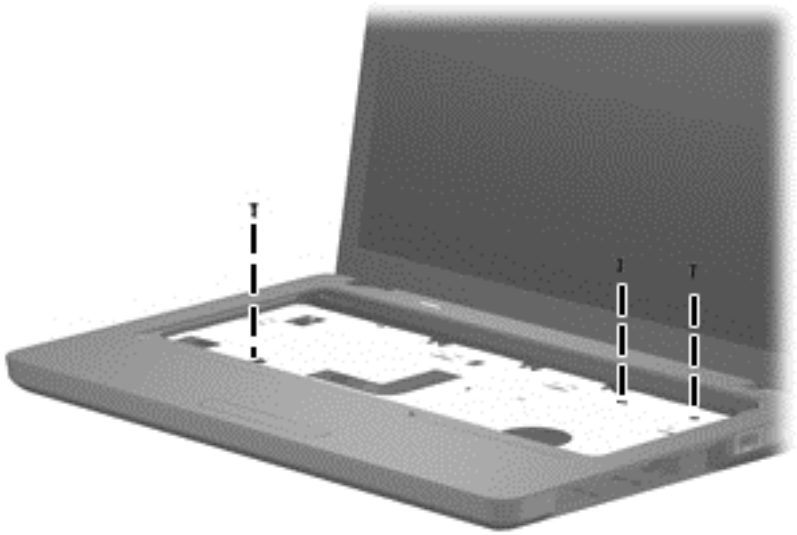
Remove the switch cover:

1. Turn the computer upside down with the front toward you.

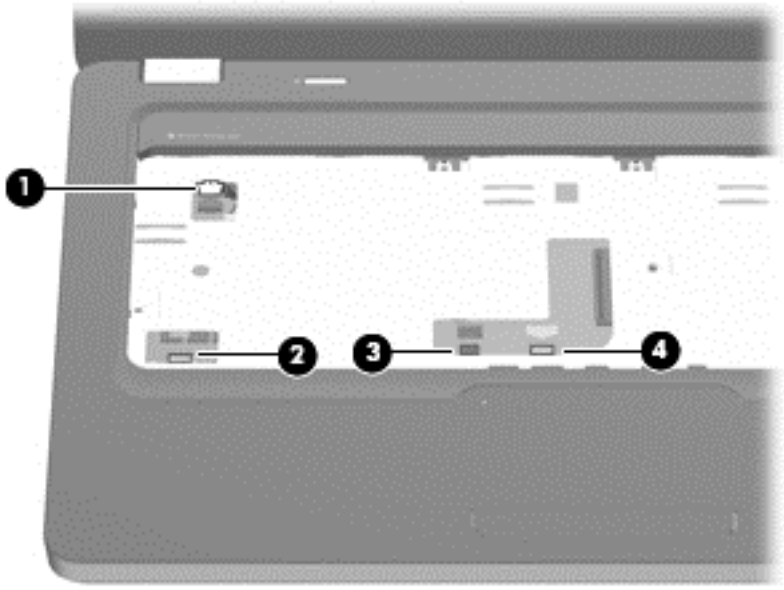
2. Remove four Phillips PM2.5x3 screws in the battery bay, and remove nine Phillips PM2.5x6.5 screws on the base enclosure. The top cover screws are identified by a triangle icon embossed on the base enclosure.



3. Turn the computer display-side up with the front toward you.
4. Open the computer as far as possible.
5. Remove the three Phillips PM2.5×6.0 screw that secures the top cover to the computer.



6. Release the power button ZIF connector **(1)**, speaker cable **(2)**, touchpad ZIF connector **(3)**, and touchpad button ZIF connector **(4)**.



7. Lift the rear edge of the top cover **(1)** until the top cover disengages from the base enclosure. Remove the top cover **(2)**.

NOTE: The TouchPad is glued to the top cover and is included with the top cover spare part.

Reverse this procedure to install the switch cover.

Speaker assembly

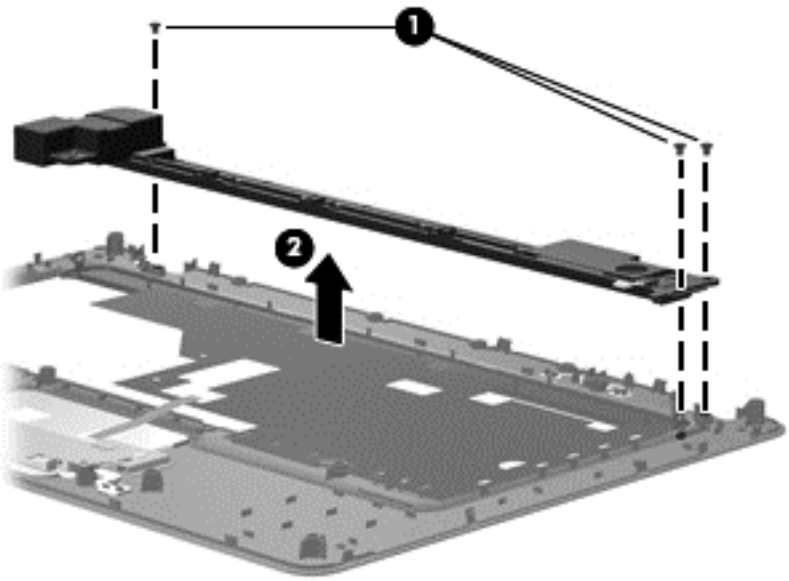
Description	Spare part number
Speaker assembly (includes cable)	606007-001

Before removing the speaker assembly:

1. Shut down the computer. If you are unsure whether the computer is off or in Hibernation, turn on the computer, and then shut it down through the operating system.
2. Disconnect all external devices connected to the computer.
3. Disconnect the power from the computer by first disconnecting the power cord from the AC outlet and then disconnecting the AC adapter from the computer.
4. Remove the battery (see Battery on page 41).
5. Remove the following components:
   a. Hard drive (see Hard drive on page 42)
   b. Optical drive (see Optical drive on page 45)
   c. Keyboard (see Keyboard on page 53)
   d. Top cover (see Top cover on page 56)

Remove the speaker assembly:

1. Turn the top cover upside down.
2. Remove the three Phillips PM2.5×3.0 screws **(1)** that secure the speaker assembly to the top cover.
3. Lift up and remove the speakers **(2)**.



Reverse this procedure to install the speaker assembly.

Power button board

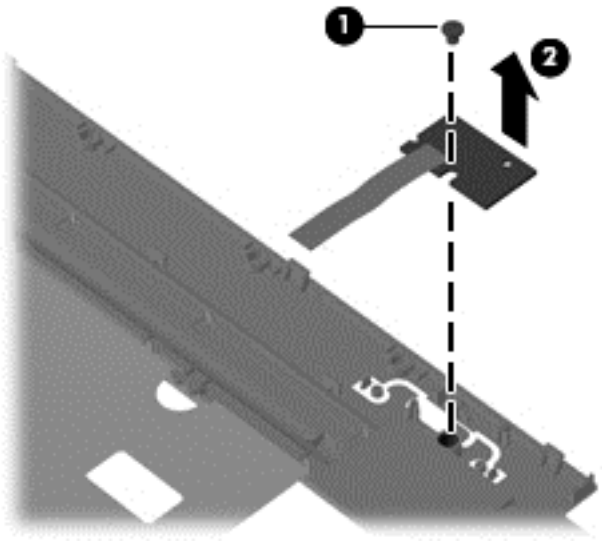
Description	Spare part number
Power button board	606008-001

Before removing the power button board:

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 from the computer by first disconnecting the power cord from the AC outlet and then disconnecting the AC adapter from the computer.
4. Remove the battery (see Battery on page 41).
5. Remove the following components:
   a. Hard drive (see Hard drive on page 42)
   b. Optical drive (see Optical drive on page 45)
   c. Keyboard (see Keyboard on page 53)
   d. Top cover (see Top cover on page 56)

Remove the power button board:

1. Turn the top cover upside down with the rear edge toward you.
2. Remove the Phillips PM2.0×3.0 screw **(1)** that secures the power button board to the top cover.
3. Lift up and remove the power button board **(2)**.



Reverse this procedure to install the power button board.

TouchPad button board

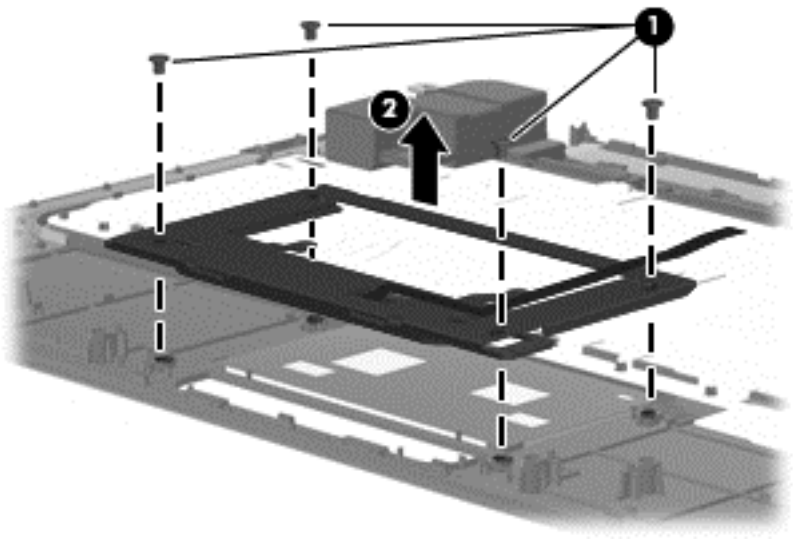
Description	Spare part number
Touchpad button board (includes bracket and cable)	606005-001

Before removing the TouchPad button board:

1. Shut down the computer. If you are unsure whether the computer is off or in Hibernation, turn on the computer, and then shut it down through the operating system.
2. Disconnect all external devices connected to the computer.
3. Disconnect the power from the computer by first disconnecting the power cord from the AC outlet and then disconnecting the AC adapter from the computer.
4. Remove the battery (see Battery on page 41).
5. Remove the following components:
   a. Hard drive (see Hard drive on page 42)
   b. Optical drive (see Optical drive on page 45)
   c. Keyboard (see Keyboard on page 53)
   d. Top cover (see Top cover on page 56)

Remove the TouchPad button board:

1. Turn the top cover upside down with the front toward you.
2. Remove the four Phillips PM2.0×3.0 screws **(1)** that secure the TouchPad bracket to the top cover.
3. Lift up and remove the TouchPad button board bracket **(2)**. The TouchPad button is fused on the TouchPad button board bracket.



Reverse the above procedure to reassemble and install the TouchPad button board.

Modem module

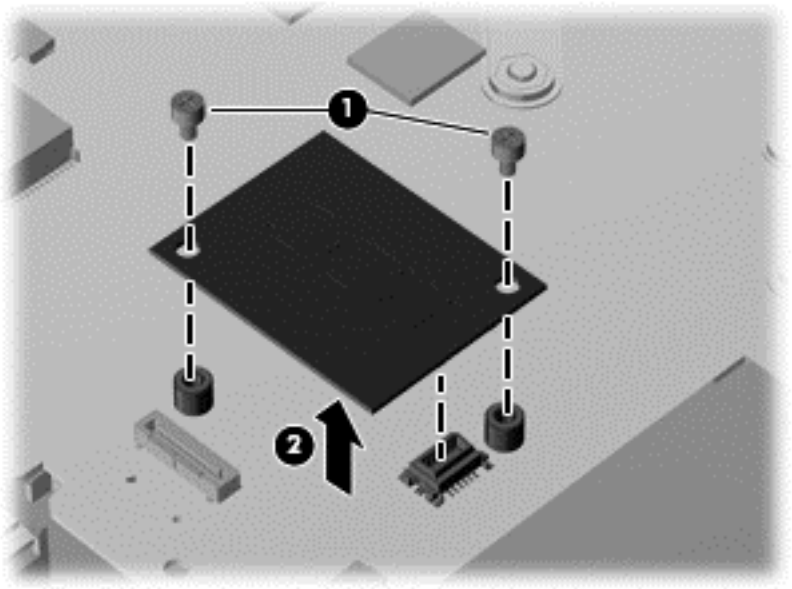
Description	Spare part number
56K V.92 data/fax modem (select models only) (for model 1.0 only)	510100-001

Before removing the modem module:

1. Shut down the computer. If you are unsure whether the computer is off or in Hibernation, turn on the computer, and then shut it down through the operating system.
2. Disconnect all external devices connected to the computer.
3. Disconnect the power from the computer by first disconnecting the power cord from the AC outlet and then disconnecting the AC adapter from the computer.
4. Remove the battery (see Battery on page 41).
5. Remove the following components:
   a. Hard drive (see Hard drive on page 42)
   b. Optical drive (see Optical drive on page 45)
   c. Keyboard (see Keyboard on page 53)
   d. Top cover (see Top cover on page 56)

Remove the modem module:

1. Turn the computer upright with the front toward you.
2. Remove the two Phillips PM2.0×3.0 screws **(1)** that secure the modem module to the system board.
3. Lift up on the front of the modem module **(2)** to disconnect it from the system board.



Reverse the above procedure to install the modem module, and be sure that the connector on the bottom of the modem module connects firmly into the system board.

USB board

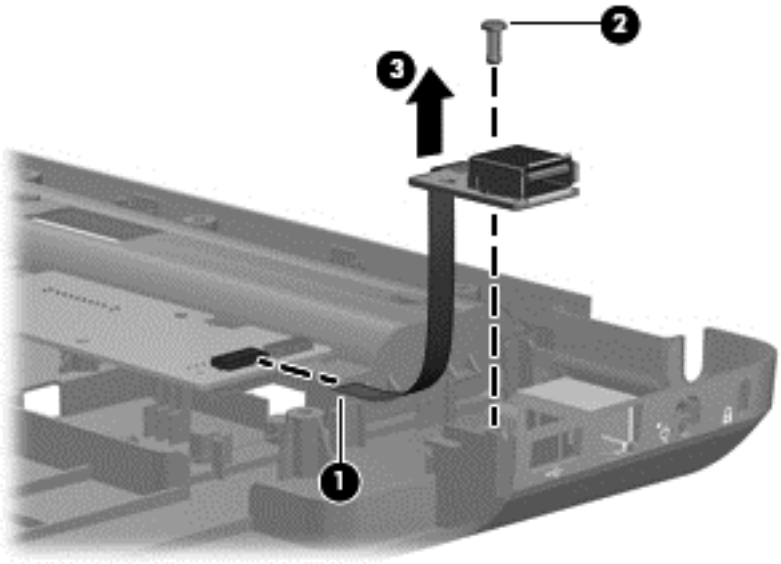
Description	Spare part number
USB board	606011-001

Before removing the USB board:

1. Shut down the computer. If you are unsure whether the computer is off or in Hibernation, turn on the computer, and then shut it down through the operating system.
2. Disconnect all external devices connected to the computer.
3. Disconnect the power from the computer by first disconnecting the power cord from the AC outlet and then disconnecting the AC adapter from the computer.
4. Remove the battery (see Battery on page 41).
5. Remove the following components:
   a. Hard drive (see Hard drive on page 42)
   b. Optical drive (see Optical drive on page 45)
   c. Keyboard (see Keyboard on page 53)
   d. Top cover (see Top cover on page 56)

Remove the USB board:

1. Position the computer upright with the right side toward you.
2. Disconnect the USB board cable **(1)** from the system board.
3. Remove the Phillips PM2.5×6.0 screw **(2)** that secures the USB board to the base enclosure.
4. Lift the USB board **(3)** straight up to remove it from the computer. The USB cable is available with the cable kit using spare part number 606009-001



Reverse this procedure to install the USB board.

Power connector

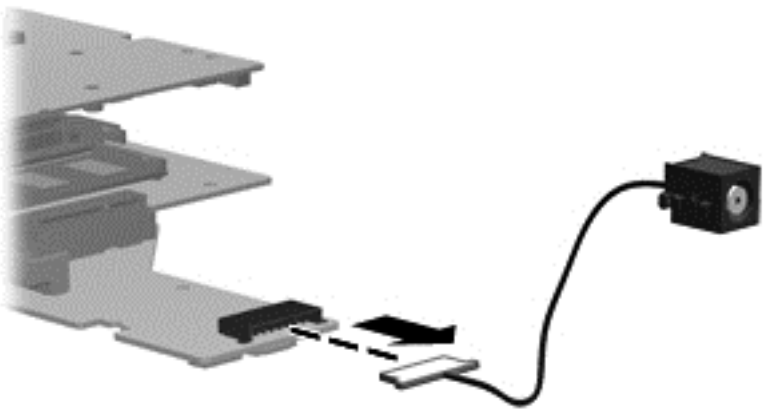
Description	Spare part number
Power connector (includes cable)	609154-001

Before removing the power connector cable:

1. Shut down the computer. If you are unsure whether the computer is off or in Hibernation, turn on the computer, and then shut it down through the operating system.
2. Disconnect all external devices connected to the computer.
3. Disconnect the power from the computer by first disconnecting the power cord from the AC outlet and then disconnecting the AC adapter from the computer.
4. Remove the battery (see Battery on page 41).
5. Remove the following components:
   a. Hard drive (see Hard drive on page 42)
   b. Optical drive (see Optical drive on page 45)
   c. Keyboard (see Keyboard on page 53)
   d. Top cover (see Top cover on page 56)

Remove the power connector cable:

1. Turn the computer upright with the right side toward you.
2. Disconnect the power connector cable **(1)** from the system board.
3. Lift the power connector **(2)** from the clips built into the base enclosure.



Reverse this procedure to install the power connector.

Display assembly

Description	Spare part number
39.6-cm (15.6-in) High Definition (HD), light-emitting diode (LED) display assembly for use in:	
• Biscotti computer models	605906-001
• Silver computer models	605907-001
• White computer models	605908-001
• Matte black computer models	608444-001
• Red computer models	615423-001
• Blue computer models	615424-001

Before removing the display assembly:

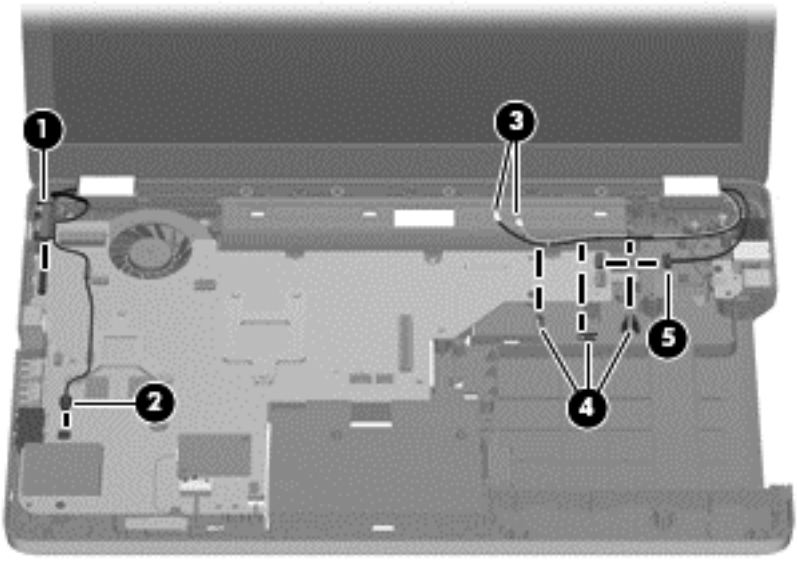
1. Shut down the computer. If you are unsure whether the computer is off or in Hibernation, turn on the computer, and then shut it down through the operating system.
2. Disconnect all external devices connected to the computer.
3. Disconnect the power from the computer by first disconnecting the power cord from the AC outlet and then disconnecting the AC adapter from the computer.
4. Remove the battery (see Battery on page 41).
5. Disconnect the wireless antenna cables from the WLAN module (see WLAN module on page 47).
6. Remove the following components:
   a. Optical drive (see Optical drive on page 45)
   b. Keyboard (see Keyboard on page 53)
   c. Top cover (see Top cover on page 56)

Remove the display assembly:

1. Turn the computer display-side up, with the front toward you.
2. Open the display as far as possible.
3. Disconnect the display panel cable **(1)** and the microphone cable **(2)** from the system board and remove it from its routing channel.
4. Pull the antenna cables through the opening in the top cover **(3)** and disengage the cables from the clip in the routing channel leading to the display hinge **(4)**.

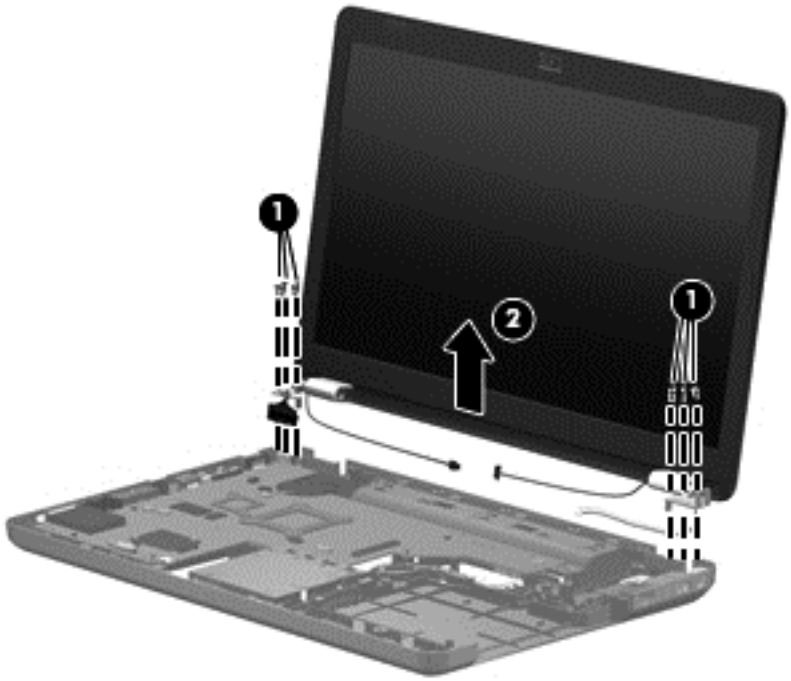
5. Disconnect the webcam cable **(5)** from the system board and release it from the clips that attach it to the system board.

△ **CAUTION:** Support the display assembly when removing the display screws in the following steps. Failure to support the display assembly can result in damage to the assembly and other components.



6. Remove the six black Phillips PM2.5×7.0 screws **(1)** that secure the display assembly to the computer.

7. Lift the display panel **(2)** straight up to remove it.



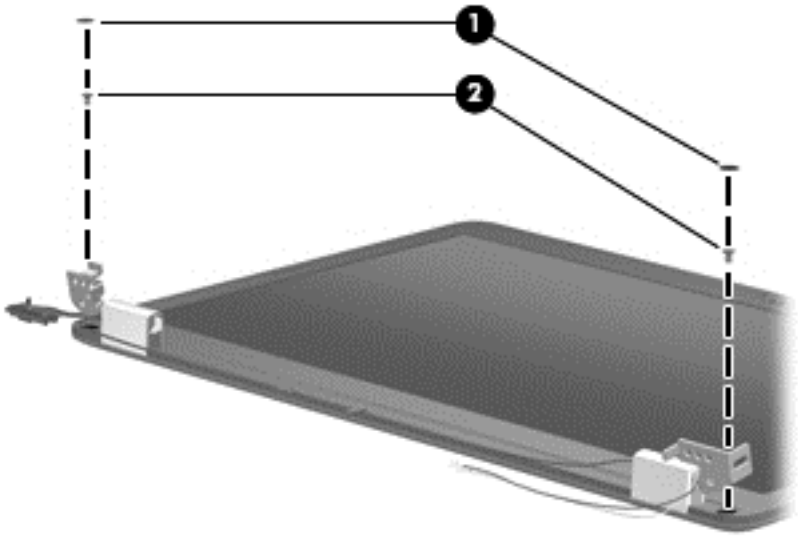
Reverse this procedure to install the display assembly.

8. To replace any of the display assembly internal components, remove the following screw covers and screws:

   (1) Two mylar screw covers on the display bezel bottom edge

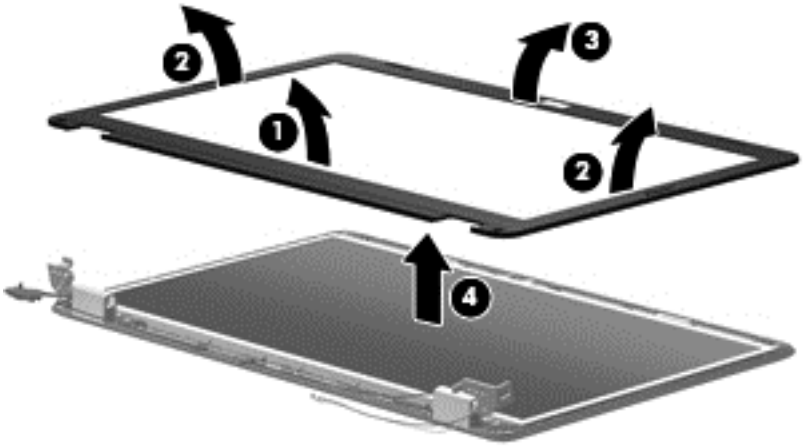
   (2) Two Phillips PM2.5×4.0 screws

   The display screw covers are included in the display rubber kit, spare part number 605917-001.



9. Flex the inside edge of the top **(1)**, the left and right sides **(2)**, and the bottom **(3)** of the display bezel until the bezel disengages from the display back cover.

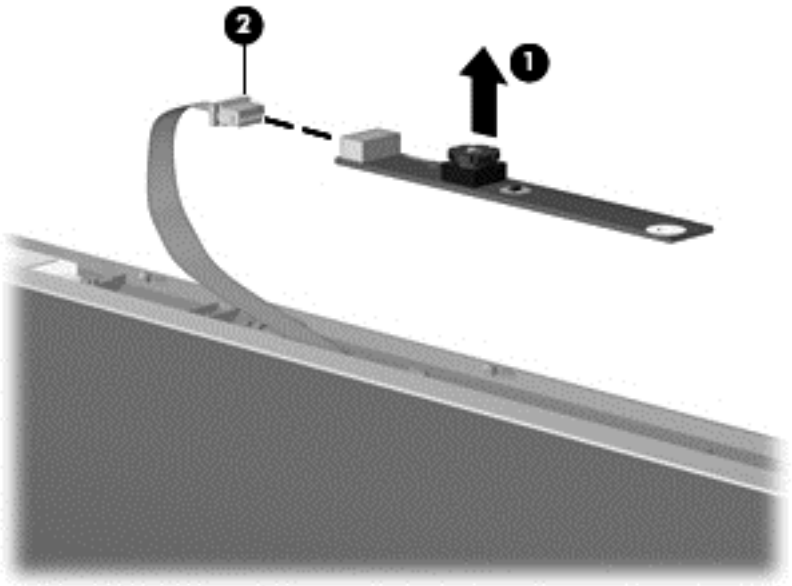
10. Remove the display bezel **(4)**.



   Reverse this procedure to install the display bezel.

11. To replace the webcam module (select models only), lift the webcam module as far from the display enclosure as the webcam module cable allows.

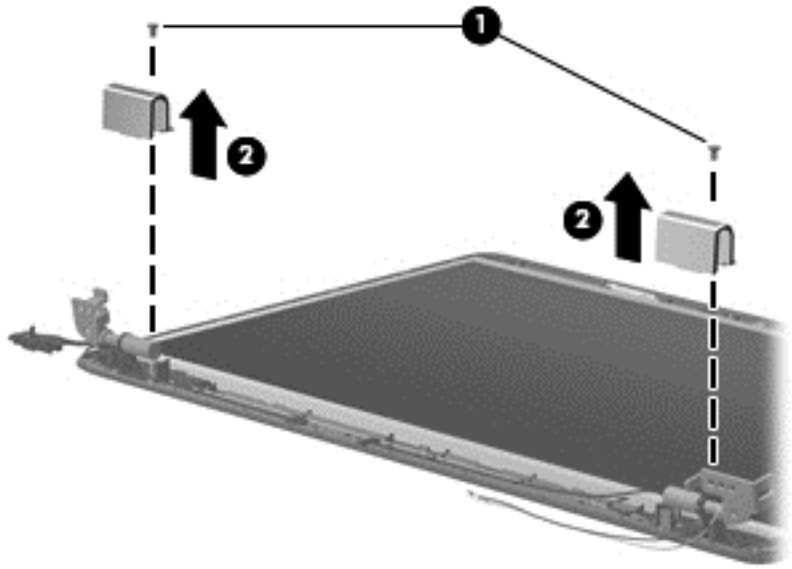
12. Disconnect the webcam module cable **(1)** from the webcam module, and remove the webcam module **(2)**. The webcam module is available using spare part number 606001-001.



Reverse this procedure to install the webcam module.

13. To replace the display hinge covers, remove the two Phillips PM2.5×6.0 screws **(1)** that secure each hinge to the display enclosure.

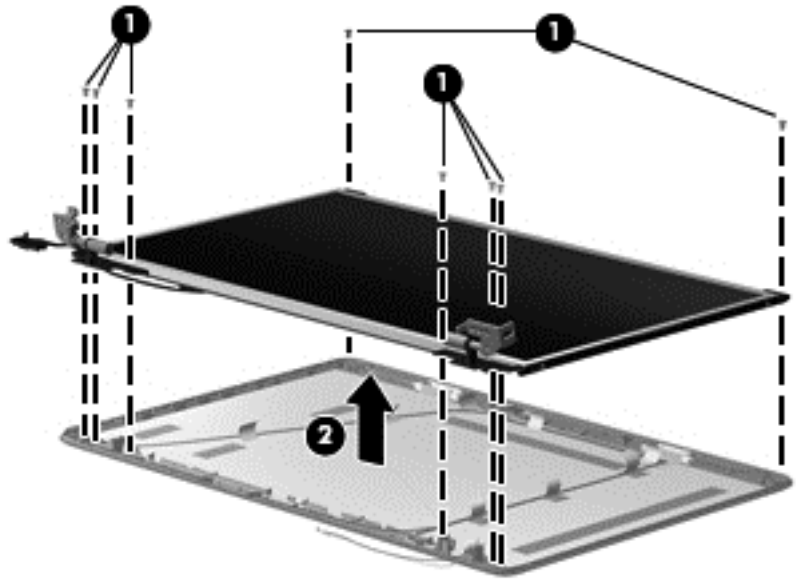
14. Remove the display hinge covers **(2)**. The display hinge covers are available using spare part number 606017-001.



Reverse this procedure to install the display hinge covers.

15. To replace the display panel, remove eight phillips PM2.5×6.0 screws **(1)** that secure the display panel to the display enclosure.

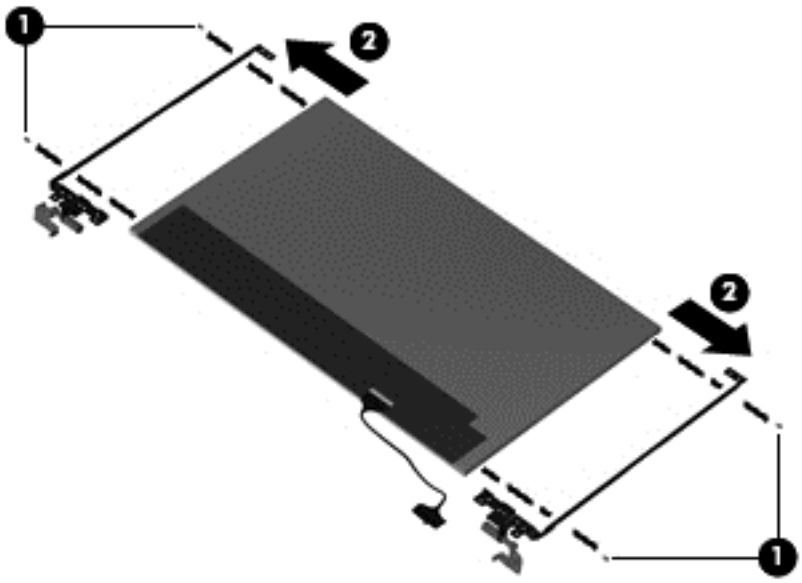
16. Remove the display panel **(2)** from the display enclosure. The display panel is available using the spare part number 606003-001.



Reverse this procedure to install the display panel.

17. To replace the display panel brackets, remove the two Phillips PM2.0×3.0 screws **(1)** that secure each bracket to the display panel.

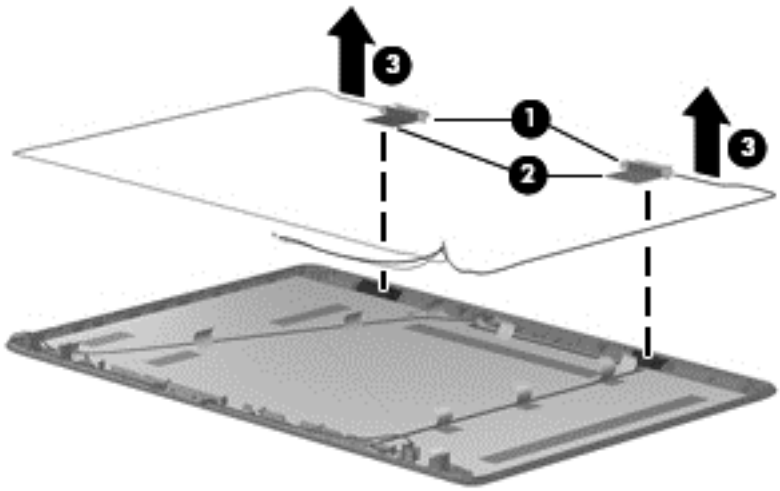
18. Remove the display panel brackets **(2)** from the display panel. The display panel brackets are available using spare part number 605915-001.



Reverse this procedure to install the display panel brackets.

19. To replace the wireless antenna transceivers, lift up on the silver transceiver **(1)** and release the adhesive material from the display cover **(2)**.

20. Lift up to remove the antenna transceivers **(3)**. The wireless antenna transceivers with cable is available using spare part number 606016-001..



Reverse this procedure to install the display wireless antenna transceivers.

System board

NOTE: The system board spare part kit includes UMA or discrete graphics subsystem memory and replacement thermal material.

Description	Spare part number
HD UMA system board with card reader	605903-001
HD 5470/512 MB discrete system board with card reader	605902-001
HD 5470/1 GB discrete system board with card reader	608340-001
HD 5470/ 512 MB discrete system board with card reader (for model 1.1 only)	615381-001
HD 5470/1 GB discrete system board with card reader (for model 1.1 only)	615382-001

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

- Memory modules (see Memory module on page 50)
- WLAN module (see WLAN module on page 47)
- Modem module (see Modem module on page 63)

Before removing the system board:

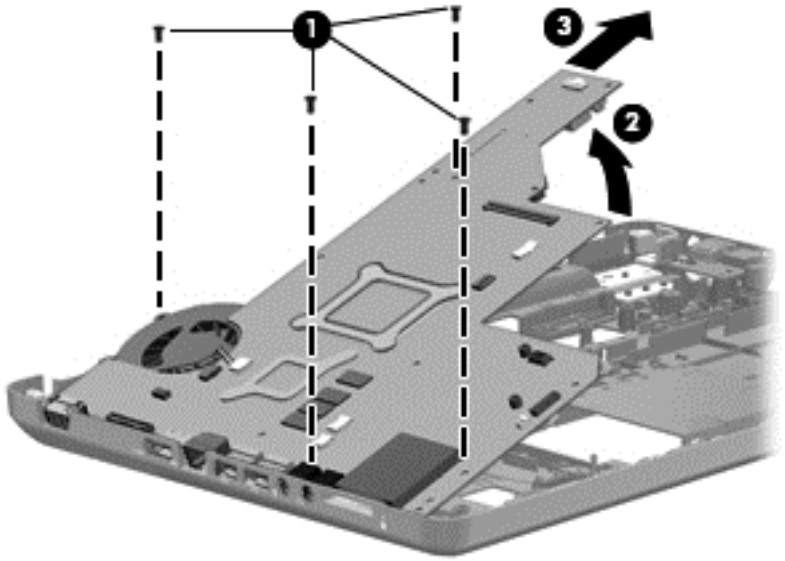
1. Shut down the computer. If you are unsure whether the computer is off or in Hibernation, turn on the computer, and then shut it down through the operating system.
2. Disconnect all external devices connected to the computer.
3. Disconnect the power from the computer by first disconnecting the power cord from the AC outlet and then disconnecting the AC adapter from the computer.
4. Remove the battery (see Battery on page 41).
5. Remove the following components:
   a. Hard drive (see Hard drive on page 42)
   b. Optical drive (see Optical drive on page 45)
   c. WLAN module (see WLAN module on page 47)
   d. Memory module (see Memory module on page 50)
   e. Keyboard (see Keyboard on page 53)
   f. Top cover (see Top cover on page 56)
   g. Modem module (see Modem module on page 63)
   h. Display assembly (see Display assembly on page 68)

Remove the following cables from the system board:

- Power connector cable (see Power connector on page 67)
- USB board cable (see USB board on page 65)

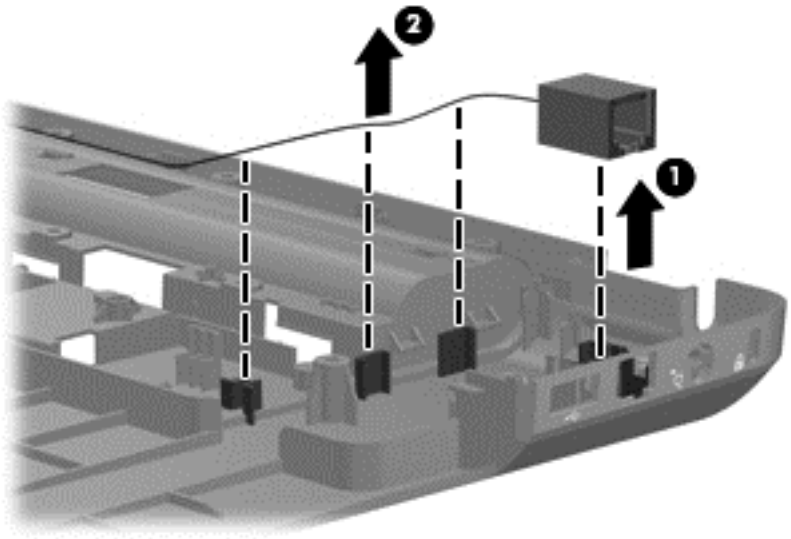
Remove the system board:

1. Turn the computer upright with the right side toward you.
2. Remove the four Phillips PM2.5×4.0 **(1)** screws that secure the system board to the computer.
3. Grasp the right edge **(2)** of the system board.
4. Lift the system board **(3)**, and pull it away from the base enclosure at an angle.



Reverse this procedure to install the system board.

5. To replace the modem module cable, remove the RJ-11 connector cable from the clips **(1)**, and then lift the connector straight up **(2)** and out of the computer. The modem module cable is available with the cable kit using spare part number 606009-001.



Reverse this procedure to install the modem module cable.

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

- Fan/heat sink assembly (see Fan/heat sink assembly on page 77)
- Processor (see Processor on page 81)

Reverse the preceding procedure to install the system board.

Fan/heat sink assembly

Description	Spare part number
Fan/heat sink assembly (includes replacement thermal material) for use only with computer models with UMA graphics subsystem memory	606013-001
Fan/heat sink assembly (includes replacement thermal material) for use only with computer models with discrete graphics subsystem memory	606014-001
Thermal pad	634363–001

Before removing the fan/heat sink assembly:

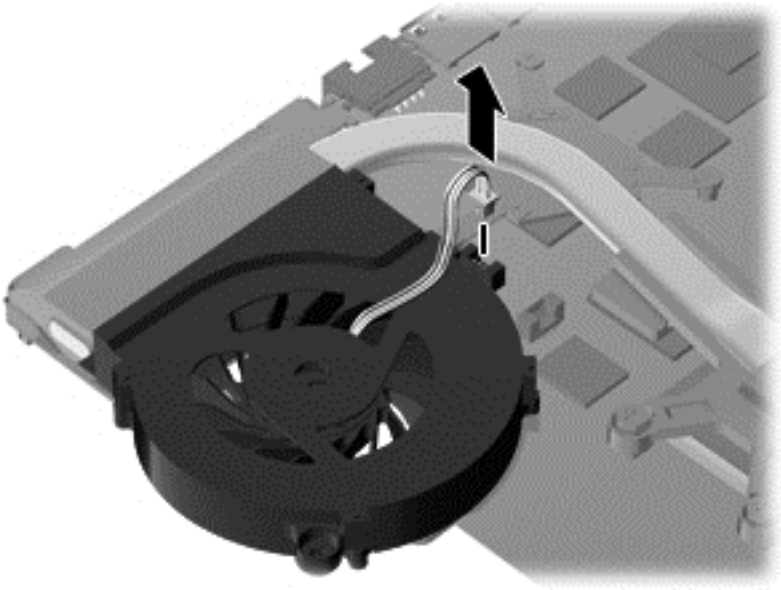
1. Shut down the computer. If you are unsure whether the computer is off or in Hibernation, turn on the computer, and then shut it down through the operating system.
2. Disconnect all external devices connected to the computer.
3. Disconnect the power from the computer by first disconnecting the power cord from the AC outlet and then disconnecting the AC adapter from the computer.
4. Remove the battery (see Battery on page 41).
5. Remove the following components:
   a. Hard drive (see Hard drive on page 42)
   b. Optical drive (see Optical drive on page 45)
   c. Keyboard (see Keyboard on page 53)
   d. Top cover (see Top cover on page 56)
   e. Display assembly (see Display assembly on page 68)
   f. System board (see System board on page 74)

Remove the fan/heat assembly (fan/heat sink appearance may vary):

NOTE: Steps 1 through 4 apply only to computer models equipped with graphics subsystems having UMA memory.

1. Turn the system board right-side up, with the front toward you.

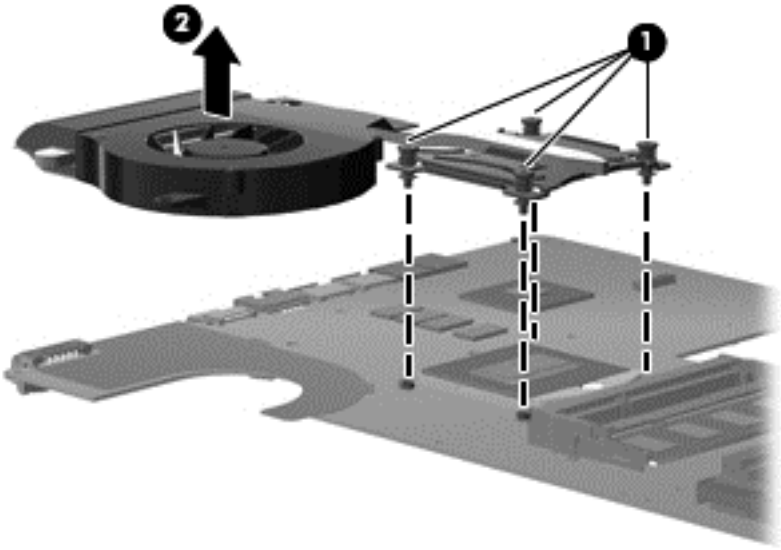
2. Disconnect the fan cable from the system board.



3. Follow the sequence embossed on heat sink to loosen the four Phillips PM2.5×7.0 captive screws **(1)** that secure the fan/heat sink assembly to the system board.

NOTE: Due to the adhesive quality of the thermal material located between the fan/heat sink assembly and system board components, it might be necessary to move the fan/heat sink assembly from side to side to detach the assembly.

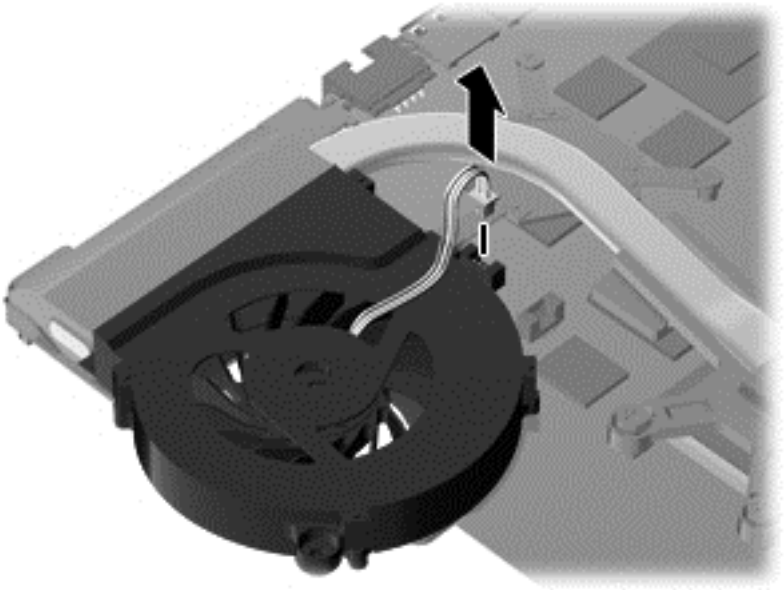
4. Remove the fan/heat sink assembly **(2)** by lifting straight up.



NOTE: Steps 5 through 8 apply only to computer models equipped with graphics subsystems having discrete memory.

1. Turn the system board right-side up, with the front toward you.

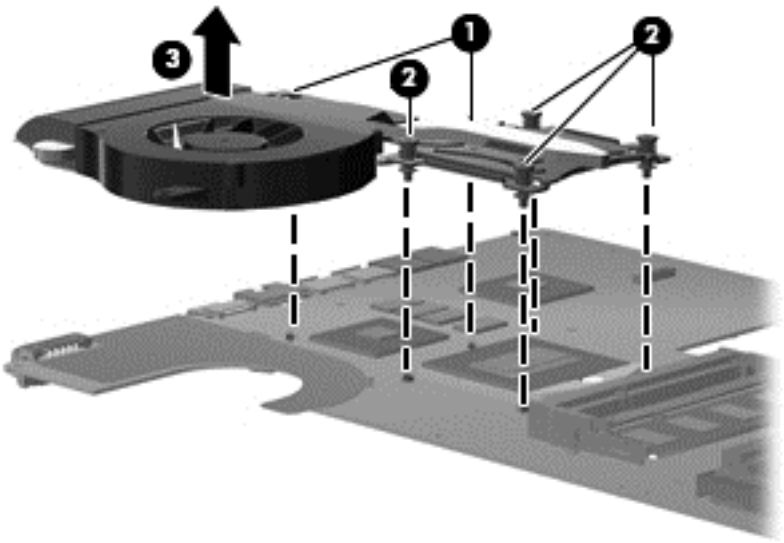
2. Disconnect the fan cable from the system board.



3. Loosen the two Phillips captive screws **(1)** and four Phillips spring-loaded captive screws **(2)** that secure the fan/heat sink assembly.

NOTE: Due to the adhesive quality of the thermal material located between the fan/heat sink assembly and system board components, it might be necessary to move the fan/heat sink assembly from side to side to detach the assembly.

4. Remove the fan/heat sink assembly **(3)** by lifting straight up.

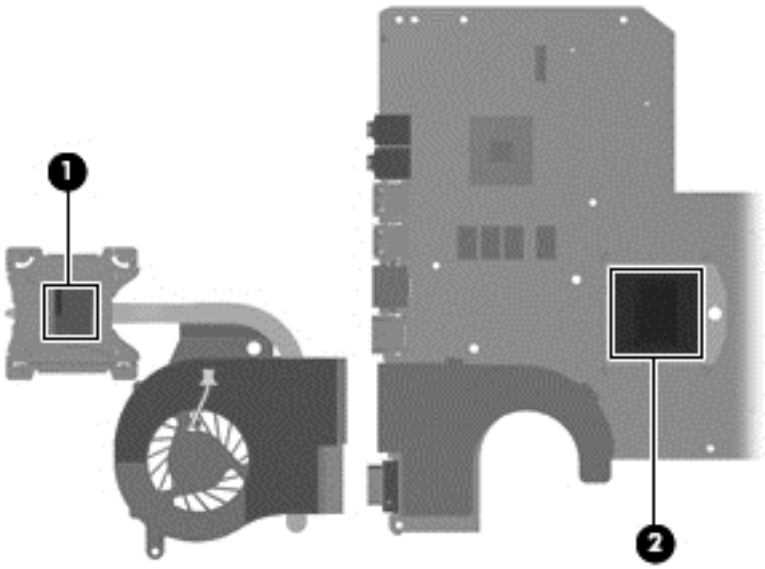


Reverse this procedure to install the fan/heat sink assembly.

The thermal material must be thoroughly cleaned from the surface of the fan/heat sink assembly **(1)**, **(3)** and the processor **(2)** and video components **(4)** each time the fan/heat sink assembly is removed. Thermal pads and thermal paste must be installed on all surfaces before the fan/heat sink assembly is reinstalled.

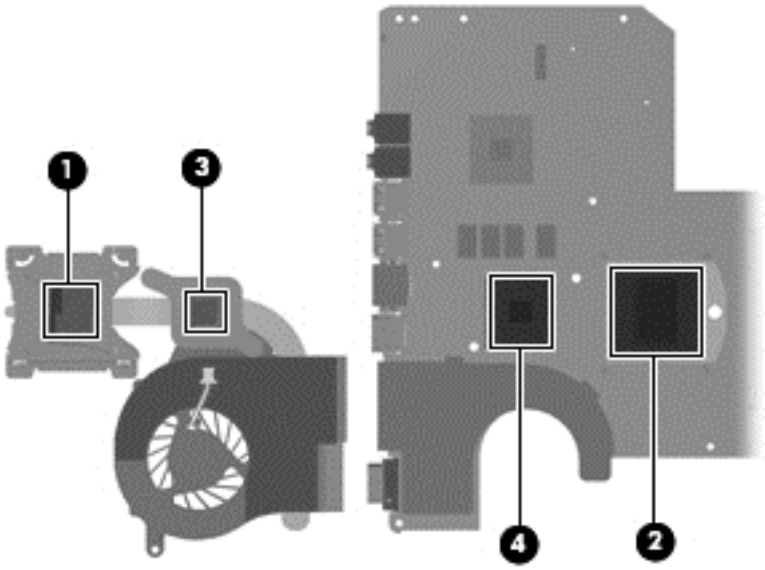
NOTE: Thermal pads and thermal paste are included with all fan/heat sink assembly, system board, and processor spare part kits.

The following illustration shows the locations for thermal material on systems with UMA graphics subsystems.



The thermal material must be thoroughly cleaned from the surface of the fan/heat sink assembly **(1)** and **(3)**, and the processor component **(2)**, each time the fan/heat sink assembly is removed. Thermal pads and thermal paste must be installed on all surfaces before the fan/heat sink assembly is reinstalled.

The following illustration shows the locations for thermal material on systems with discrete graphics subsystems.



Processor

NOTE: All processor spare part kits include thermal material.

Description	Spare part number
Intel Arrandale i5–520M Processor (2.4 GHz, 3 MB total L3 cache, 1066 MHz)—Dual Core 35 W	594187–001
Intel Arrandale i5–540M Processor (2.53 GHz, 3 MB total L3 cache, 1066 MHz)—Dual core 35 W	594188–001
Intel Arrandale i3–330 Processor (2.13 GHz, 3 MB L3 cache, 1066 MHz)—Dual Core 35 W (for model 1.0 only)	597622–001
Intel Arrandale i3–350 Processor (2.26 GHz, 3 MB L3 cache, 1066 MHz)—Dual Core 35 W	597623–001
Intel Arrandale i5–430 Processor (2.26 GHz, 3 MB total L3 cache, 1066 MHz)—Dual Core 35 W	597624-001
Intel Arrandale i3–370 Processor (2.4 GHz, 3 MB L3 cache, 1066 MHz)—Dual Core 35 W	613584-001
Intel Arrandale i5–450 Processor (2.4 GHz, 3 MB L3 cache, 1066 MHz)—Dual Core 35 W	613585-001
Pentium Arrandale P6000 Processor (1.86 GHz, 3 MB L3 cache, 1066 MHz)—Dual Core 35 W	613586-001
Pentium Arrandale P6100 Processor (2.0 GHz, 3 MB L3 cache, 1066 MHz)—Dual Core 35 W (for model 1.1 only)	613587-001
Intel Arrandale i3–380 Processor (2.53 GHz, 3 MB L3 cache, 1066 MHz)—Dual Core 35 W (for model 1.1 only)	625823-001
Intel Arrandale i5–560 Processor (2.66–3.2 GHz, 3 MB L3 cache, 1066 MHz)—Dual Core 35 W (for model 1.1 only)	625824-001
Intel Arrandale i5–580 Processor (2.66–3.33 GHz, 3 MB L3 cache, 1066 MHz)—Dual Core 35 W (for model 1.1 only)	625825-001
Intel Pentium P6200 Processor (2.13 GHz, 3 MB L3 cache, 1066 MHz)—Dual Core 35 W (for model 1.1 only)	625831-001
Intel Core i5–460 Processor (2.53 GHz, 3 MB L3 cache, 1066 MHz)—Dual Core 35 W (for model 1.1 only)	626039-001

Before removing the processor:

1. Shut down the computer. If you are unsure whether the computer is off or in Hibernation, turn on the computer, and then shut it down through the operating system.
2. Disconnect all external devices connected to the computer.
3. Disconnect the power from the computer by first disconnecting the power cord from the AC outlet and then disconnecting the AC adapter from the computer.
4. Remove the battery (see Battery on page 41).
5. Remove the following components:
   a. Hard drive (see Hard drive on page 42)
   b. Optical drive (see Optical drive on page 45)
   c. Keyboard (see Keyboard on page 53)
   d. Top cover (see Top cover on page 56)

e. Display assembly (see Display assembly on page 68)

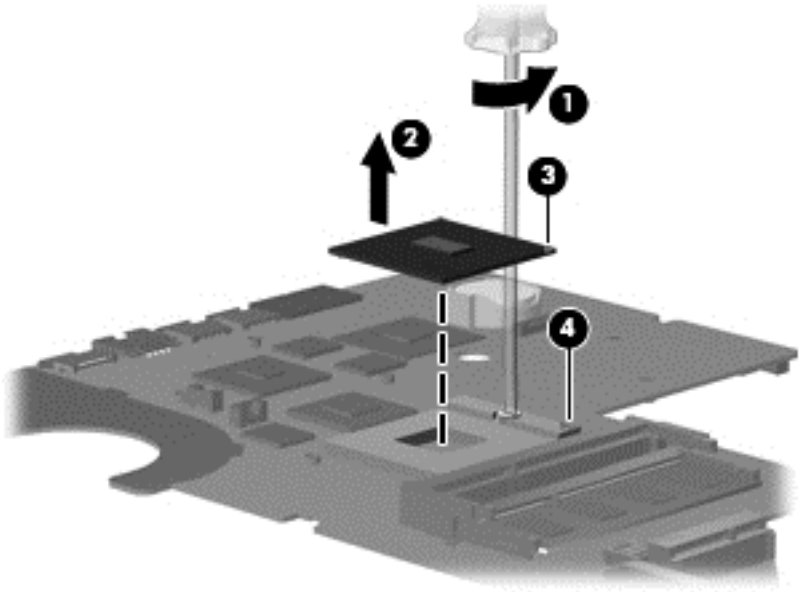
f. System board (see System board on page 74)

g. Fan/heat sink assembly (see Fan/heat sink assembly on page 77)

Remove the processor:

1. Turn the processor locking screw **(1)** one-half turn counterclockwise until you hear a click.
2. Lift the processor **(2)** straight up and remove it.

NOTE: The gold triangle **(3)** on the processor must be aligned with the triangle icon **(4)** embossed on the processor socket when you install the processor.



Reverse this procedure to install the processor.

5 Setup Utility

Computer Setup in Windows 7

To view the drives installed on the computer, select **Start > Computer**.

On models with a secondary hard drive (drive D), the optical drive becomes drive E. The next drive added to the system, such as a new USB drive, is assigned the next available drive letter.

Starting Setup Utility

Setup Utility is a ROM-based information and customization utility that can be used even when the Windows operating system is not working.

The utility reports information about the computer and provides settings for startup, security, and other preferences.

To start Setup Utility:

Open Setup Utility by turning on or restarting the computer. When the Press the ESC key for Startup Menu message displays in the lower-left corner of the screen, press the f10 key.

– or –

1. Open Setup Utility by turning on or restarting the computer. When the Press the ESC key for Startup Menu message displays in the lower-left corner of the screen, press the esc key.
2. When the Startup Menu displays, press the f10 key.

Using Setup Utility

Changing the language of Setup Utility

The following procedure explains how to change the language of Setup Utility. If Setup Utility is not already running, begin at step 1. If Setup Utility is already running, begin at step 2.

1. Open Setup Utility by turning on or restarting the computer. When the Press the ESC key for Startup Menu message displays in the lower-left corner of the screen, press the f10 key.

   – or –

   Open Setup Utility by turning on or restarting the computer. When the Press the ESC key for Startup Menu message displays in the lower-left corner of the screen, press the esc key. When the Startup Menu displays, press the f10 key.

2. Use the arrow keys to select **System Configuration > Language**, and then press the enter key.

3. Use the arrow keys to select a language, and then press enter key.
4. When a confirmation prompt with your language selected displays, press the enter key.
5. To save your change and exit Setup Utility, use the arrow keys to select **Exit > Exit Saving Changes**, and then press the enter key.

Changes goes into effect immediately.

Navigating and selecting in Setup Utility

Because Setup Utility is not Windows based, it does not support the TouchPad. Navigation and selection are by keystroke.

- To choose a menu or a menu item, use the arrow keys.
- To choose an item in a list or to toggle a field, for example an Enable/Disable field, use either the arrow keys or the f5 or f6 keys.
- To select an item, press the enter key.
- To close a text box or return to the menu display, press the esc key.
- To display additional navigation and selection information while Setup Utility is open, press the f1 key.

Displaying system information

The following procedure explains how to display system information in Setup Utility. If Setup Utility is not open, begin at step 1. If Setup Utility is open, begin at step 2.

1. Open Setup Utility by turning on or restarting the computer. When the Press the ESC key for Startup Menu message displays in the lower-left corner of the screen, press the f10 key.

   – or –

   Open Setup Utility by turning on or restarting the computer. When the Press the ESC key for Startup Menu message displays in the lower-left corner of the screen, press the esc key. When the Startup Menu displays, press the f10 key.
2. Select the **Main** menu. System information such as the system time and date, and identification information about the computer is displayed.
3. To exit Setup Utility without changing any settings, use the arrow keys to select **Exit > Exit Discarding Changes**, and then press the enter key.

Restoring default settings in Setup Utility

The following procedure explains how to restore Setup Utility default settings. If Setup Utility is not already running, begin at step 1. If Setup Utility is already running, begin at step 2.

1. Open Setup Utility by turning on or restarting the computer. When the Press the ESC key for Startup Menu message displays in the lower-left corner of the screen, press the f10 key.

   – or –

   Open Setup Utility by turning on or restarting the computer. When the Press the ESC key for Startup Menu message displays in the lower-left corner of the screen, press the esc key. When the Startup Menu displays, press the f10 key.

2. Use the arrow keys to select **Exit > Load Setup Defaults**, and then press the enter key.

3. When the Setup Confirmation appears, press the enter key.

4. To save your change and exit Setup Utility, use the arrow keys to select **Exit > Exit Saving Changes**, and then press the enter key.

Setup Utility default settings go into effect when the computer restarts.

NOTE: Password, security, and language settings are not changed when you restore the factory default settings.

Exiting Setup Utility

You can exit Setup Utility with or without saving changes.

- To exit Setup Utility and save changes from the current session:

  If the Setup Utility menus are not displayed, press the esc key to return to the menu display. Then use the arrow keys to select **Exit > Exit Saving Changes**, and then press the enter key.

- To exit Setup Utility without saving changes from the current session:

  If the Setup Utility menus are not displayed, press the esc key to return to the menu display. Then use the arrow keys to select **Exit > Exit Discarding Changes**, and then press the enter key.

After either choice, the computer restarts in Windows.

Setup Utility menus

The menu tables in this section provide an overview of Setup Utility options.

NOTE: Some of the Setup Utility menu items listed in this chapter might not be supported by the computer.

Main menu

Select	To do this
System information	• View and change the system time and date. • View identification information about the computer. • View specification information about the processor, memory size, system BIOS, and keyboard controller version (select models only).

Security menu

Select	To do this
Administrator password	Enter, change, or delete an administrator password.
Power-On password	Enter, change, or delete a power-on password.

System Configuration menu

Select	To do this
Language Support	Change the language of Setup Utility.
Button Sound (select models only)	Enable/disable the capacitive button tapping sound.
Virtualization Technology (select models only)	Enable/disable the processor Virtualization Technology.
Processor C6 State (select models only)	Enable/disable the processor C6 sleep state.
LAN Power Saving (select models only)	Enable/disable LAN Power Saving. When enabled, saves power when the computer is in DC mode.
Card Reader/1394 Power Saving (select models only)	Enable/disable Card Reader/1394 Power Saving.
Fan Always On	Enabled/disable Fan Always On. When enabled, the computer fan will always be on.
Action Keys Mode	Enable/disable Action Keys Mode.
Boot Options	Set the following boot options: • POST hotkey delay (sec.)—Set the delay for the f1, f2, f9, f10, f11, and f12 functions of Setup Utility in intervals of 5 seconds each (0, 5, 10, 15, 20). • CD-ROM Boot—Enable/disable boot from CD-ROM. • Floppy Boot—Enable/disable boot from diskette. • Internal Network Adapter Boot—Enable/disable boot from the internal network adapter. • Boot Order—Set the boot order for: ◦ Notebook Hard Drive ◦ Internal CD/DVD ROM Drive ◦ USB Diskette on Key/USB Hard Disk ◦ USB CD/DVD ROM Drive ◦ USB Floppy ◦ Network Adapter

Diagnostics menu

Select	To do this
Hard Disk Self Test	Run a comprehensive self-test on the hard drive. **NOTE:** On models with two hard drives, this menu option is called the **Primary Hard Disk Self Test**.
Secondary Hard Disk Self Test (select models only)	Run a comprehensive self-test on a secondary hard drive.
Memory Test	Run a diagnostic test on the system memory.

Computer Setup in Linux

Starting 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.

NOTE: Some of the Computer Setup menu items listed in this guide might not be supported by the computer.

NOTE: Pointing devices are not supported in Computer Setup. Use the keyboard to navigate and make selections.

NOTE: An external keyboard connected by USB can be used with Computer Setup only if USB legacy support is enabled.

To start Computer Setup:

1. Turn on or restart the computer.
2. Before the operating system opens and when the F10=ROM Based Setup message displays in the lower-left corner of the screen, press the f10 key.

Using Computer Setup

Navigating and selecting in Computer Setup

The information and settings in Computer Setup are accessed from the File, Security, Diagnostics, and System Configuration menus.

1. Open Computer Setup by turning on or restarting the computer, and then pressing the f10 key when the F10 = ROM Based Setup message appears in the lower-left corner of the screen.

   Because Computer Setup is not operating system based, it does not support the TouchPad. Navigation and selection are by keystroke:

   - To choose a menu or a menu item, use the arrow keys.
   - To select an item, press the enter key.
   - To close open dialog boxes and return to the main Computer Setup screen, press the esc key.
   - To view navigation information, press the f1 key.
   - To change the language, press the f2 key.
2. Select the **File, Security, Diagnostics,** or **System Configuration** menu.
3. To exit Computer Setup, choose one of the following methods:

   - To exit Computer Setup without saving your preferences, use the arrow keys to select **File > Ignore Changes And Exit**. Then follow the instructions on the screen.
   - To save your preferences and exit Computer Setup, use the arrow keys to select **File > Save Changes And Exit**. Then follow the instructions on the screen.

Your preferences go into effect when the computer restarts.

Restoring factory settings in Computer Setup

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, and then pressing the f10 key when the F10 = ROM Based Setup message displays in the lower-left corner of the screen.
2. Use the arrow keys to select **File > Restore Defaults**, and then press the enter key.
3. When the confirmation dialog box opens, press the f10 key.
4. To save your preferences and exit Computer Setup, use the arrow keys to select **File > Save Changes And Exit**. Then follow the instructions on the screen.

Your preferences go into effect when the computer restarts.

NOTE: Your password settings and security settings are not changed when you restore the factory settings.

Computer Setup menus

The menu tables in this section provide an overview of Computer Setup options.

NOTE: Some of the Computer Setup menu items listed in this chapter might not be supported by the computer.

File menu

Select	To do this
System information	• View identification information for the computer. • View specification information for the processor, cache and memory size, and system ROM.
Restore Defaults	Replace the configuration settings in Computer Setup with the original factory settings. (Password settings and security settings are not changed when you restore the factory settings.)
Ignore Changes And Exit	Cancel any changes entered during the current session, and then exit and restart the computer.
Save Changes And Exit	Save any changes entered during the current session, and then exit and restart the computer. Changes go into effect when the computer restarts.

Security menu

NOTE: Some of the menu items listed in this section might not be supported by the computer.

Select	To do this
Setup Password	Enter, change, or delete a setup password.
Power-On Password	Enter, change, or delete a power-on password.
Password Options	• Enable/disable stringent security. • Enable/disable the password requirement on computer restart.
DriveLock Passwords	• Enable/disable DriveLock on any computer hard drive. • Enter, change, or disable DriveLock on an optional MultiBay hard drive. **NOTE:** DriveLock settings are accessible only when you enter Computer Setup by turning on (not restarting) the computer.
System IDs	Enter a user-defined computer asset tracking number and ownership tag.
Disk Sanitizer	Run Disk Sanitizer to destroy all existing data on the primary hard drive. The following options are available: • Fast: Runs the Disk Sanitizer erase cycle once. • Optimum: Runs the Disk Sanitizer erase cycle 3 times. • Custom: Allows you to select the desired number of Disk Sanitizer erase cycles from a list. **CAUTION:** If you run Disk Sanitizer, the data on the primary hard drive is destroyed permanently.

Diagnostics menu

Select	To do this
HDD Self-Test Options	Run a comprehensive self-test on any hard drive in the system or on any optional MultiBay hard drive.
Memory Check	Run a comprehensive check on system memory.

System Configuration menu

NOTE: Some of the listed System Configuration options might not be supported by the computer.

Select	To do this
Language	Change the Computer Setup language.
Boot options	• Set an f9, f10, and f12 delay when starting up. • Enable/disable CD-ROM boot. • Enable/disable floppy boot. • Enable/disable internal network adapter boot. • Enable/disable MultiBoot, which sets a boot order that can include most boot devices in the system. • Set the Express Boot Popup delay in seconds. • Set the boot order. ◦ 1st boot device—USB CD-ROM ◦ 2nd boot device—USB floppy ◦ 3rd boot device—USB SuperDisk ◦ 4th boot device—Notebook hard drive ◦ 5th boot device—USB hard disk ◦ 6th boot device—Network controller
Device Configurations	• Swap the functions of the fn key and left ctrl key. • Enable/disable USB legacy support. When enabled, USB legacy support allows the following: ◦ Use of a USB keyboard in Computer Setup even when the operating system is not running. ◦ Startup from bootable USB devices, including a hard drive, diskette drive, or optical drive connected by a USB port to the computer. • Enable/disable BIOS DMA data transfers. • Enable/disable fan always on while connected to an AC outlet. • Enable/disable data execution prevention. • Enable/disable LAN power saving mode. • Enable/disable SATA Native Mode. • Enable/disable Dual Core CPU. • Enable/disable HDD translation mode.

Select	To do this
Built-in device options	• Enable/disable embedded WLAN Device Radio. • Enable/disable embedded Bluetooth Device Radio. • Enable/disable Network Interface Controller (NIC) • Enable/disable LAN/WLAN Switching. • Enable/disable Wake on LAN. • Enable/disable the integrated camera (webcam)
Port options	• Enable/disable USB port. • Enable/disable ExpressCard slot.

6 Specifications

Computer specifications

Dimensions	
Depth	**24.7 cm** (9.7 in)
Width	**37.4 cm** (14.7 in)
Height (front to rear)	**3.2 to 3.7 cm** (1.3 to 1.4 in)
Weight (lowest weight configuration)	< **2.25 kg** (5.5 lbs)
Input power	
Operating voltage	18.5 V dc @ 4.74 A – 90 W
Operating current	4.74 A
Temperature	
Operating (not writing to optical disc)	**0°C to 35°C** (32°F to 95°F)
Operating (writing to optical disc)	**5°C to 35°C** (41°F to 95°F)
Nonoperating	**-20°C to 60°C** (-4°F to 140°F)
Relative humidity	
Operating	10% to 90%
Nonoperating	5% to 95%
Maximum altitude (unpressurized)	
Operating	**-15 m to 3,048 m** (-50 ft to 10,000 ft)
Nonoperating	**-15 m to 12,192 m** (-50 ft to 40,000 ft)

NOTE: Applicable product safety standards specify thermal limits for plastic surfaces. The computer operates well within this range of temperatures.

39.6-cm (15.6-in) display specifications

Dimensions	
Height	**21.0 cm** (8.27 in)
Width	**35.9 cm** (14.1 in)
Diagonal	**39.6 cm** (15.6)
Number of colors	Up to 16.8 million
Contrast ratio	300:1 (typical)
Brightness	200 nits (typical)
Pixel resolution	
Pitch	0.259 × 0.259 mm
Format	1280 × 800; HD: 1366 × 768
Configuration	RGB vertical stripe
Backlight	LED
Character display	80 × 25
Total power consumption	4.0 W
Viewing angle	±40° horizontal, +120/-40° vertical (typical)

Hard drive specifications

	640 GB*	500 GB*	320 GB*	250 GB*	160 GB*
Dimensions					
Height	9.5 mm	9.5 mm	9.5 mm	9.5 mm	9.5 mm
Width	70 mm	70 mm	70 mm	70 mm	70 mm
Weight	101 g	101 g	101 g	101 g	101 g
Interface type	SATA	SATA	SATA	SATA	SATA
Transfer rate	106 MB/sec	100 MB/sec	100 MB/sec	100 MB/sec	100 MB/sec
Security	ATA security	ATA security	ATA security	ATA security	ATA security
Seek times (typical read, including setting)					
Single track	1.0 ms	1.0 ms	1.5 ms	2.0 ms	1.5 ms
Average	14.0 ms	14.0 ms	12.0 ms	12.0 ms	11.0 ms
Maximum	24.0 ms	22.0 ms	22.0 ms	22.0 ms	22.0 ms
Logical blocks	1,250,263,728	976,773,168	625,142,448	488,397,168	312,581,808
Disc rotational speed	5400 rpm	7200 rpm	7200 rpm	7200 rpm	7200 rpm
Operating temperature	**5°C to 55°C** (41°F to 131°F)				

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

NOTE: Certain restrictions and exclusions apply. Contact technical support for details.

DVD±RW and CD-RW SuperMulti Double-Layer Combo Drive with LightScribe specifications

Applicable disc	
Read	CD-DA, CD+(E)G, CD-MIDI, CD-TEXT, CD-ROM, CD-ROM XA, MIXED MODE CD, CD-I, CD-I Bridge (Photo-CD, Video CD), Multisession CD (Photo-CD, CD-EXTRA, Portfolio, CD-R, CD-RW), CD-R, CD-RW, DVD-ROM (DVD-5, DVD-9, DVD-10, DVD-18), DVD-R, DVD-RW, DVD+R, DVD +RW, DVD-RAM
Write	CD-R and CD-RW, DVD+R, DVD+RW, DVD-R, DVD-RW, DVD-RAM
Random access time	
DVD	< 230 ms
CD	< 175 ms
Cache buffer	2 MB
Data transfer rate	
24X CD-ROM	3,600 KB/sec
8X DVD-ROM	10,800 KB/sec
24X CD-R	3,600 KB/sec
16X CD-RW	2,400 KB/sec
8X DVD+R	10,800 KB/sec
4X DVD+RW	5,400 KB/sec
8X DVD-R	10,800 KB/sec
4X DVD-RW	5,400 KB/sec
2.4X DVD+R(9)	2,700 KB/sec
5X DVD-RAM	6,750 KB/sec
Transfer mode	Multiword DMA Mode

Blu-ray ROM with LightScribe DVD±R/RW SuperMulti Double-Layer Drive specifications

Applicable disc	
Read	BD-ROM, BD-ROM-DL, BD-R, BD-R-DL, BD-RE, BD-RE-DL, DVD-ROM, DVD+R, DVD+R-DL, DVD+RW, DVD-R, DVD-R-DL, DVD-RW, DVD-RAM (Ver.2), CD-DA, CD-ROM (mode 1 and mode 2), CD-ROM XA (mode 2, form 1 and form 2), Photo CD (single and multiple sessions), CD Extra, CD-R, CD-RW, and CD-TEXT
Write	DVD-RAM (Ver.2), DVD+R, DVD-R, CD-R, and CD-ROM
Random access time	
BD	< 230 ms
DVD	< 180 ms
CD	< 180 ms
Cache buffer	4.5 MB
Data transfer rate	
24X CD-ROM	3,600 KB/sec
8X DVD-ROM	10,800 KB/sec
4X BD	18,000 KB/sec
24X CD-R	3,600 KB/sec
16X CD-RW	2,400 KB/sec
8X DVD+R	10,800 KB/sec
4X DVD+RW	5,400 KB/sec
8X DVD-R	10,800 KB/sec
4X DVD-RW	5,400 KB/sec
2.4X DVD+R(9)	2,700 KB/sec
5X DVD-RAM	6,750 KB/sec
1X BD-ROM	4,500 KB/sec
1X BD-R read	4,500 KB/sec
1X BD-RE read	4,500 KB/sec
Transfer mode	Multiword DMA Mode

System resource specifications

Use Device Manager to get a graphical view of the system resources that control how the devices work on the computer. System resources accessible Device Manager are direct memory access (DMA) channels, input/output (I/O) ports, interrupt request (IRQ) lines, and memory addresses.

If two devices require the same resource and create a device conflict, manually change the resource settings in Device Manager to be sure each setting is unique.

△ **CAUTION:** Improperly changing resource settings can disable the hardware and cause the computer to malfunction or become inoperable. Only users who have expert knowledge of computer hardware and hardware configurations should change resource settings.

To view resource settings in Windows 7 and Windows Vista:

1. Select **Start > Computer**.
2. Click **System properties** near the top of the Computer folder.
3. On the left, click **Device Manager**.
4. On the **View** menu, click one of the following:
   - **Resources by type**
   - **Resources by connection**

To view resource settings in Windows XP:

1. Select **Start > My Computer**, or double-click **My Computer** on the desktop.
2. Under System Tasks, click **View system information**.
3. In the System Properties window, select the **Hardware** tab.
4. Click **Device Manager**.
5. On the **View** menu, click one of the following:
   - **Resources by type**
   - **Resources by connection**

7 Backup and recovery

Recovery after a system failure is as complete as your most current backup. HP recommends creating recovery discs immediately after software setup. As you add new software and data files, continue to back up your system on a regular basis to maintain a reasonably current backup.

Tools provided by the operating system and HP Recovery Manager software are designed to help you with the following tasks for safeguarding your information and restoring it in case of a system failure:

- Creating a set of recovery discs (Recovery Manager software feature). Recovery discs are used to start up (boot) the computer and restore the operating system and software programs to factory settings in case of system failure or instability.
- Backing up your information regularly to protect your important system files.
- Creating system restore points (operating system feature). System restore points allow you to reverse undesirable changes to your computer by restoring the computer to an earlier state.
- Recovering a program or driver (Recovery Manager software feature). This feature helps you reinstall a program or driver without performing a full system recovery.
- Performing a full system recovery (Recovery Manager software feature). With Recovery Manager, you can recover the full factory image if you experience system failure or instability. Recovery Manager works from a dedicated recovery partition (select models only) on the hard drive or from recovery discs you create.

NOTE: Computers with a solid-state drive (SSD) might not have a recovery partition. Recovery discs have been included for computers that do not have a partition. Use these discs to recover the operating system and software. To check for the presence of a recovery partition, select **Start >**right-click **Computer >** click **Manage >** click **Disk Management**. If the partition is present, an HP Recovery drive is listed in the window.

Windows 7

To protect your information, back up your files and folders. In case of system failure, use the backup files to restore the computer.

△ **CAUTION:** In the event of a hard drive failure, you cannot use the computer to access the Disaster Recovery utility. Therefore, HP recommends downloading the Disaster Recovery utility SoftPaq, and then extract it to a USB flash drive as soon as possible after software setup. For details, see "Downloading and extracting the Disaster Recovery utility" later in this section.

Depending on the computer model, you might have one of the following backup and recovery solutions:

- Roxio BackOnTrack
- HP Recovery Manager

NOTE: For detailed information, perform a search for these topics in Help and Support.

Creating recovery discs

HP recommends creating recovery discs to be sure that you can restore your system to its original factory state if you experience serious system failure or instability. Create these discs after setting up the computer for the first time.

Handle these discs carefully and keep them in a safe place. The software allows the creation of only one set of recovery discs.

NOTE: Use an optional external optical drive (purchased separately) to create recovery discs, or purchase recovery discs for the computer from the HP Web site.

Note the following guidelines before creating recovery discs:

NOTE: The external hard drive must be connected to a USB port on the computer, not to a USB port on an external device such as a hub.

- Use high-quality DVD-R, DVD+R, BD-R (writable Blu-ray), or CD-R discs. All these discs are purchased separately. DVDs and BDs have a much higher capacity than CDs. If you use CDs, up to 20 discs might be required, whereas only a few DVDs or BDs are required.

  NOTE: Read-write discs, such as CD-RW, DVD±RW, double-layer DVD±RW, and BD-RE (rewritable Blu-ray) discs, are not compatible with the Recovery Manager software.

- The computer must be connected to AC power during this process.
- Only one set of recovery discs can be created per computer.
- Number each disc before inserting it into the optical drive.
- If necessary, exit the program before you have finished creating the recovery discs. The next time you open Recovery Manager, you are prompted to continue the disc creation process.

To create a set of recovery discs:

1. Select **Start > All Programs > Recovery Manager > Recovery Disk Creation**.
2. Follow the on-screen instructions.

Backing up your information

As you add new software and data files, back up the system on a regular basis to maintain a reasonably current backup. Back up your system at the following times:

- At regularly scheduled times

NOTE: Set reminders to back up your information periodically.

- Before the computer is repaired or restored
- Before you add or modify hardware or software

Note the following when backing up:

- Create system restore points using the Windows System Restore feature, and periodically copy them to disc.
- Store personal files in the Documents library and back up this folder periodically.
- Back up templates stored in their associated programs.
- Save customized settings in a window, toolbar, or menu bar by taking a screen shot of your settings. The screen shot can be a time-saver if you have to reset your preferences.

  To copy the screen and paste it into a word-processing document steps:

  1. Display the screen.
  2. Copy the screen:

     To copy only the active window, press alt+prt sc.

     To copy the entire screen, press prt sc.
  3. Open a word-processing document, and then select **Edit > Paste**.
  4. Save the document.
- Back up the information to an optional external hard drive, a network drive, or discs.
- When backing up to discs, use any of the following types of discs (purchased separately): CD-R, CD-RW, DVD+R, DVD-R, or DVD±RW. The discs you use will depend on the type of optical drive installed in the computer.

NOTE: DVDs store more information than CDs, so using them for backup reduces the number of recovery discs required.

- When backing up to discs, number each disc before inserting it into the optical drive of the computer.

Using Windows Backup and Restore

To create a backup using Windows Backup and Restore:

NOTE: Be sure that the computer is connected to AC power before starting the backup process.

NOTE: The backup process might take over an hour, depending on file size and the speed of the computer.

1. Select **Start > All Programs > Maintenance > Backup and Restore**.
2. Follow the on-screen instructions to set up and create a backup.

NOTE: Windows includes the User Account Control feature to improve the security of the computer. You may be prompted for your permission or password for tasks such as installing software, running utilities, or changing Windows settings. See Help and Support for more information.

Using system restore points

When backing up the system, you are creating a system restore point. A system restore point allows you to save and name a snapshot of your hard drive at a specific point in time. You can then recover back to that point if you want to reverse subsequent changes made to the system.

NOTE: Recovering to an earlier restore point does not affect data files saved or e-mails created since the last restore point.

You also can create additional restore points to provide increased protection for the system files and settings.

When to create restore points

- Before you add or extensively modify software or hardware
- Periodically, whenever the system is performing optimally

NOTE: If you revert to a restore point and then change your mind, you can reverse the restoration.

Create a system restore point

1. Select **Start > Control Panel > System and Security > System**.
2. In the left pane, click **System Protection**.
3. Click the **System Protection** tab.
4. Under **Protection Settings**, select the disk for which you want to create a restore point.
5. Click **Create**.
6. Follow the on-screen instructions.

Restore to a previous date and time

To revert to a restore point (created at a previous date and time), when the computer was functioning optimally, follow these steps:

1. Select **Start > Control Panel > System and Security > System**.
2. In the left pane, click **System protection**.
3. Click the **System Protection** tab.
4. Click **System Restore**.
5. Follow the on-screen instructions.

Performing a recovery

NOTE: You can recover only files that you have previously backed up. HP recommends using Recovery Manager to create an entire drive backup as soon as you set up the computer.

Recovery Manager software allows you to repair or restore the system if you experience system failure or instability. Recovery Manager works from recovery discs or from a dedicated recovery partition (select models only) on the hard drive. However, if the computer includes a solid-state drive

(SSD), you might not have a recovery partition. If that is the case, recovery discs are included with the computer. Use these discs to recover the operating system and software.

NOTE: Windows has its own built-in repair features, such as System Restore and driver roll-back capabilities. Try these features before using Recovery Manager.

NOTE: Recovery Manager recovers only software that was preinstalled at the factory. Software not provided with this computer must be downloaded from the manufacturer's Website or reinstalled from the disc provided by the manufacturer.

Recovering from the recovery discs

To restore the system from the recovery discs:

1. Back up all personal files.
2. Insert the first recovery disc into the optical drive and restart the computer.
3. Follow the on-screen instructions.

Recovering from the dedicated recovery partition (select models only)

NOTE: If the computer includes an SSD, you might not have a recovery partition. You cannot recover using this procedure. Recovery discs are included for computers that do not have a partition. Use these discs to recover the operating system and software.

On some models, you can perform a recovery from the partition on the hard drive, accessed by pressing either the Start button or f11. This restores the computer to its factory condition.

To restore the system from the partition, follow these steps:

1. Access Recovery Manager in either of the following ways:
   - Select **Start > All Programs > Recovery Manager > Recovery Manager**.

     – or –

   - Turn on or restart the computer, and then press esc while the “Press the ESC key for Startup Menu” message is displayed at the bottom of the screen. Then, press f11 while the “Press <F11> for recovery” message appears
2. Click **System Recovery** in the **Recovery Manager** window.
3. Follow the on-screen instructions.

Linux backup and recovery

Use the instructions in this section if SUSE Linux SLED 11 is installed on the computer.

To protect your information, back up your files and folders. Then if the system fails, restore your important files from copies. Use the options listed in this section to restore the operating system and programs that were installed at the factory.

△ **CAUTION:** Using f11 completely erases hard drive contents and reformats the hard drive. All files created and any software installed on the computer are permanently removed. The f11 recovery tool reinstalls the original operating system and HP programs and drivers that were installed at the factory. Software, drivers, and updates not installed by HP must be manually reinstalled. Personal files must be restored from a backup.

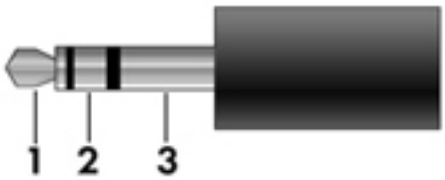
To recover the original hard drive image using f11:

1. If possible, back up all personal files.
2. Restart the computer, and then press f11 while the “Press <F11> for recovery” message appears on the screen.
3. Follow the on-screen instructions.

NOTE: If you are unable to boot (start up) the computer from the primary operating system or from the recovery f11 method, purchase a *SUSE Linux Enterprise Desktop Operating System* DVD to repair the operating system. For additional information, see the *Worldwide Telephone Numbers* booklet, included with the computer.

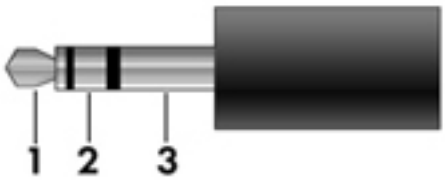
8 Connector pin assignments

Audio-out (headphone)



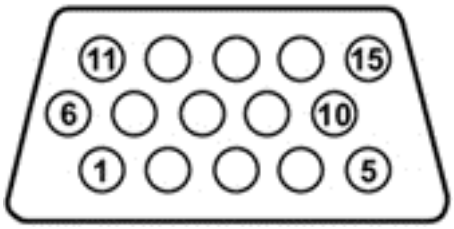
Pin	Signal
1	Audio out, left channel
2	Audio out, right channel
3	Ground

Audio-in (microphone)



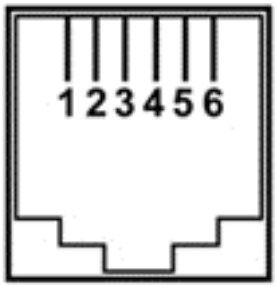
Pin	Signal
1	Audio signal in
2	Audio signal in
3	Ground

External monitor



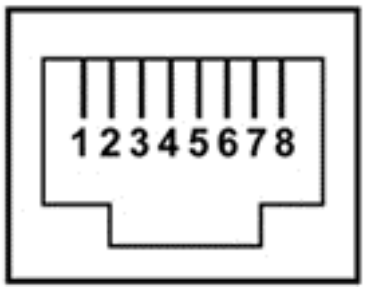
Pin	Signal
1	Red analog
2	Green analog
3	Blue analog
4	Not connected
5	Ground
6	Ground analog
7	Ground analog
8	Ground analog
9	+5 VDC
10	Ground
11	Monitor detect
12	DDC 2B data
13	Horizontal sync
14	Vertical sync
15	DDC 2B clock

RJ-11 (modem)



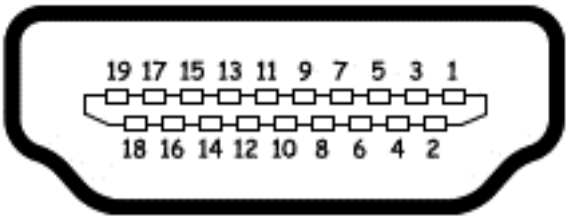
Pin	Signal
1	Unused
2	Tip
3	Ring
4	Unused
5	Unused
6	Unused

RJ-45 (network)



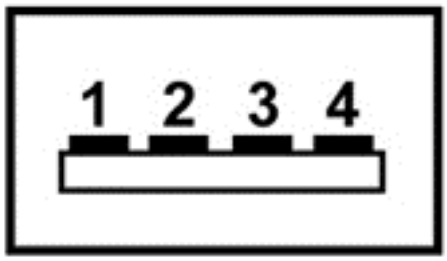
Pin	Signal
1	Transmit +
2	Transmit -
3	Receive +
4	Unused
5	Unused
6	Receive -
7	Unused
8	Unused

HDMI



Pin	Signal
1	TMDS data 2+
2	TMDS data 2 shield
3	TMDS data 2–
4	TMDS data 1+
5	TMDS data 1shield
6	TMDS data 1–
7	TMDS data 0+
8	TMDS data 0 shield
9	TMDS data 0–
10	TMDS clock+
11	TMDS clock shield
12	TMDS clock–
13	CEC
14	No connect
15	DDC clock
16	DDC data
17	Ground
18	+5V power
19	Hot plug detect
20	Shell

Universal Serial Bus



Pin	Signal
1	+5 VDC
2	Data -
3	Data +
4	Ground

9 Power cord set requirements

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

The 3-conductor power cord set included with the computer meets the requirements for use in the country or region where the equipment is purchased.

Power cord sets for use in other countries or regions must meet the requirements of the country or region where the computer is used.

Requirements for all countries or regions

The requirements listed below are applicable to all countries or regions:

- The length of the power cord set must be at least **1.5 m** (5.0 ft) and no more than **2.0 m** (6.5 ft).
- All power cord sets must be approved by an acceptable accredited agency responsible for evaluation in the country or region 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 or region'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.

Requirements for specific countries or regions

Country/region	Accredited agency	Applicable note number
Australia	EANSW	1
Austria	OVE	1
Belgium	CEBC	1
Canada	CSA	2
Denmark	DEMKO	1
Finland	FIMKO	1
France	UTE	1
Germany	VDE	1
Italy	IMQ	1
Japan	METI	3
The Netherlands	KEMA	1
Norway	NEMKO	1
The People's Republic of China	CCC	5
South Korea	EK	4
Sweden	SEMKO	1
Switzerland	SEV	1
Taiwan	BSMI	4
The United Kingdom	BSI	1
The United States	UL	2

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 or region 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 or region 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 or region where it will be used.

10 Recycling

Battery

When a battery has reached the end of its useful life, do not dispose of the battery in general household waste. Follow the local laws and regulations in your area for computer battery disposal.

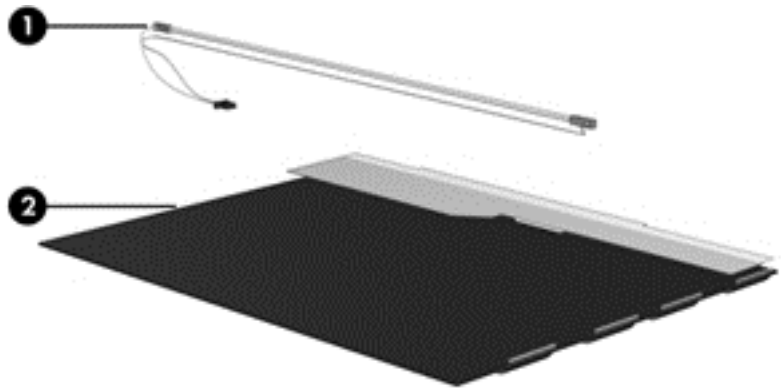
Display

⚠ **WARNING!** The backlight contains mercury. Exercise caution when removing and handling the backlight to avoid damaging this component and causing exposure to the mercury.

⚠ **CAUTION:** The procedures in this chapter can result in damage to display components. The only components intended for recycling purposes are the liquid crystal display (LCD) panel and the backlight. When you remove these components, handle them carefully.

NOTE: **Materials Disposal**. This HP product contains mercury in the backlight in the display assembly that might require special handling at end-of-life. Disposal of mercury might be regulated because of environmental considerations. For disposal or recycling information, contact your local authorities, or see the Electronic Industries Alliance (EIA) Web site at http://www.eiae.org.

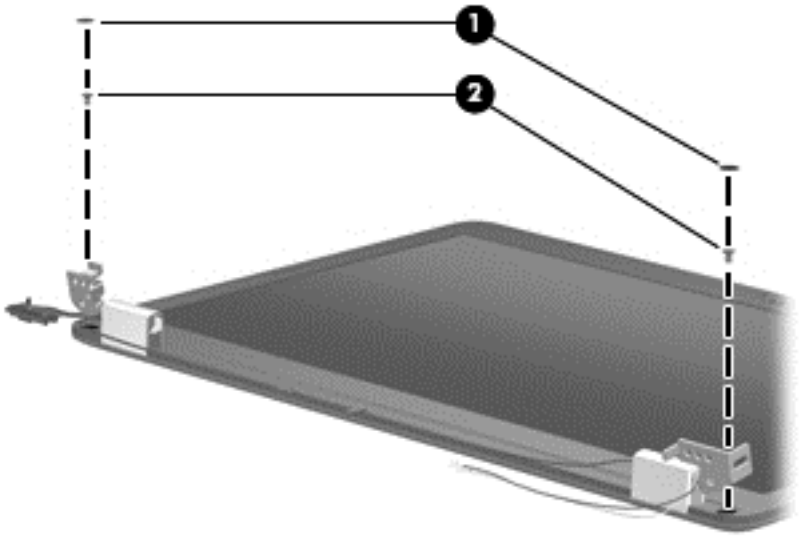
This section provides disassembly instructions for the display assembly. The display assembly must be disassembled to gain access to the backlight **(1)** and the liquid crystal display (LCD) panel **(2)**.



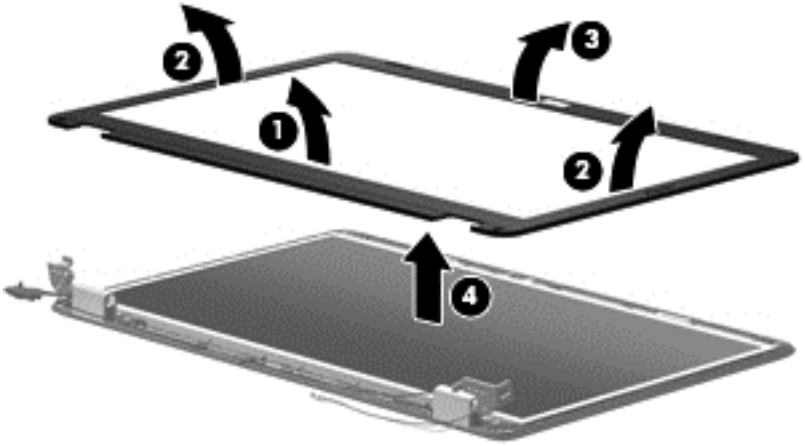
NOTE: The procedures provided in this chapter are general disassembly instructions. Specific details, such as screw sizes, quantities, and locations, and component shapes and sizes, can vary from one computer model to another.

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.

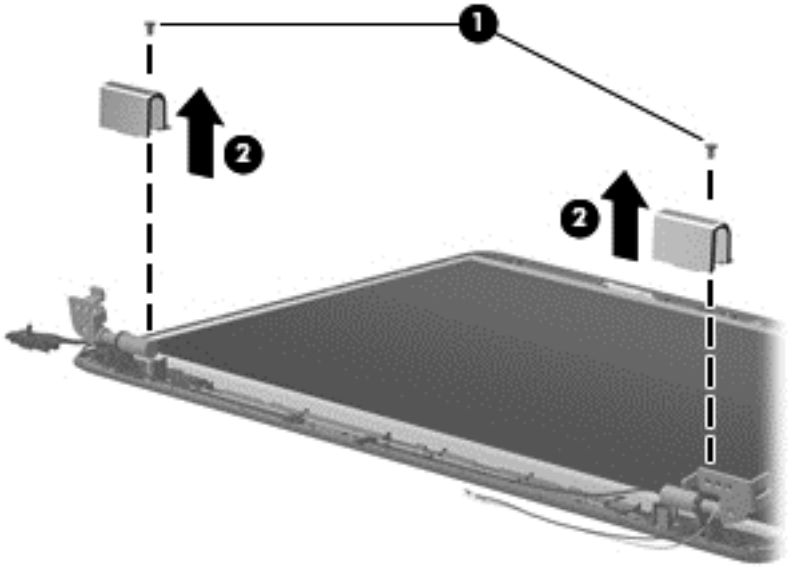


2. Lift up and out on the left and right inside edges **(1)** and the top and bottom inside edges **(2)** of the display bezel until the bezel disengages from the display assembly.

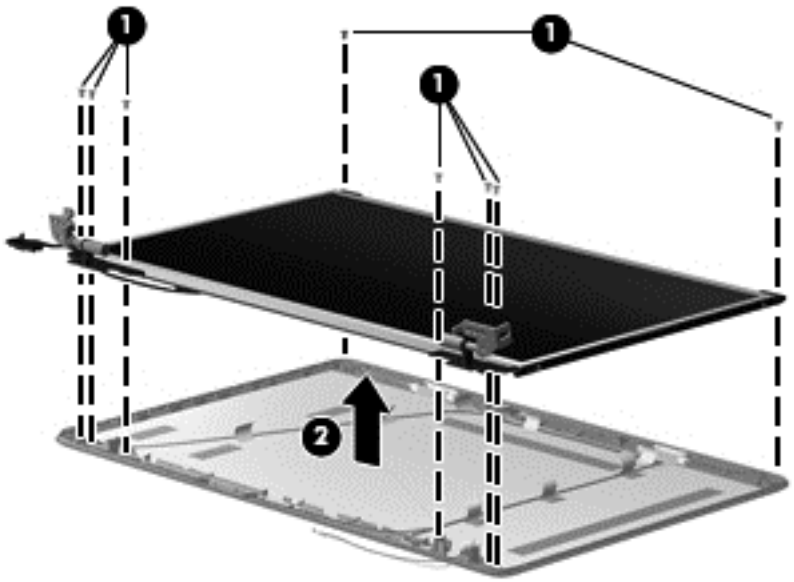


3. Remove the display bezel **(3)**.

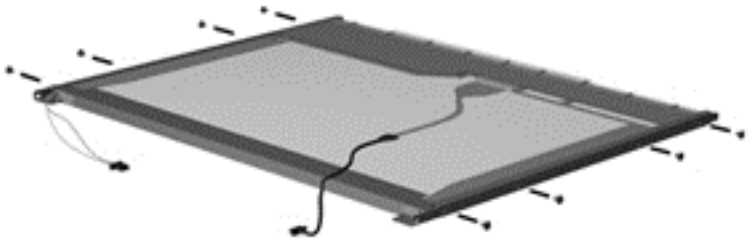
4. Remove the two screws **(1)** that secure each hinge to the display enclosure and lift up to remove the display hinge covers **(2)**.



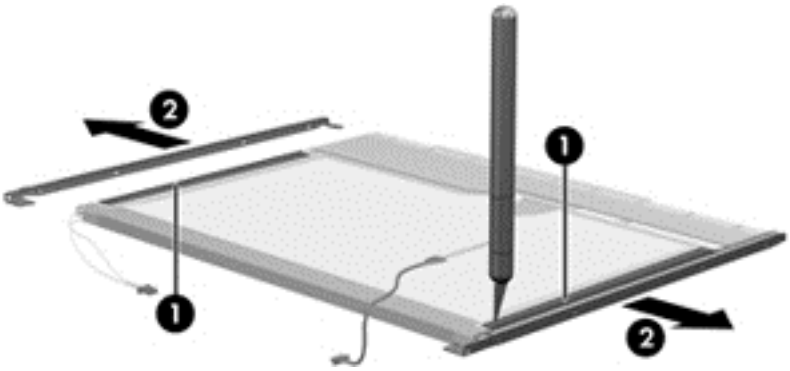
5. Remove all screws **(1)** that secure the display panel assembly to the display enclosure.
6. Remove the display panel assembly **(2)** from the display enclosure.



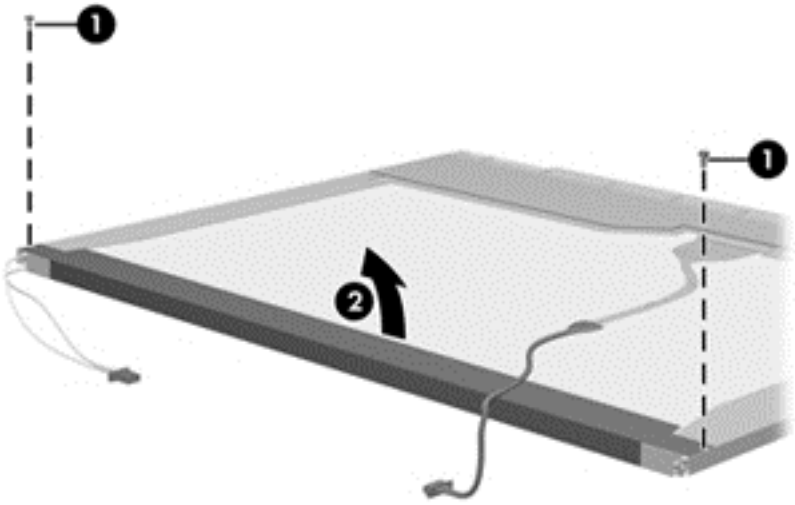
7. Turn the display panel assembly upside down and remove all screws that secure the display panel frame to the display panel.



8. Use a sharp-edged tool to cut the tape **(1)** that secures the sides of the display panel to the display panel frame.
9. Remove the display panel frame **(2)** from the display panel.

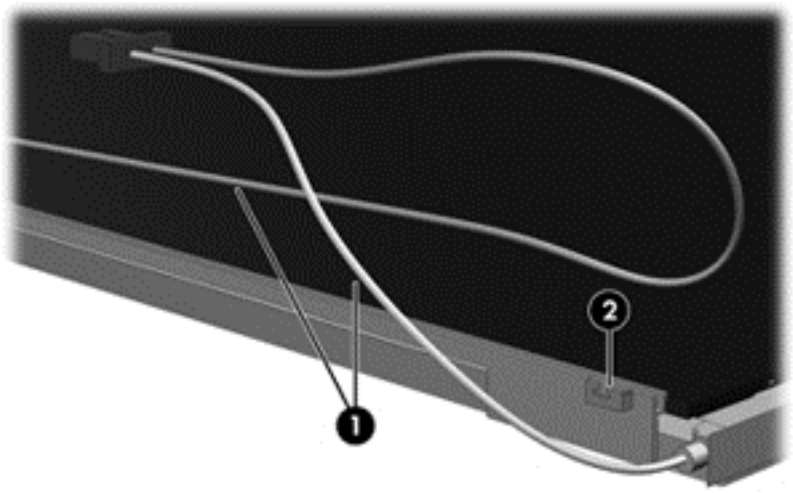


10. Remove the screws **(1)** that secure the backlight cover to the display panel.
11. Lift the top edge of the backlight cover **(2)** and swing it outward.



12. Remove the backlight cover.
13. Turn the display panel right-side up.

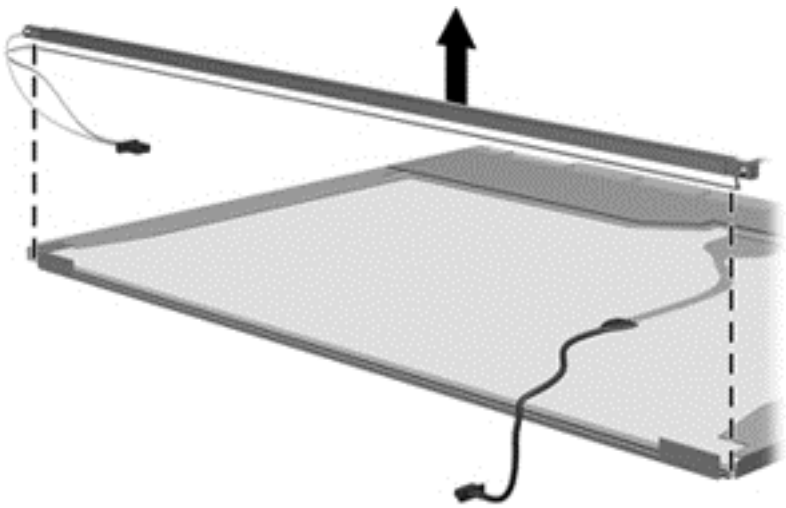
14. Remove the backlight cables **(1)** from the clip **(2)** in the display panel.



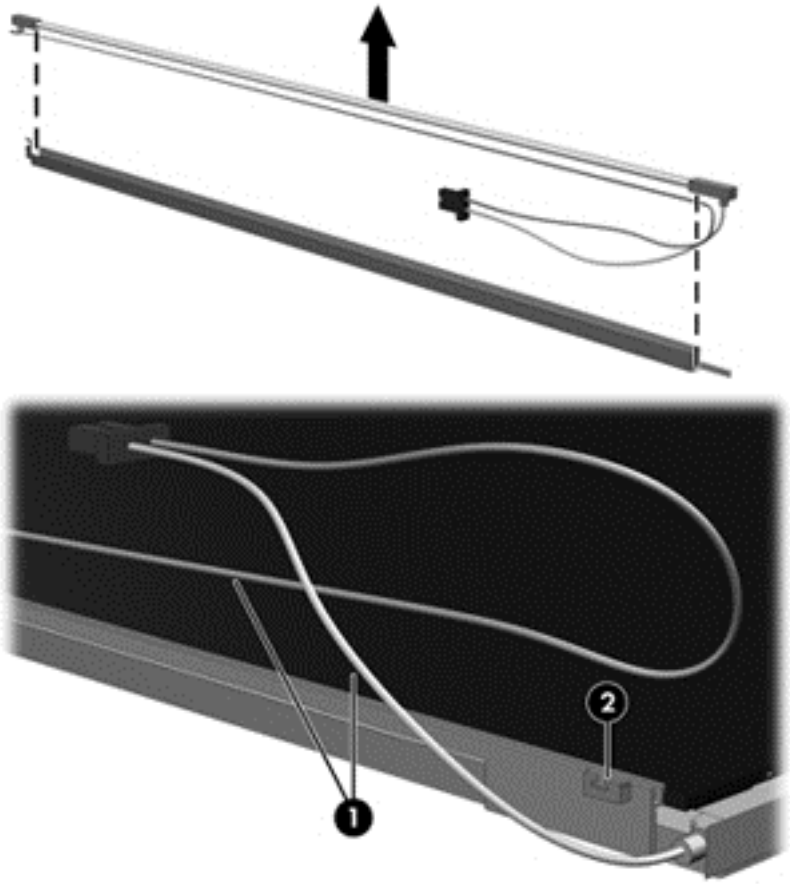
15. Turn the display panel upside down.

16. Remove the backlight frame from the display panel.

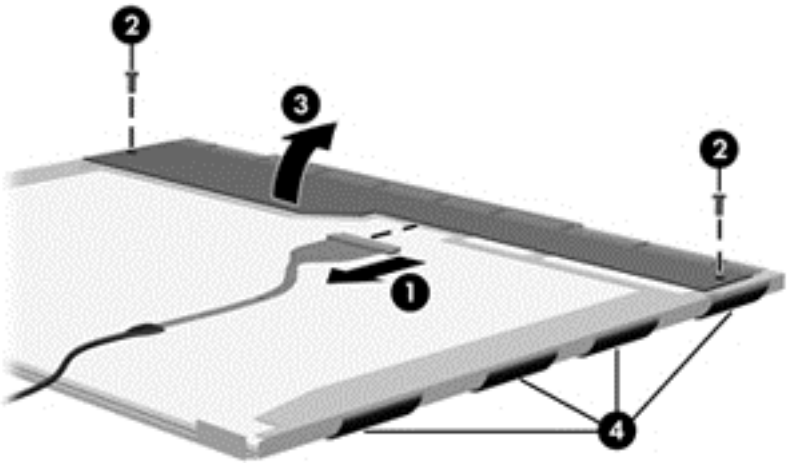
⚠ **WARNING!** The backlight contains mercury. Exercise caution when removing and handling the backlight to avoid damaging this component and causing exposure to the mercury.



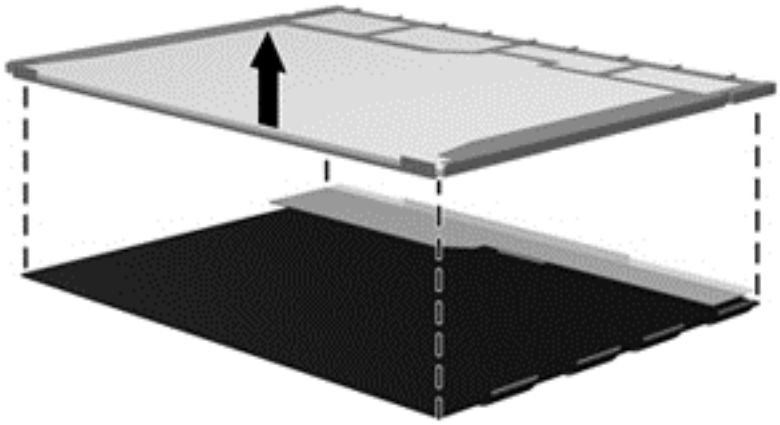
17. Remove the backlight from the backlight frame.



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



22. Remove the LCD panel.



23. Recycle the LCD panel and backlight.

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