



# HP Pavilion dv6 Entertainment PC

## Maintenance and Service Guide

© Copyright 2011 Hewlett-Packard  
Development Company, L.P.

ATI Mobility Radeon is a registered trademark of Advanced Micro Devices, Inc. Bluetooth is a trademark owned by its proprietor and used by Hewlett-Packard Company under license. Intel and Core are trademarks of Intel Corporation in the U.S. and other countries. Microsoft and Windows are U.S. registered trademarks of Microsoft Corporation. SD Logo is a trademark of its proprietor.

The information contained herein is subject to change without notice. The only warranties for HP products and services are set forth in the express warranty statements accompanying such products and services. Nothing herein should be construed as constituting an additional warranty. HP shall not be liable for technical or editorial errors or omissions contained herein.

First Edition: January 2011

Document Part Number: 634586-001

## 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).

---



---

# Table of contents

<b>1 Product description .....</b>	<b>1</b>
<b>2 External component identification .....</b>	<b>5</b>
Top components .....	5
TouchPad .....	5
TouchPad buttons .....	6
Lights .....	7
Buttons and Fingerprint Reader (select models only) .....	8
Keys .....	9
Front components .....	10
Right-side components .....	10
Left-side components .....	11
Bottom components .....	12
Display components .....	13
Wireless antennas .....	14
<b>3 Illustrated parts catalog .....</b>	<b>15</b>
Service tag .....	15
Computer major components .....	17
Display assembly components .....	21
TouchScreen display assembly spare parts .....	21
BrightView display assembly spare parts .....	23
Mass storage devices .....	25
Plastics Kit .....	26
Miscellaneous parts .....	27
Sequential part number listing .....	27
<b>4 Removal and replacement procedures .....</b>	<b>33</b>
Preliminary replacement requirements .....	33
Tools required .....	33
Service considerations .....	33

Plastic parts .....	33
Cables and connectors .....	34
Drive handling .....	34
Grounding guidelines .....	35
Electrostatic discharge damage .....	35
Packaging and transporting guidelines .....	36
Workstation guidelines .....	36
Equipment guidelines .....	37
Component replacement procedures .....	38
Service tag .....	38
Computer feet .....	39
Battery .....	40
Hard drive cover .....	41
Hard drive .....	42
WLAN module .....	44
Memory module .....	46
RTC battery .....	48
Optical drive .....	49
Keyboard .....	50
Top cover .....	52
Power button board .....	55
Touchscreen display assembly .....	57
BrightView display assembly .....	62
Webcam/microphone module .....	67
Bluetooth module .....	68
USB board .....	70
Power connector .....	72
System board .....	74
Fan/heat sink assembly .....	77
Processor .....	80
Speaker assembly .....	82
<b>5 Setup Utility (BIOS) .....</b>	<b>84</b>
Starting Setup Utility .....	84
Using Setup Utility .....	84
Changing the language of Setup Utility .....	84
Navigating and selecting in Setup Utility .....	85
Displaying system information .....	85
Restoring default settings in Setup Utility .....	86
Exiting Setup Utility .....	86
Setup Utility menus .....	87

Main menu .....	87
Security menu .....	87
System Configuration menu .....	87
Diagnostics menu .....	88
<b>6 Specifications .....</b>	<b>89</b>
Computer specifications .....	89
39.6-cm (15.6-inch) display specifications .....	90
Hard drive specifications .....	91
LightScribe DVD±R/RW SuperMulti DL Drive specifications .....	92
Blu-ray ROM with LightScribe DVD±R/RW SuperMulti DL Drive specifications .....	93
System DMA specifications .....	94
UMA system interrupt specifications .....	95
Discrete system interrupt specifications .....	96
Switchable graphics system interrupt specifications .....	97
Switchable graphics system I/O address specifications .....	98
UMA system I/O address specifications .....	101
Discrete system I/O address specifications .....	103
System memory map specifications .....	106
<b>7 Backup and Recovery .....</b>	<b>107</b>
Recovering system information .....	107
Creating recovery discs .....	108
Backing up your information .....	109
When to back up .....	109
Backup suggestions .....	109
Using system restore points .....	109
When to create restore points .....	110
Create a system restore point .....	110
Restore to a previous date and time .....	110
Performing a recovery .....	111
Recovering from the recovery discs .....	111
Recovering from the dedicated recovery partition (select models only) .....	111
<b>8 Connector pin assignments .....</b>	<b>113</b>
Audio-in (microphone) .....	113
Audio-out (headphone) .....	113
External monitor .....	114
HDMI .....	115
RJ-11 (modem) .....	116

Universal Serial Bus .....	116
<b>9 Power cord set requirements .....</b>	<b>117</b>
Requirements for all countries or regions .....	117
Requirements for specific countries or regions .....	118
<b>10 Recycling .....</b>	<b>119</b>
Battery .....	119
Display .....	119
<b>Index .....</b>	<b>123</b>

# 1 Product description

Category	Description
<b>Product Name</b>	HP Pavilion dv6 Entertainment PC
<b>Processors</b>	<b>Intel® Core™ 2 Quad Intel Core i7 Processors</b>  Intel Core i7-2820QM 2.30-GHz processor (SC turbo up to 3.40-GHz, 1600-MHz, 8-MB L2 cache)  Intel Core i7-2720QM 2.20-GHz processor (SC turbo up to 3.30-GHz, 1600-MHz, 6-MB L2 cache)  Intel Core i7-2630QM 2.00-GHz processor (SC turbo up to 2.90-GHz, 1600-MHz, 6-MB L2 cache)
<b>Chipset</b>	Intel HM65 Express chipset
<b>Graphics</b>	<b>Intel HD Graphics 3000</b>  <b>Switchable discrete graphics</b>  ATI Mobility Radeon™ HD 6570 Radeon with 1-GB GDDR5 5-GBPS (32M×32×8)  Supports Blu-ray and/or HD-DVD playback with HD decode, DX11, and HDMI
<b>Panels</b>	39.6-cm (15.6-inch) SVA HD LED BrightView (1366×768) (5.5 mm max)  Wacom Touchscreen, Multitouch enabled  Supports lighted logo on top bezel
<b>Memory</b>	Two customer-accessible/upgradeable SODIMM slots  DDR3, 1333 MHz  Supports dual channel  <b>Supports up to 8 GB system memory in the following configurations:</b>  1024-MB total system memory (1024 MB x 1)  2048-MB total system memory (1024 MB x 2, dual-channel)  2048-MB total system memory (2048 MB x 1)  3072-MB total system memory (1024 MB x 1 + 2048 MB x 1)  4096-MB total system memory (2048 MB x 2, dual-channel)  6144-MB total system memory (2048 MB x 1 + 4096 MB x 1)

<b>Category</b>	<b>Description</b>
	8192-MB total system memory (4096 MB x 2, dual-channel)
<b>Hard drives</b>	Supports all Serial ATA (SATA) 12.7-mm, 9.5-mm, and 7.0-cm (2.5-inch) hard drives
	Supports two hard drives
	Supports solid state drives (SSD)
	Supports Accelerometer Hard Drive Protection
	<b>Single hard drive configurations:</b>
	160-GB SSD
	250 GB (7200 rpm, 9.5 mm)
	320 GB (7200 rpm, 9.5 mm)
	500 GB (7200 rpm, 9.5 mm)
	640 GB (7200 rpm, 9.5 mm)
	750 GB (5200 rpm, 12.5 mm)
	1 TB (5200 rpm, 12.5 mm)
<b>Optical drives</b>	12.7-mm tray load
	Serial ATA (SATA)
	Fixed (removal of one screw required)
	<b>Supports the following optical drives:</b>
	LightScribe DVD±R/RW SuperMulti DL Drive
	Blu-ray ROM with LightScribe DVD±R/RW SuperMulti DL Drive
<b>Webcam</b>	Low-light VGA camera
	Fixed (no tilt)
	Activity LED
	640 × 480 by 24 frames per second
<b>Microphone</b>	2 omnidirectional microphones, dual-array with appropriate software (supports beam forming, echo cancellation, and noise suppression)
<b>Audio</b>	HD Audio
	Dolby advance audio
	Integrated subwoofer
	Supports Microsoft® Premium Requirements
	Pavilion-branded Altec Lansing speakers
<b>Ethernet</b>	Integrated 10/100/1000 network interface card (NIC)
<b>Wireless</b>	<b>Integrated wireless local area network (WLAN) options by way of wireless module:</b>

<b>Category</b>	<b>Description</b>
	Intel Centrino Advanced-N + WiMax 6250 WLAN module for use in the United States
	Intel Centrino Wireless-N 1000 802.11b/g/n 1x2 WLAN module
	Ralink 5390GN 802.11b/g/n 1x1 WiFi Adapter
	Ralink 8190BC8 802.11b/g/n 1x1 WiFi and Bluetooth 3.0+HS Combo Adapter
	Ralink RT3090BC4 802.11b/g/n 1x1 WiFi and Bluetooth 2.1+EDR Combo Adapter (BT3.0+HS ready)
<b>TV tuner</b>	DVB-T TV tuner module (select models only)
	DVB-T TV tuner antenna (select models only)
	Remote control (full-function with teletext) (select models only)
<b>External media card</b>	5-in-1 Digital Media Reader
	Digital Media Slot supports Secure Digital (SD ) Memory Card, MultiMediaCard (MMC), Secure Digital High Capacity (SDHC), Memory Stick (MS), Memory Stick Pro (MSP), xD-Picture Card (XD)
	Supports mini versions with adapter (adapter not included)
<b>Internal card expansion</b>	One half-size mini-card slot for WLAN
<b>Ports</b>	VGA, 15-pin supporting 1920 x 1200 resolution at 75 Hz
	VGA, 15-pin supporting 1600 x 1200 resolution at 75 Hz
	Hot Plug/Unplug and auto detect for correct output to wide-aspect versus standard aspect video
	High-Definition Multimedia Interface (HDMI) v1.3 supporting 1080p and 1920 x 1080 at 60 Hz and 1920 x 1200 at 60 Hz DVI Mode
	eSATA port combo with fourth USB port
	USB 2.0 (three ports)
	RJ-45 Ethernet
	Headphone/line out
	Microphone input (audio-in)
	AC Smart Pin adapter plug
<b>Keyboard/pointing devices</b>	38.1-cm (15-inch) full-size keyboard
	Dura-coat, island-style
	Backlit dura-coat, island-style (select models only)
	Mylar clickpad cover
	Clickpad
	Multitouch gestures enabled as default
	Taps enabled as default

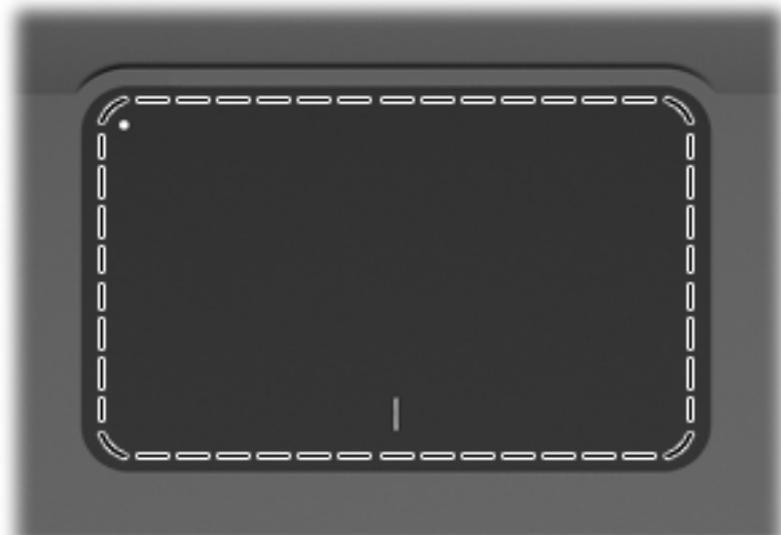
<b>Category</b>	<b>Description</b>
<b>Power requirements</b>	6-cell, 55-Wh, 2.55-Ah Li-ion battery
	6-cell, 62-Wh, 2.8-Ah Li-ion battery
	9-cell, 93-Wh, 2.8-Ah Li-ion battery
	65-W AC adapter
	90-W AC adapter
	120-W AC adapter
	65-W slim travel adapter (smart-pin)
<b>Security</b>	Kensington security lock
	Fingerprint reader with Digital Persona software support (select models only)
<b>Operating system</b>	<b>Preinstalled:</b>
	Windows® 7 Professional (32 and 64 bit)
	Windows 7 Home Premium (32 and 64 bit)
	Windows 7 Home Basic (32 and 64 bit)
	FreeDOS
<b>Serviceability</b>	AC adapter
	Battery (system)
	Hard drive
	Memory module
	Optical drive
	Mini Card components

---

## 2 External component identification

### Top components

#### TouchPad

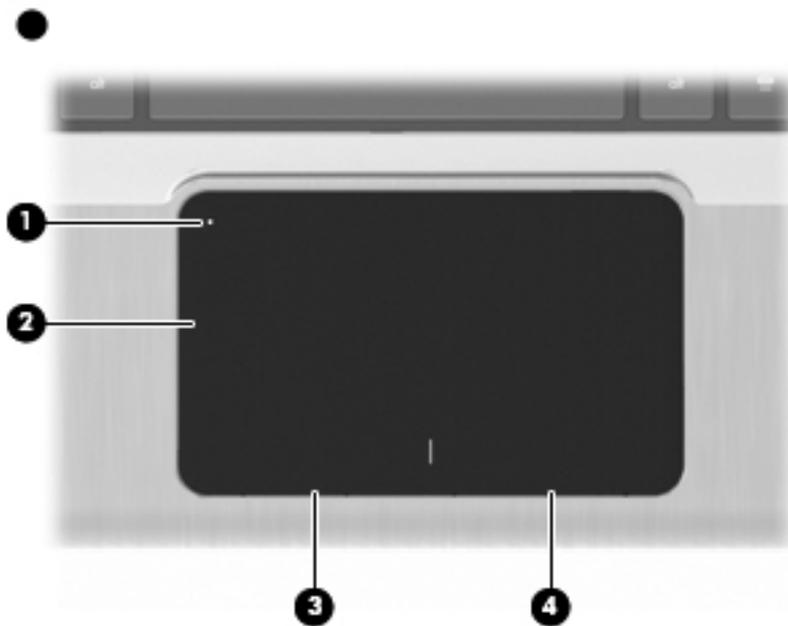


Component	Function
TouchPad	Moves the pointer and selects or activates items on the screen.

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**.

## TouchPad buttons

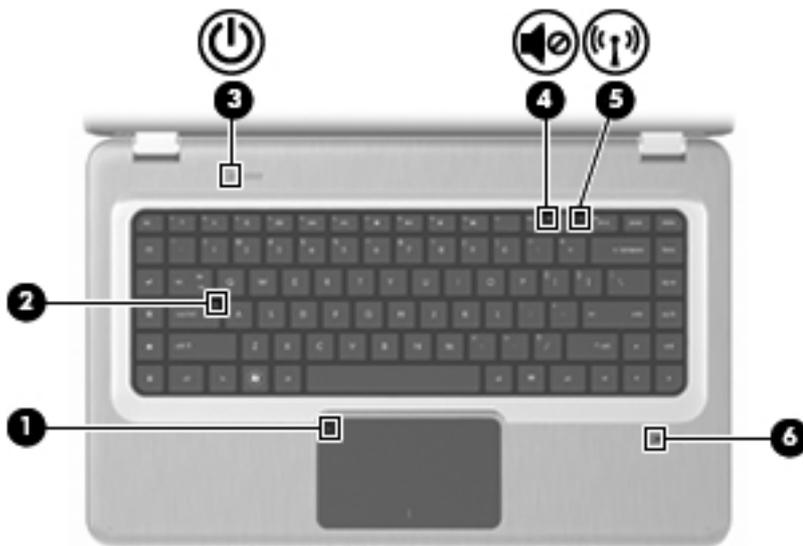


Item	Description	Function
1	TouchPad On/Off button	Turns the TouchPad on and off. Quickly double-tap to turn the TouchPad on and off.
2	Left TouchPad button	Functions like the left button on an external mouse.
3	Right TouchPad button	Functions like the right button on an external mouse.

To view or change pointing device preferences:

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

## Lights



Item	Description	Function
1	TouchPad light	Amber—The TouchPad is disabled.
2	Caps Lock light	On—The Caps Lock is on.
3	Power light	<ul style="list-style-type: none"> <li>On—The computer is on.</li> <li>Flashing—The computer is in Sleep.</li> <li>Off—The computer is off or in Hibernation.</li> </ul>
4	Volume Mute light	Amber—The computer sound is off.
5	Wireless light	<ul style="list-style-type: none"> <li>White—An integrated wireless device, such as a wireless local area network (WLAN) device and/or a Bluetooth® device, is detected.</li> <li>Amber—No wireless devices are detected.</li> </ul>
6	Fingerprint Reader light	<ul style="list-style-type: none"> <li>White—The fingerprint was read.</li> <li>Amber—The fingerprint was not read.</li> </ul>

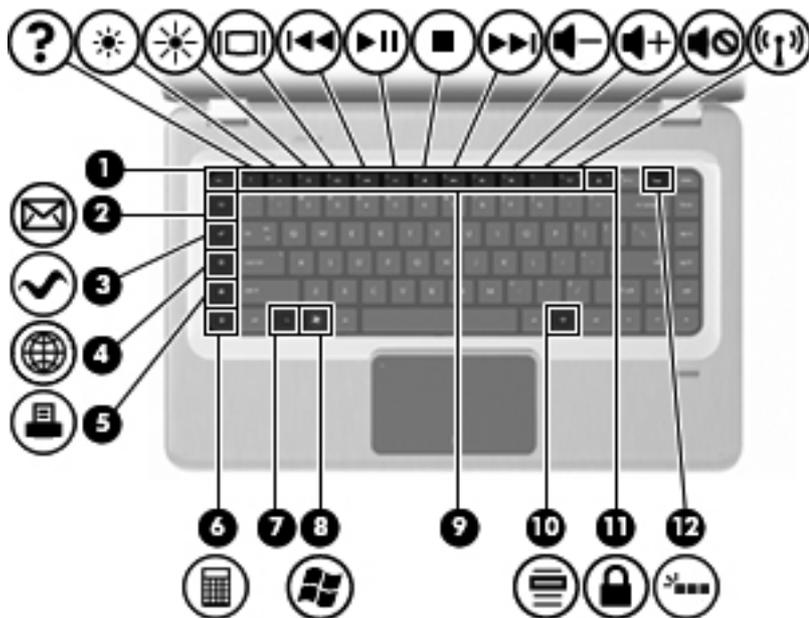
## Buttons and Fingerprint Reader (select models only)



Item	Description	Function
1	Power button	<p>Press the Power button to:</p> <ul style="list-style-type: none"><li>• Turn on the computer.</li><li>• Initiate Sleep.</li><li>• Exit Sleep.</li><li>• Exit Hibernation.</li></ul> <p>If the computer has stopped responding and Windows shutdown procedures are ineffective, press and hold the Power button for at least five seconds to shut down the computer.</p> <p>For more information about the power settings, select <b>Start &gt; Control Panel &gt; System and Security &gt; Power Options</b>.</p>
2	Fingerprint Reader (select models only)	<p>Allows a fingerprint logon to Windows, instead of a password logon.</p>

For information about changing the factory settings, see Help and Support.

## Keys



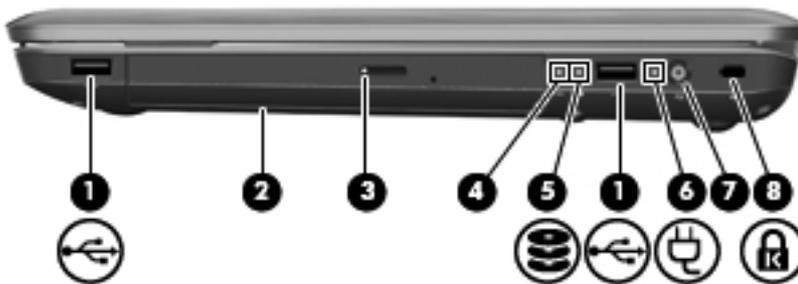
Item	Description	Function
1	<code>esc</code> key	Press the <code>esc</code> and <code>fn</code> keys at the same time to display system information.
2	E-mail key	Opens a new e-mail in the default e-mail client.
3	Media Application key	Launches the MediaSmart application.
4	Web Browser key	Launches the default web browser.
5	Print key	Sends the currently-active document to the default printer.
6	Calculator key	Launches the Calculator application.
7	<code>fn</code> key	Press the <code>fn</code> key at the same time as a function key or the <code>esc</code> key to execute frequently used system functions.
8	Windows Logo key	Displays the Windows Start menu.
9	Function keys	Press a function key and the <code>fn</code> key at the same time to execute frequently used system functions.
10	Windows Application key	Displays a shortcut menu for items beneath the pointer.
11	QuickLock key	Initiates QuickLock.
12	Backlight key	Turns the backlit keyboard on or off.

## Front components



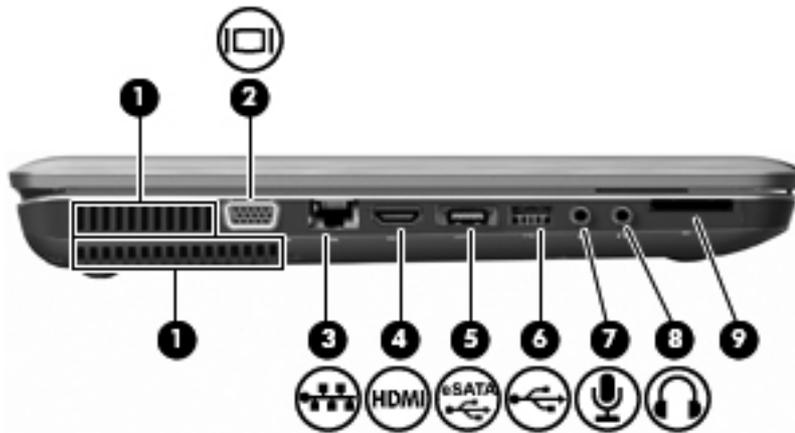
Description	Function
Speakers	Produce sound.

## Right-side components



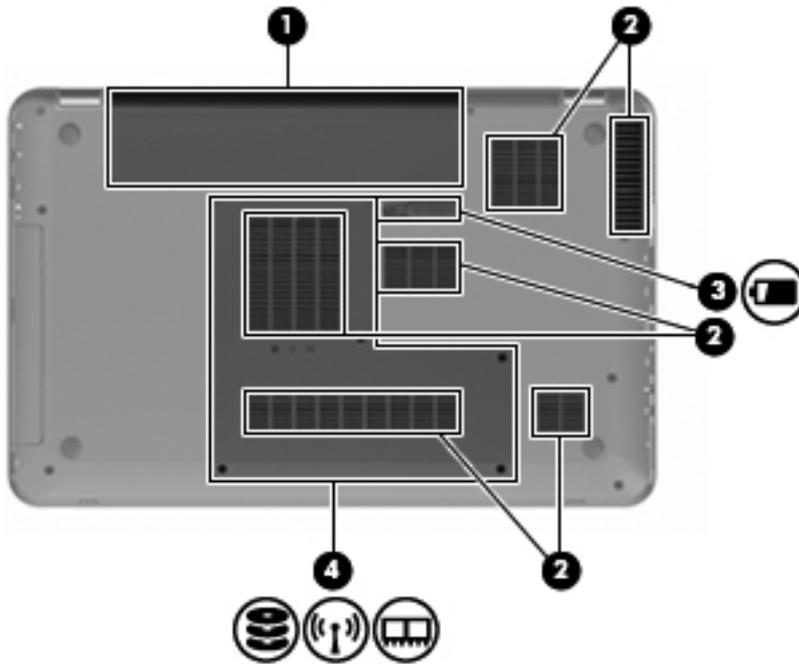
Item	Description	Function
1	USB ports (2)	Connect optional USB devices.
2	Optical drive	Reads optical discs and, on select models, writes to optical discs.
3	Optical Drive light	Flashing—Accessing the optical drive.
4	Hibernate light	White—The computer is in Hibernate.
5	Hard Disk Drive light	<ul style="list-style-type: none"> <li>White—The hard disk drive is active.</li> <li>Amber—The hard disk drive is parked.</li> </ul>
6	AC Adapter light	<ul style="list-style-type: none"> <li>On—The computer is connected to external power.</li> <li>Off—The computer is not connected to external power.</li> </ul>
7	Power connector	Connects an AC adapter.
8	Security Cable slot	Connects an optional security cable. The security cable is designed to act as a deterrent, but might not prevent the computer from being mishandled or stolen.

# Left-side components



Item	Description	Function
1	Vents (2)	Enable airflow to cool internal components.  <b>NOTE:</b> 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.
2	External Monitor port	Connects an external VGA monitor or projector.
3	RJ-45 (network) jack	Connects a network cable.
4	HDMI port	Connects an optional video or audio device, such as a high-definition television, or any compatible digital or audio component.
5	eSATA/USB port (select models only)	Connects an optional high-performance eSATA component, such as an eSATA external hard drive, or connects an optional USB device.  <b>NOTE:</b> Depending on the computer model, the computer might include only a USB port.
6	USB port	Connects an optional USB device.
7	Audio-in (microphone) jack	Connects an optional computer headset microphone, stereo array microphone, monaural microphone.
8	Audio-out (headphone) jack	Produces sound when connected to optional powered stereo speakers, headphones, ear buds, a headset, or television audio.
9	SD card reader	Reads SD cards that are inserted into the reader.

# Bottom components



Item	Description	Function
1	Battery bay	Holds the battery.
2	Vents (6)	Enable airflow to cool internal components.
		<b>NOTE:</b> 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	Primary Hard Drive bay	Holds the primary hard drive, the memory module slots, and the WLAN module (select models only).
		<b>CAUTION:</b> To prevent an unresponsive system, replace the wireless module with a wireless module authorized for use 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.

## Display components



Item	Description	Function
1	Internal microphones (2)	Record sound.
2	Webcam light	On—The webcam is in use.
3	Webcam	Records video and captures still photographs.

## Wireless antennas

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.

---

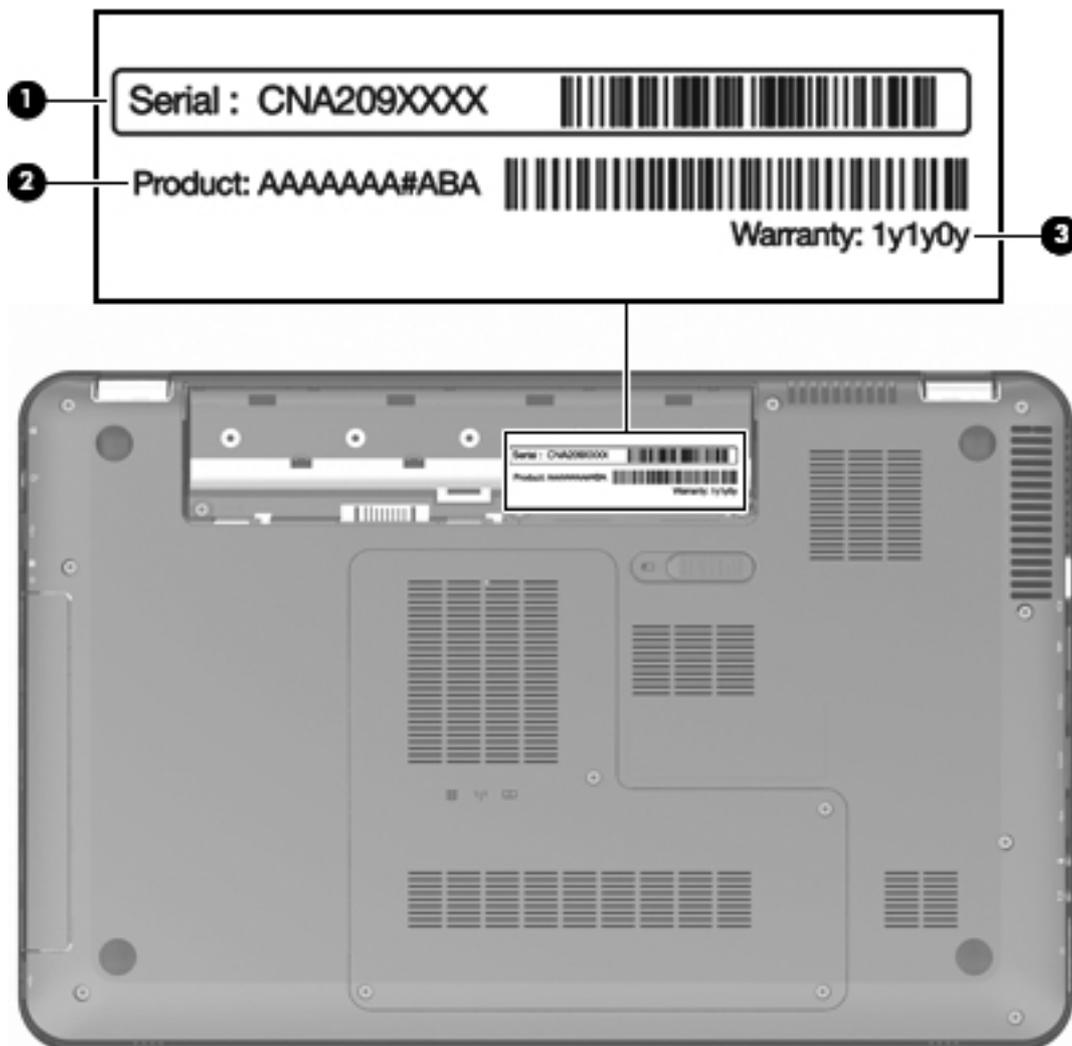
To review wireless regulatory notices, see the country-specific section of the Regulatory, Safety and Environmental Notices chapter in Help and Support.



# 3 Illustrated parts catalog

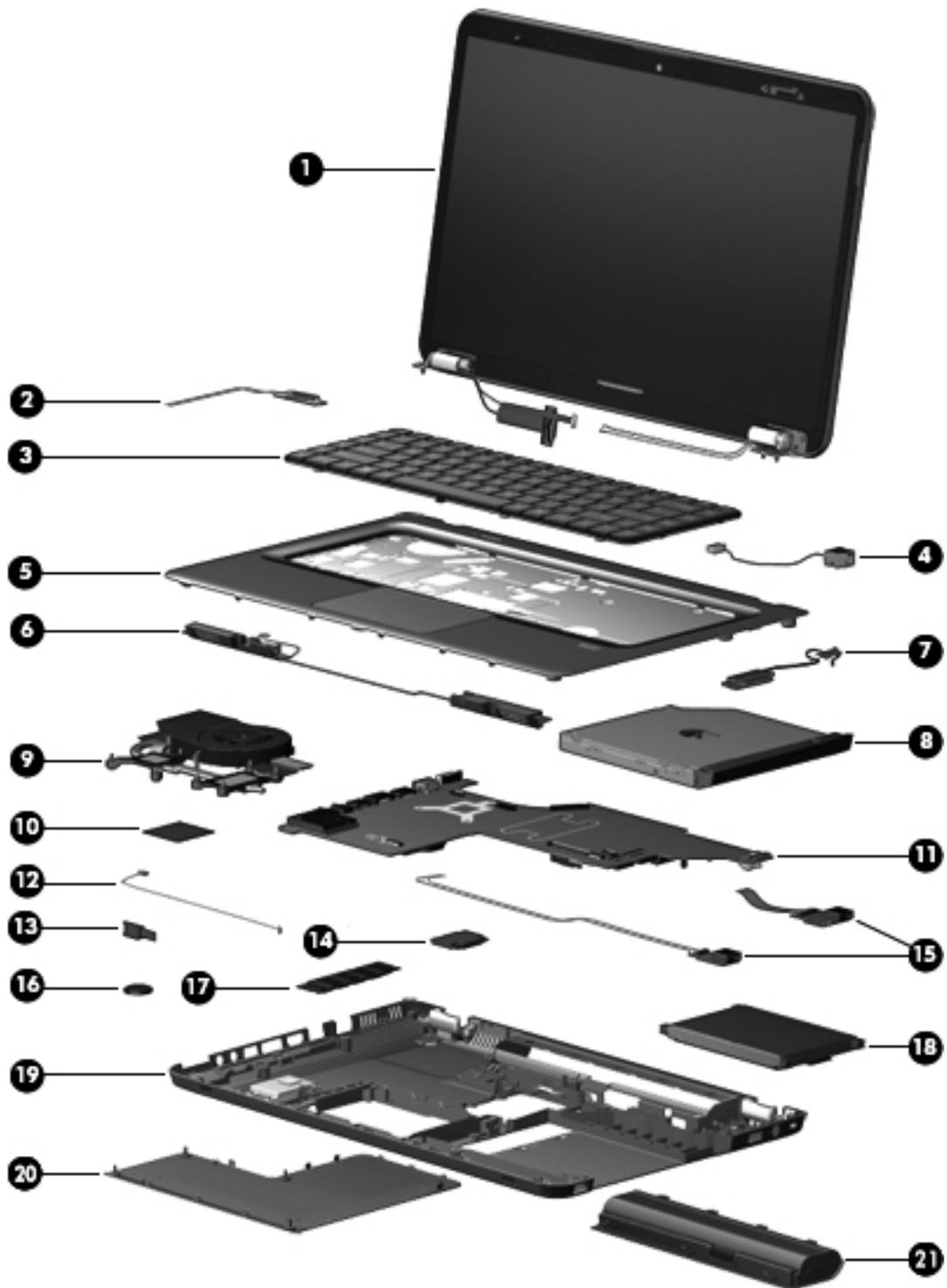
## Service tag

When ordering parts or requesting information, provide the computer serial number and model description provided on the service tag.



<b>Item</b>	<b>Description</b>	<b>Function</b>
1	Serial number (s/n)	This is an alphanumeric identifier that is unique to each product.
2	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.
3	Warranty period	This number describes the duration of the warranty period for the computer.

# Computer major components



Item	Description	Spare part number
1	<b>Display assembly, 15.6-in, high definition (HD) with webcam and two microphones</b> (includes wireless antenna transceivers and cables):	
	TouchScreen display assembly with etched finish	631019-001
	For use with computer models with black finish and WiMax	629279-001
	For use with computer models with etched finish and WiMax	629280-001
	For use with computer models with black finish	603647-001
	For use with computer models with chrome finish	603650-001
	For use with computer models with etched finish	595131-001
	For use with computer models with midnight blue finish	615932-001
	For use with computer models with shell white finish	603648-001
	For use with computer models with Sonoma red finish	603649-001
	<b>NOTE:</b> For more information about display assembly spare part numbers, see <a href="#">Display assembly components on page 21</a> .	
2	<b>Power button board</b> (includes cable)	603682-001
3	<b>Keyboard with backlight</b> (dura-coat, island-style, includes keyboard cable):	
	For use in Brazil	597630-201
	For use in Canada	597630-121
	For use in Japan	597630-291
	For use in Latin America	597630-161
	For use in Taiwan	597630-AD1
	For use in South Korea	597630-AB1
	For use in Thailand	597630-281
	For use in the United States	597630-001
	<b>Keyboard with backlight</b> (dura-coat, island-style, includes keyboard cable):	
	For use in Brazil	597635-201
	For use in Canada	597635-121
	For use in Japan	597635-291
	For use in Latin America	597635-161
	For use in Taiwan	597635-AD1
	For use in South Korea	597635-AB1
	For use in Thailand	597635-281
	For use in the United States	597635-001
4	<b>Power connector</b>	603692-001

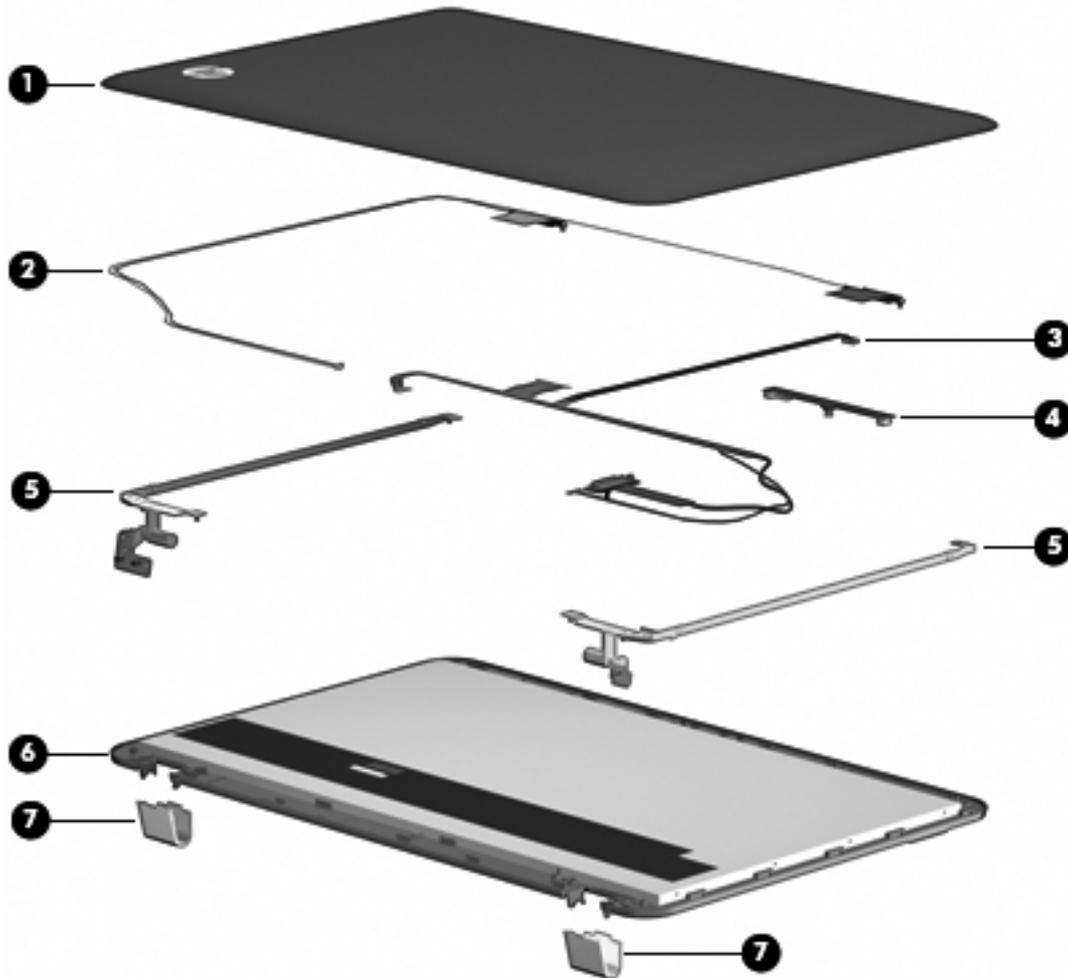
<b>Item</b>	<b>Description</b>	<b>Spare part number</b>
5	<b>Top cover</b> (includes TouchPad):	
	For use with computer models in etched finish equipped with fingerprint reader	603684-001
	For use with computer models with black finish	603685-001
	For use with computer models with chrome finish	603688-001
	For use with computer models with midnight blue finish	615934-001
	For use with computer models with shell white finish	603686-001
	For use with computer models with Sonoma red finish	603687-001
6	<b>Speaker assembly</b>	603694-001
7	<b>Optical drive cable</b>	603680-001
8	<b>Optical drive</b> (includes bezel and bracket)	
	Blu-ray ROM with LightScribe DVD±RW SuperMulti DL Drive	614332-001
	Blu-ray ROM with LightScribe Combo Drive	603678-001
	DVD±RW SuperMulti Double-Layer Drive with LightScribe	603677-001
9	<b>Fan/heat sink assembly</b> (includes replacement thermal material):	
	For use with computer models equipped with a graphics subsystem with discrete memory	634454-001
	For use with computer models equipped with a graphics subsystem with UMA memory	634455-001
10	<b>Processor</b> (includes replacement thermal material):	
	Intel Core i7-2820QM 2.30-GHz (turbo up to 3.40-GHz) processor, 8-MB L2 cache, 1600 MHz, 45 W	634694-001
	Intel Core i7-2720QM 2.20-GHz (turbo up to 3.30-GHz) processor, 6-MB L2 cache, 1600 MHz, 45 W	631254-001
	Intel Core i7-2630QM 2.00-GHz (turbo up to 2.90-GHz) processor, 6-MB L2 cache, 1600 MHz, 45 W	635501-001
11	<b>System board</b> (includes replacement thermal material):	
	For use with computer models equipped with a graphics subsystem with discrete memory	633554-001
	For use with computer models equipped with a graphics subsystem with UMA memory	633555-001
12	<b>Bluetooth module cable</b>	603645-001
13	<b>Bluetooth module</b>	537921-001
14	<b>WLAN module:</b>	
	Intel Centrino Advanced-N + WiMax 6250 WLAN module for use in the United States	619997-001
	Intel Centrino Wireless-N 1000 802.11b/g/n 1×2 WLAN module	593530-001
	Ralink 5390GN 802.11b/g/n 1×1 WiFi Adapter	630703-001

<b>Item</b>	<b>Description</b>	<b>Spare part number</b>
	Ralink 8190BC8 802.11b/g/n 1x1 WiFi and Bluetooth 3.0+HS Combo Adapter	630813-001
	Ralink RT3090BC4 802.11b/g/n 1x1 WiFi and Bluetooth 2.1+EDR Combo Adapter (BT3.0+HS ready)	630705-001
15	<b>USB board</b> (includes cable)	603683-001
16	<b>RTC battery</b>	599516-001
17	<b>Memory module</b> (PC3-10600, SO-DIMM)	
	4 GB	599092-001
	2 GB	598956-001
	1 GB	598859-001
18	<b>Hard drive kit</b> (includes left and right bracket rails, connector cable, Mylar cover with tab, 4 screws and 4 rubber isolators):	
	750-GB, 5200-rpm	633252-001
	500-GB, 7200-rpm	603669-001
	250-GB, 7200-rpm	603667-001
	<b>Hard drive only</b> (does not include bracket rails, connector cable, Mylar cover with tab, screws, or isolators):	
	1-TB, 5200-rpm	603788-001
	640-GB, 7200-rpm	621046-001
	320-GB, 7200-rpm	603783-001
	<b>160-GB solid state drive</b> (SSD, includes left and right bracket rails, connector cable, Mylar cover with tab, 4 screws and 4 rubber isolators)	603673-001
	<b>Hard Drive Hardware Kit</b> (not illustrated, includes left and right bracket rails, connector cable, Mylar cover with tab, and four rubber isolators)	603676-001
19	<b>Base enclosure</b> (includes four rubber feet)	640296-001
	<b>Rubber feet</b> (not illustrated, includes 4 base enclosure rubber feet)	603696-001
20	<b>Plastics Kit</b> (includes hard drive bay cover)	603679-001
	<b>NOTE:</b> For more information, see <a href="#">Plastics Kit on page 26</a> .	
21	<b>Battery</b>	
	9-cell, 93-Whr, 2.80-Ah Li-ion battery for use with all computer models	593550-001
	6-cell, 62-Whr, 2.80-Ah Li-ion battery for use with all computer models	593562-001
	6-cell, 55-Whr, 2.55-Ah Li-ion battery for use with all computer models	593554-001

# Display assembly components

The HP Pavilion dv6 Entertainment PC offers two types of display assemblies. Component spare parts are listed in this section for TouchScreen and BrightView display assemblies.

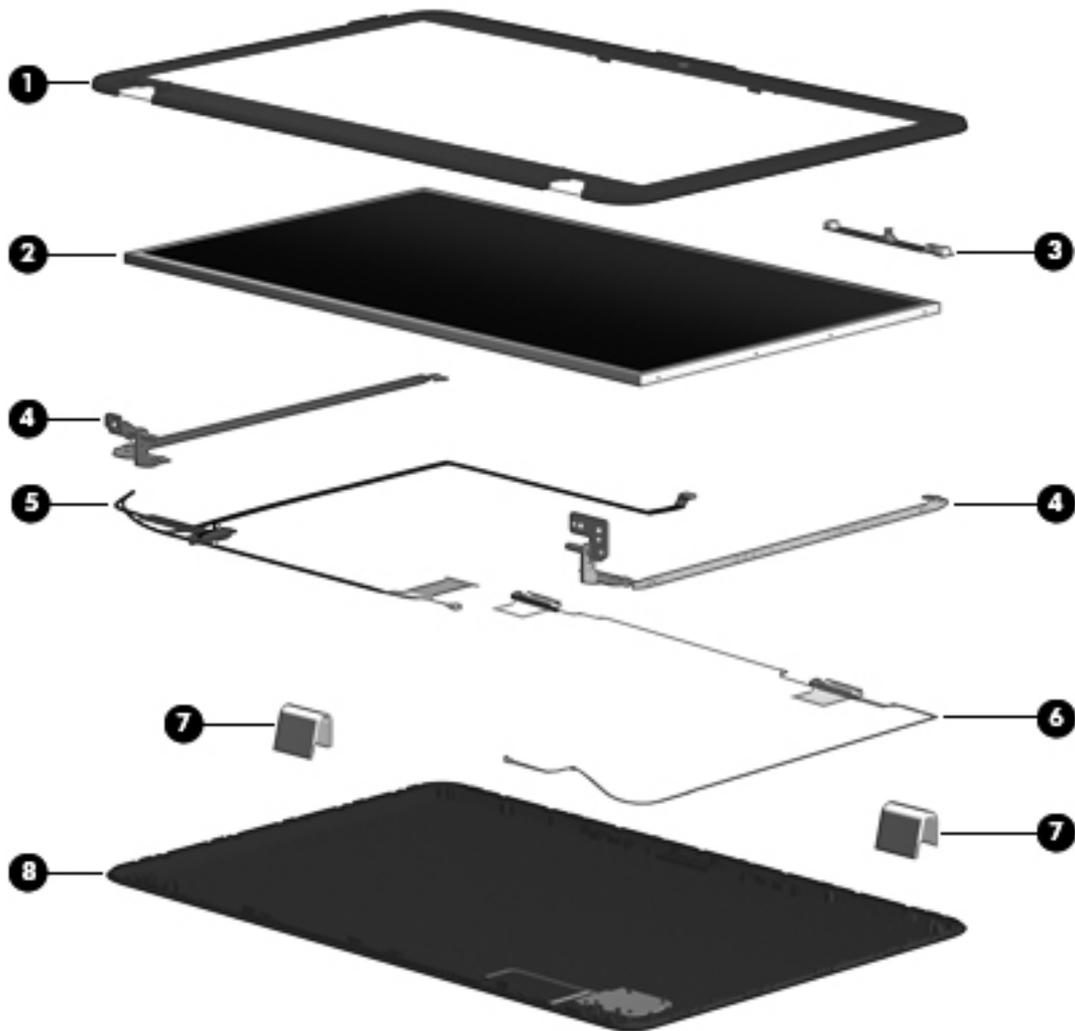
## TouchScreen display assembly spare parts



Item	Description	Spare part number
1	<b>Display enclosure</b> with etched finish (includes wireless antenna transceivers and cables and logo LED board and cable)	603663-001
2	<b>Wireless antenna transceivers and cables</b>	Included with the display enclosure
3	<b>Display Cable Kit</b>	603665-001
4	<b>Webcam/microphone module</b> (includes cable)	603660-001
5	<b>Display Hinge Kit</b> (includes left and right hinges)	603664-001

<b>Item</b>	<b>Description</b>	<b>Spare part number</b>
6	<b>TouchScreen display panel</b>	Included with the display assembly
7	<b>Display hinge cover</b> (includes left and right covers)	603666-001
	<b>Display Rubber Kit</b> (not illustrated, includes display bezel rubber screw covers)	603659-001
	<b>Display Screw Kit</b> (not illustrated)	603658-001

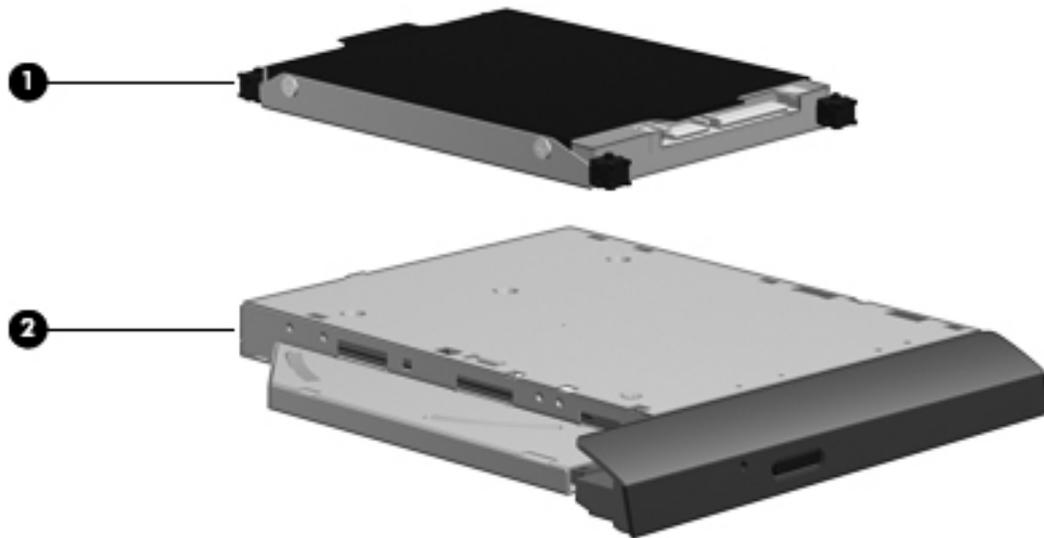
## BrightView display assembly spare parts



Item	Description	Spare part number
1	<b>Display bezel</b>	603651-001
2	<b>BrightView display panel</b>	595130-001
3	<b>Display Hinge Kit</b> (includes left and right hinges)	603656-001
4	<b>Webcam/microphone module</b> (includes cable)	603660-001
5	<b>Display Cable Kit</b>	603657-001
	<b>Display Cable Kit</b> for use only with computer models equipped with WiMax	629284-001
6	<b>Display hinge cover</b>	603661-001
7	<b>Display enclosure</b> (includes wireless antenna transceivers and cables and logo LED board and cable)	
	With black finish for use with computer models equipped with WiMax	629282-001
	With etched finish for use with computer models equipped with WiMax	629283-001

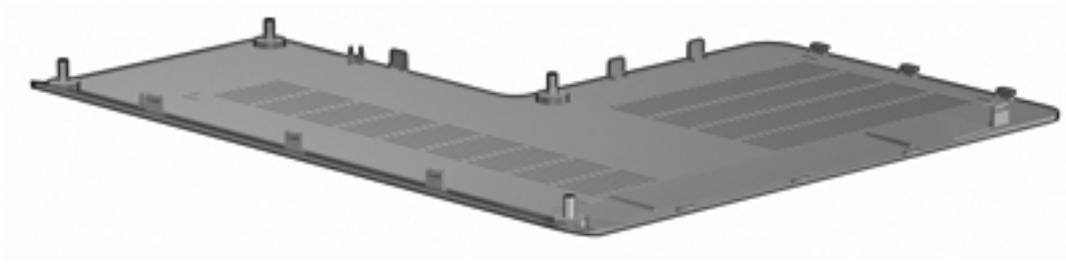
<b>Item</b>	<b>Description</b>	<b>Spare part number</b>
	With black finish	603652-001
	With chrome finish	603655-001
	With etched finish	604804-001
	With midnight blue finish	615933-001
	With shell white finish	603653-001
	With Sonoma red finish	603654-001
8	<b>Wireless antenna transceivers and cables</b>	Included with the display enclosure
	<b>Display Rubber Kit</b> (includes display bezel rubber screw covers)	603659-001
	<b>Display Screw Kit</b>	603658-001

# Mass storage devices



Item	Description	Spare part number
1	<b>Hard drive kit</b> (includes left and right bracket rails, connector cable, Mylar cover with tab, 4 screws and 4 rubber isolators):	
	750-GB, 5200-rpm	633252-001
	500-GB, 7200-rpm	603669-001
	250-GB, 7200-rpm	603667-001
	<b>Hard drive only</b> (does not include bracket rails, connector cable, Mylar cover with tab, screws, or isolators):	
	1-TB, 5200-rpm	603788-001
	640-GB, 7200-rpm	621046-001
	320-GB, 7200-rpm	603783-001
	<b>160-GB solid state drive</b> (SSD, includes left and right bracket rails, connector cable, Mylar cover with tab, 4 screws and 4 rubber isolators)	603673-001
	<b>Hard Drive Hardware Kit</b> (not illustrated, includes left and right bracket rails, connector cable, Mylar cover with tab, and four rubber isolators)	603676-001
2	<b>Optical drive</b> (includes bezel and bracket)	
	Blu-ray ROM with LightScribe DVD±RW SuperMulti DL Drive	614332-001
	Blu-ray ROM with LightScribe Combo Drive	603678-001
	DVD±RW SuperMulti Double-Layer Drive with LightScribe	603677-001

## Plastics Kit



Item	Description	Spare part number
1	Hard drive bay cover (includes four captive screws)	603679-001

## Miscellaneous parts

Description	Spare part number
<b>AC adapter:</b>	
120W HP Smart AC adapter PFC RC V 3W	609941-001
90W HP Smart AC adapter PFC RC V 3W	609940-001
90W HP Smart AC adapter PFC RC V EM 3W	609947-001
<b>Cable housing</b>	603697-001
<b>Power cord (1.83-m (6-foot), 3-wire):</b>	
For use in Argentina	490371-D01
For use in Australia	490371-011
For use in Brazil	490371-202
For use in Europe	490371-021
For use in India	490371-D61
For use in Italy	490371-061
For use in Japan	490371-291
For use in Canada, Mexico, and North America	490371-001
For use in the People's Republic of China	490371-AA1
For use in South Korea	490371-AD1
For use in Taiwan	490371-AB1
For use in Thailand	490371-281
For use in Singapore and the United Kingdom	490371-031
<b>Remote control</b> (full-function with teletext, select models only)	465541-004
<b>Screw Kit</b>	603681-001
<b>USB DVB-T TV dipole antenna</b>	581222-001
<b>USB DVB-T TV tuner antenna</b> (select models only)	581223-001

## Sequential part number listing

Spare part number	Description
465541-004	Remote control (full-function with teletext, select models only)
490371-001	Power cord for use in Canada, French Canada, Latin America, and the United States
490371-011	Power cord for use in Australia and New Zealand

<b>Spare part number</b>	<b>Description</b>
490371-021	Power cord for use in Belgium, Europe, Finland, France, Germany, Greece, the Netherlands, Norway, Portugal, Spain, and Sweden
490371-031	Power cord for use in the United Kingdom and Hong Kong
490371-061	Power cord for use in Italy
490371-201	Power cord for use in Thailand
490371-202	Power cord for use in Brazil
490371-291	Power cord for use in Japan
490371-AA1	Power cord for use in the People's Republic of China
490371-AB1	Power cord for use in Taiwan
490371-AD1	Power cord for use in South Korea
490371-D01	Power cord for use in Argentina
490371-D61	Power cord for use in India
537921-001	Bluetooth module (does not include Bluetooth module cable)
581222-001	DVB-T TV tuner (select models only)
581223-001	DVB-T TV tuner antenna (select models only)
593530-001	Intel Centrino Wireless-N 1000 802.11b/g/n 1x2 WLAN module
593550-001	9-cell, 93-Whr, 2.8-Ah Li-ion battery
593554-001	6-cell, 55-Whr, 2.55-Ah Li-ion battery
593562-001	6-cell, 62-Whr, 2.8-Ah Li-ion battery
595130-001	Display panel for use with computer models equipped with BrightView panel (includes display panel cable)
595131-001	Display assembly with etched finish, 15.6-in, BrightView, HD, LED, equipped with webcam module, and 2 microphones (includes display panel cable, WLAN antenna transceivers and cables)
597630-001	Backlit keyboard for use in the United States
597630-121	Backlit keyboard for use in French Canada
597630-161	Backlit keyboard for use in Latin America
597630-201	Backlit keyboard for use in Brazil
597630-281	Backlit keyboard for use in Thailand
597630-291	Backlit keyboard for use in Japan
597630-AB1	Backlit keyboard for use in Taiwan
597630-AD1	Backlit keyboard for use in South Korea
597635-001	Keyboard for use in the United States
597635-121	Keyboard for use in French Canada

<b>Spare part number</b>	<b>Description</b>
597635-161	Keyboard for use in Latin America
597635-201	Keyboard for use in Brazil
597635-281	Keyboard for use in Thailand
597635-291	Keyboard for use in Japan
597635-AB1	Keyboard for use in Taiwan
597635-AD1	Keyboard for use in Korea
598856-001	2-GB memory module
598859-001	1-GB memory module
599092-001	4-GB memory module
599516-001	RTC battery
603645-001	Bluetooth module cable and rubber kit
603647-001	39.6-cm (15.6-inch) HD BrightView display assembly with low light VGA webcam and two microphones, Black (includes wireless antenna transceivers and cables)
603648-001	39.6-cm (15.6-inch) HD BrightView display assembly with low light VGA webcam and two microphones, White (includes wireless antenna transceivers and cables)
603649-001	39.6-cm (15.6-inch) HD BrightView display assembly with low light VGA webcam and two microphones, Red (includes wireless antenna transceivers and cables)
603650-001	39.6-cm (15.6-inch) HD BrightView display assembly with low light VGA webcam and two microphones, Chrome (includes wireless antenna transceivers and cables)
603651-001	BrightView display bezel
603652-001	Black display enclosure (includes wireless antenna transceivers and cables and LED board and cable)
603653-001	White display enclosure (includes wireless antenna transceivers and cables and LED board and cable)
603654-001	Red display enclosure (includes wireless antenna transceivers and cables and LED board and cable)
603655-001	Chrome display enclosure (includes wireless antenna transceivers and cables and LED board and cable)
603656-001	BrightView Display Hinge Kit (includes left and right hinges)
603657-001	BrightView Display Cable Kit (includes display panel cable)
603658-001	Display Screw Kit
603659-001	Display Rubber Kit (includes display bezel rubber screw covers)
603660-001	Webcam/microphone module (includes cable)
603661-001	BrightView display hinge covers
603663-001	TouchScreen display enclosure (includes wireless antenna transceivers and cables LED board and cable)
603664-001	TouchScreen Display Hinge Kit
603665-001	TouchScreen Display Cable Kit

<b>Spare part number</b>	<b>Description</b>
603666-001	TouchScreen display hinge covers
603667-001	250-GB, 7200 RPM hard drive (includes left and right bracket rails, connector cable, Mylar cover with tab, and four rubber isolators)
603669-001	500-GB, 5400 RPM or 500-GB, 7200 RPM hard drive (includes left and right bracket rails, connector cable, Mylar cover with tab, and four rubber isolators)
603673-001	160-GB solid state drive (SSD) (includes left and right bracket rails, connector cable, Mylar cover with tab, and four rubber isolators)
603676-001	Hard Drive Hardware Kit (includes left and right bracket rails, connector cable, Mylar cover with tab, 4 screws, and four rubber isolators)
603677-001	DVD±RW SuperMulti Double-Layer Drive with LightScribe
603678-001	Blu-ray ROM with LightScribe Combo Drive
603679-001	Plastics Kit
603680-001	Optical drive cable
603681-001	Screw Kit
603682-001	Power button board (includes cable)
603683-001	USB board (includes cable)
603684-001	Top cover with etched finish for use only with computer models equipped with a fingerprint reader
603685-001	Top cover with black finish for use only with computer models not equipped with a fingerprint reader
603686-001	Top cover with shell white finish for use only with computer models not equipped with a fingerprint reader
603687-001	Top cover with Sonoma red finish for use only with computer models not equipped with a fingerprint reader
603688-001	Top cover with chrome finish for use only with computer models not equipped with a fingerprint reader
603692-001	Power connector and cable
603694-001	Speaker assembly
603696-001	Rubber feet
603697-001	Cable housing
603783-001	320-GB, 7200 RPM hard drive only (does not include bracket rails, connector cable, Mylar cover with tab, screws, or and rubber isolators)
603788-001	1-TB, 5200 RPM hard drive only (does not include bracket rails, connector cable, Mylar cover with tab, screws, or and rubber isolators)
604804-001	Display enclosure with etched finish (includes wireless antenna transceivers and LED board and cable)
609940-001	90-W HP Smart AC adapter PFC RC V 3W
609941-001	120-W HP Smart AC adapter PFC RC V 3W
609947-001	90-W HP Smart AC adapter PFC RC V EM 3W

<b>Spare part number</b>	<b>Description</b>
614332-001	Blu-ray ROM with LightScribe DVD±RW SuperMulti DL Drive
615932-001	Display assembly 15.6-in HD BrightView in midnight blue finish with webcam and two microphones
615933-001	Display enclosure in midnight blue finish (includes wireless antenna transceivers and cables and LED board and cable)
615934-001	Top cover with midnight blue finish for use only with computer models not equipped with a fingerprint reader
619997-001	Intel Centrino Advanced-N + WiMax 6250 WLAN module for use in the United States
621046-001	640-GB, 7200 RPM hard drive only (does not include bracket rails, connector cable, Mylar cover with tab, screws, or rubber isolators)
629279-001	Display assembly with chrome finish, 15.6-in, BrightView, HD, LED, equipped with webcam module, 2 microphones, and WiMax (includes display panel cable, WLAN, and WWAN antenna transceivers and cables)
629280-001	Display assembly with etched finish, 15.6-in, BrightView, HD, LED, equipped with webcam module, 2 microphones, and WiMax (includes display panel cable, WLAN, and WWAN antenna transceivers and cables)
629282-001	Display enclosure with black finish (includes wireless antenna transceivers and cables and LED board and cable) with WiMax
629283-001	Display enclosure with etched finish (includes wireless antenna transceivers and cables and LED board and cable) with WiMax
629284-001	Display Cable Kit for use only on computer models equipped with a BrightView display assembly with WiMax (includes display panel cable)
630703-001	Ralink 5390GN 802.11b/g/n 1×1 WiFi Adapter
630705-001	Ralink RT3090BC4 802.11b/g/n 1×1 WiFi and Bluetooth 2.1+EDR Combo Adapter (BT3.0+HS ready)
630813-001	Ralink 8190BC8 802.11b/g/n 1×1 WiFi and Bluetooth 3.0+HS Combo Adapter
631019-001	TouchScreen display assembly, 15.6-in, LED, HD, BrightView, equipped with webcam module and microphone (includes display panel cable and WLAN antenna transceivers and cables)
631254-001	Intel Core i7-2720QM 2.20-GHz (turbo up to 3.30-GHz) processor, 6-MB L2 cache, 1600 MHz, 45 W
633252-001	750-GB, 7200 RPM hard drive (includes left and right bracket rails, connector cable, Mylar cover with tab, 4 screws, or 4 rubber isolators)
633554-001	System board (Intel HM65 Express chipset) for use only with computer models equipped with a graphics subsystem with discrete memory (includes 1-GB of graphics subsystem memory)
633555-001	System board (HM65 chipset) for use only with computer models equipped with a graphics subsystem with UMA memory
634454-001	Thermal module for use only with computer models equipped with a graphics subsystem with discrete memory
634455-001	Thermal module for use only with computer models equipped with a graphics subsystem with UMA memory
634694-001	Intel Core i7-2820QM 2.30-GHz (turbo up to 3.40-GHz) processor, 8-MB L2 cache, 1600 MHz, 45 W

<b>Spare part number</b>	<b>Description</b>
635501-001	Intel Core I7-2630QM 2.00-GHz (turbo up to 2.90-GHz) processor, 6-MB L2 cache, 1600 MHz, 45 W
640296-001	Base enclosure (includes rubber feet and battery release latch)

---

# 4 Removal and replacement procedures

## Preliminary replacement requirements

### Tools required

Use the following tools to complete the removal and replacement procedures:

- Non-magnetic screwdriver
- Phillips P0 and P1 screwdrivers
- Flat-bladed screwdriver

### Service considerations

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

---

 **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

 **CAUTION:** 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 you are 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**

Event	Relative humidity		
	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.
- Shut down 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  $\pm 10\%$  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.

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

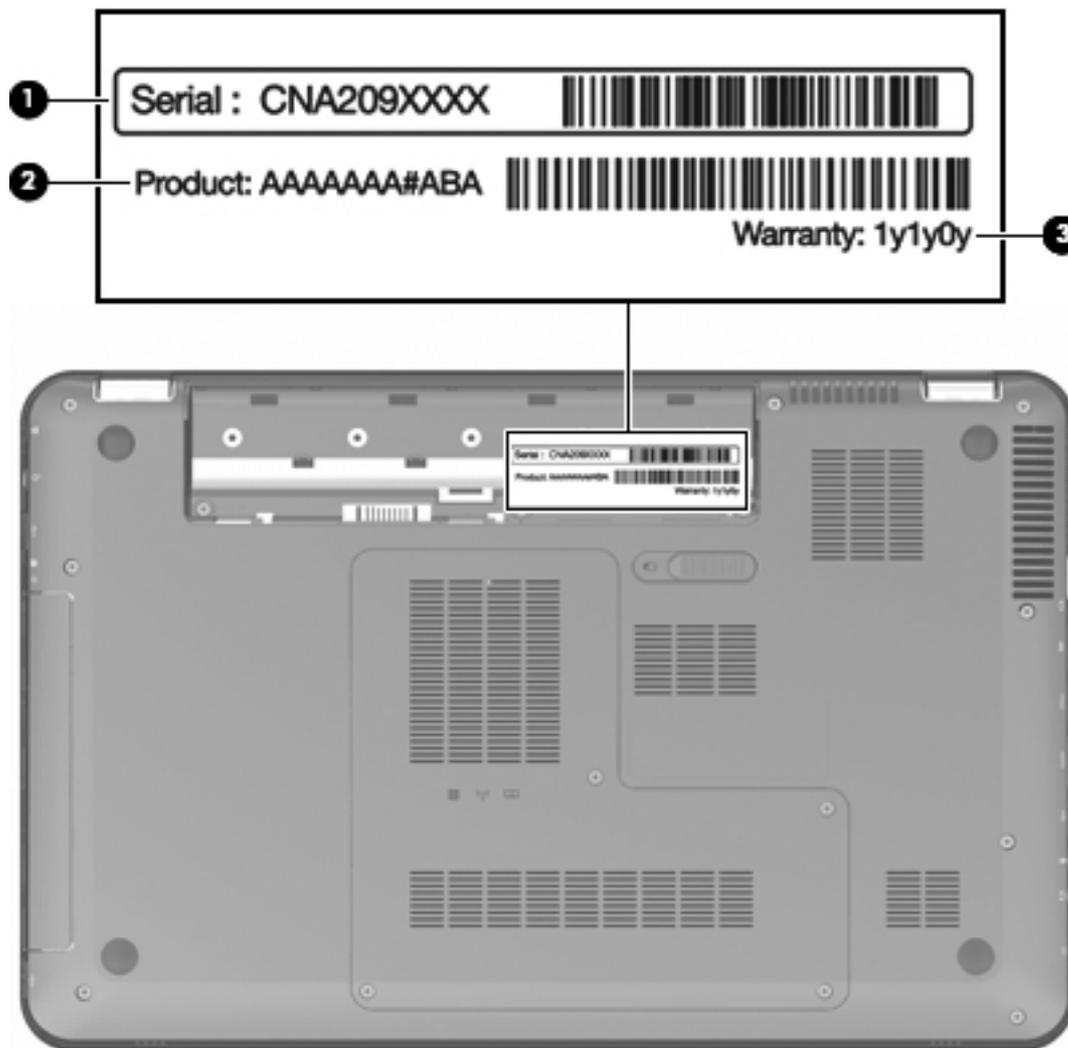
# Component replacement procedures

This chapter provides removal and replacement procedures.

There are as many as 90 screws, in ten 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.

## Service tag

When ordering parts or requesting information, provide the computer serial number and model description provided on the service tag.

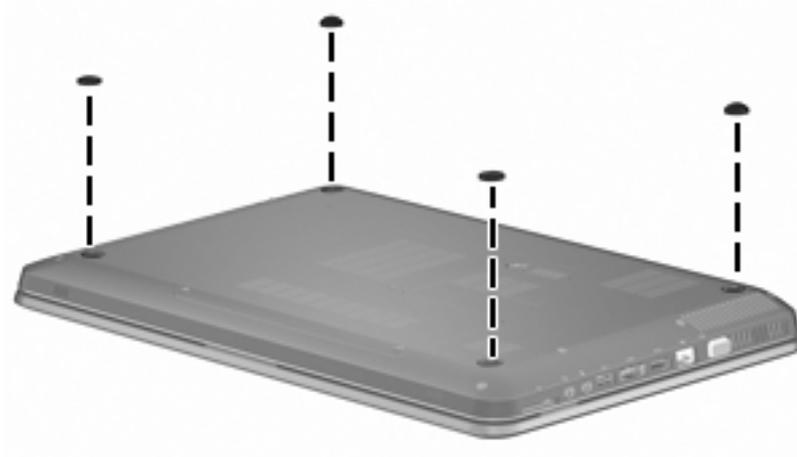


Item	Description	Function
1	Serial number (s/n)	An alphanumeric identifier that is unique to each product.

Item	Description	Function
2	Part number/Product number (p/n)	Provides specific information about the product's hardware components. The part number helps a service technician to determine what components and parts are needed.
3	Warranty period	Describes the duration of the warranty period for the computer.

## Computer feet

The computer feet are adhesive-backed rubber pads (spare part number 603696-001). There are four rubber feet that attach to the base enclosure.



## Battery

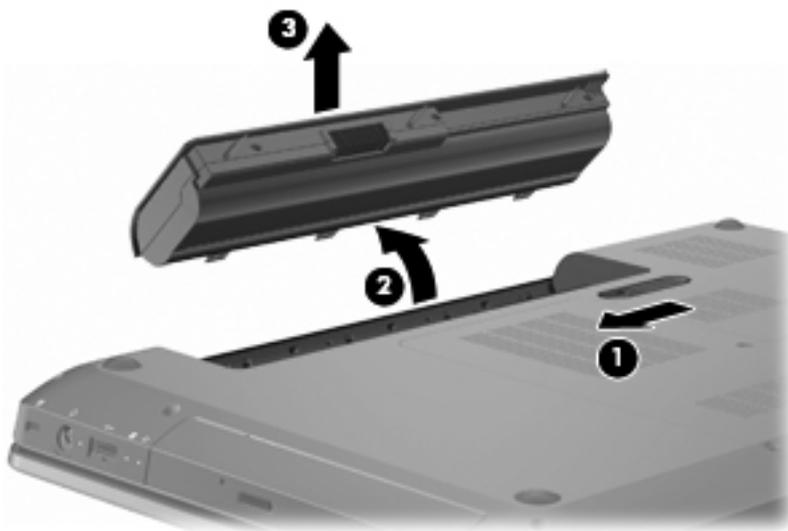
Description	Spare part number
9-cell, 93-Wh, 2.80-Ah Li-ion battery	593550-001
6-cell, 62-Wh, 2.80-Ah Li-ion battery	593652-001
6-cell, 55-Wh, 2.55-Ah Li-ion battery	593554-001

Before disassembling the computer:

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.

To 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 remove it from the computer (3).



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

## Hard drive cover

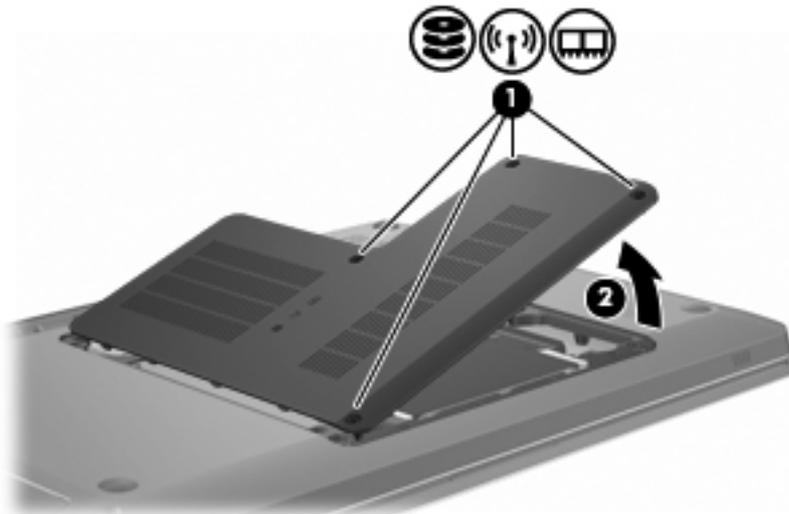
Description	Spare part number
Hard drive cover (included in the Plastics Kit)	603679-001

Before removing the hard drive cover:

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 on page 40](#).

To remove the hard drive cover:

1. Loosen the four captive screws (1) that secure the hard drive cover to the computer.
2. Lift the hard drive cover (2) away from the computer.



Reverse this procedure to install the hard drive cover.

## Hard drive

Description	Spare part number
Hard drive kit (includes left and right bracket rails, connector cable, Mylar cover with tab, 4 screws and 4 rubber isolators):	
750-GB, 5200-rpm	633252-001
500-GB, 7200-rpm	603669-001
250-GB, 7200-rpm	603667-001
Hard drive only (does not include bracket rails, connector cable, Mylar cover with tab, screws, or isolators):	
1-TB, 5200-rpm	603788-001
640-GB, 7200-rpm	621046-001
320-GB, 7200-rpm	603783-001
160-GB solid state drive (includes left and right bracket rails, connector cable, Mylar cover with tab, 4 screws and 4 rubber isolators)	603783-001
Hard Drive Hardware Kit (includes left and right bracket rails, connector cable, Mylar cover with tab, and four rubber isolators)	603673-001

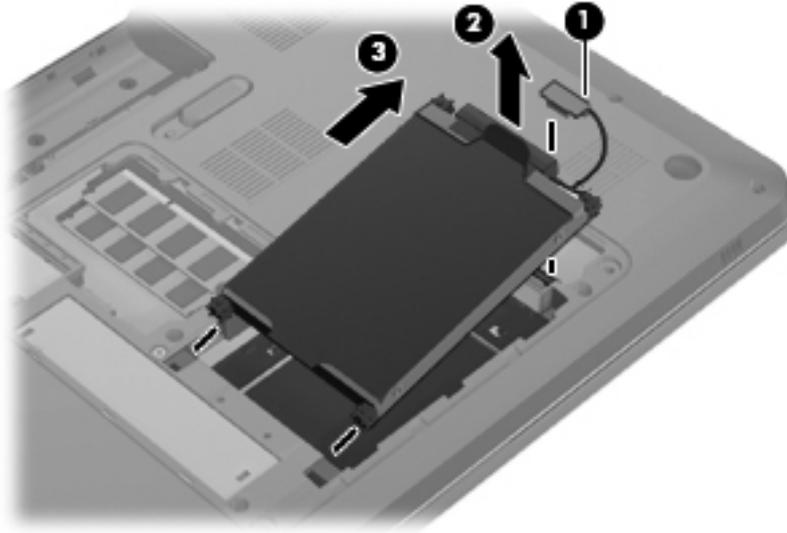
Before removing the hard drive:

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 on page 40](#).
5. Remove the [Hard drive cover on page 41](#).

To remove the hard drive:

1. Position the computer with the front toward you.
2. Disconnect the hard drive cable (1) from the system board.

3. Use the Mylar tab to lift the hard drive up (2), and then slide it to the right (3) to release it from the hard drive bay.



4. Remove the hard drive from the hard drive bay.

Reverse this procedure to reassemble and install the hard drive.

## WLAN module

Description	Spare part number
Intel Centrino Advanced-N + WiMax 6250 WLAN module for use in the United States	619997-001
Intel Centrino Wireless-N 1000 802.11b/g/n 1×2 WLAN module	593530-001
Ralink 5390GN 802.11b/g/n 1×1 WiFi Adapter	630703-001
Ralink 8190BC8 802.11b/g/n 1×1 WiFi and Bluetooth 3.0+HS Combo Adapter	630813-001
Ralink RT3090BC4 802.11b/g/n 1×1 WiFi and Bluetooth 2.1+EDR Combo Adapter (BT3.0+HS ready)	630705-001

Before removing the WLAN module:

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 on page 40](#).
5. Remove the [Hard drive cover on page 41](#).

To remove the WLAN module:

 **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.

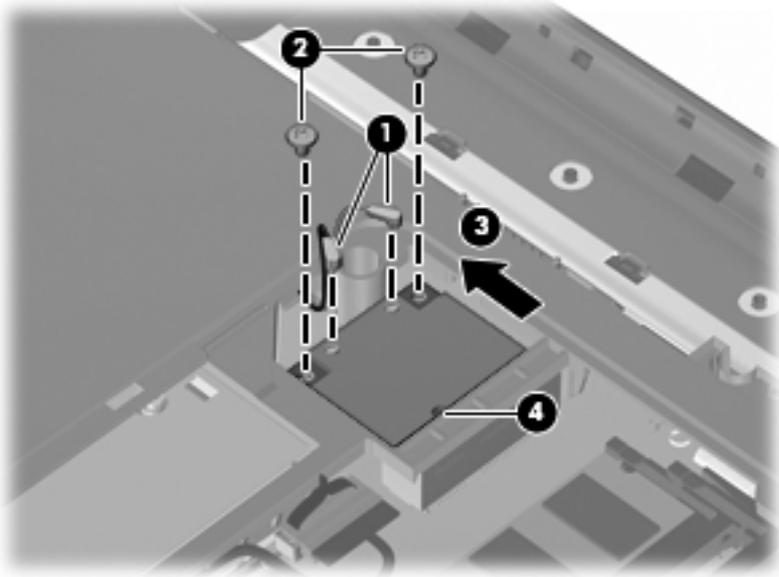
1. Disconnect the WLAN antenna cables (1) from the WLAN module.

 **NOTE:** The black WLAN antenna cable is connected to the WLAN module “Main” terminal. The white WLAN antenna cable is connected to the WLAN module “Aux” terminal.

2. Remove the two screws (2) that secure the WLAN module to the computer. The edge of the module opposite the slot rises away from the computer.

3. Remove the WLAN module (3) by pulling it away from the slot at an angle.

 **NOTE:** WLAN modules are designed with a notch (4) to prevent incorrect insertion into the WLAN module slot.



Reverse this procedure to install a WLAN module.

## Memory module

Description	Spare part number
4 GB	599092-001
2 GB	598956-001
1 GB	598859-001

Before removing the memory module:

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 on page 40](#).
5. Remove the [Hard drive cover on page 41](#).

To remove the memory module:

1. Position the computer with the front toward you.
2. 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.

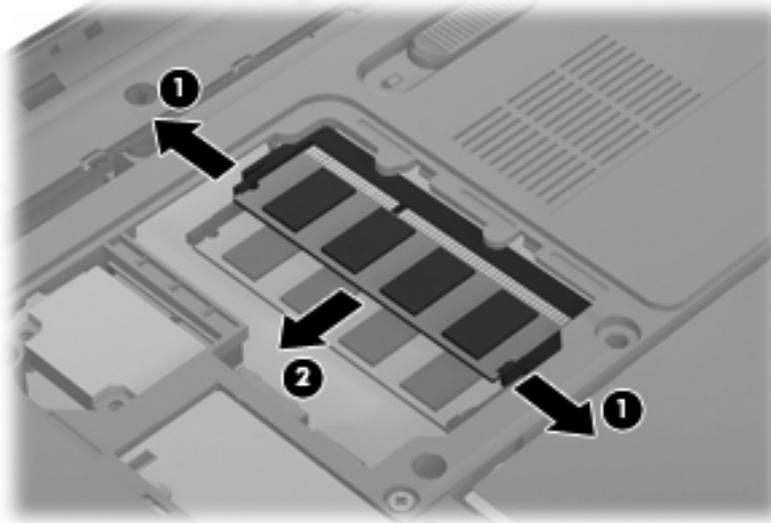


**NOTE:** If necessary, use a non-conductive pointed tool to spread the retaining tabs.

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

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

---



Reverse this procedure to install a memory module.

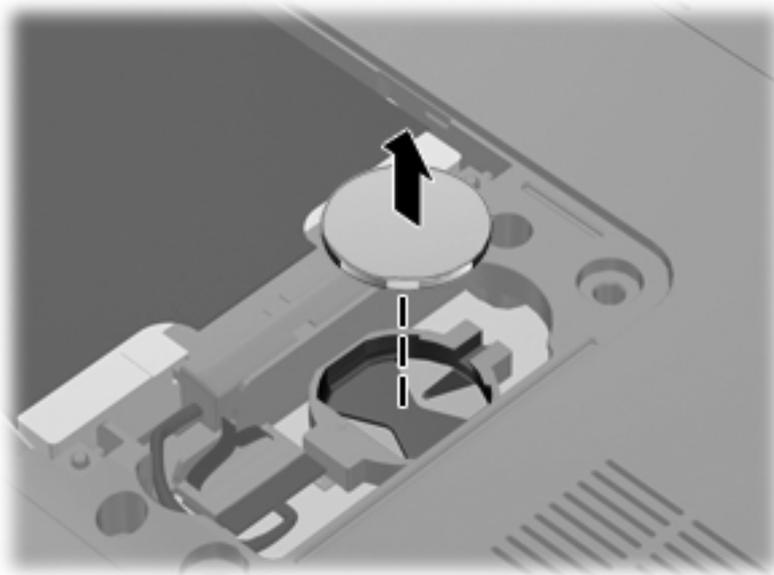
## RTC battery

Description	Spare part number
RTC battery	491571-001

Before removing the RTC battery:

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 on page 40](#).
5. Remove the [Hard drive cover on page 41](#).

To remove the RTC battery, use a non-conductive pointed tool to pry the RTC battery from the socket on the system board.



Reverse this procedure to install the RTC battery. Be sure that the RTC battery is installed with the “+” sign facing up.

## Optical drive

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

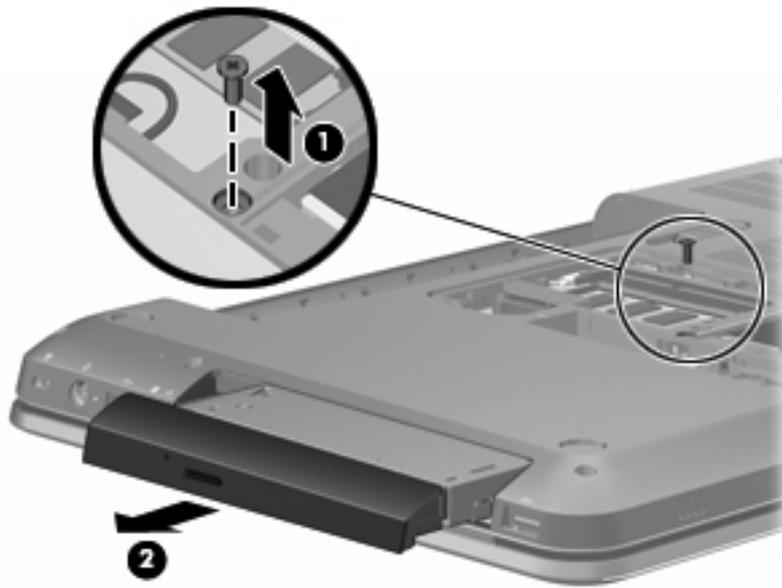
Description	Spare part number
Blu-ray ROM with LightScribe DVD±RW SuperMulti DL Drive	614332-001
Blu-ray ROM with LightScribe Combo Drive	603678-001
DVD±RW SuperMulti Double-Layer Drive with LightScribe	603677-001

Before removing the optical drive:

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 on page 40](#).
5. Remove the [Hard drive cover on page 41](#).

To remove the optical drive:

1. Position the computer with the front toward you.
2. Remove the screw (1) that secures the optical drive to the computer.
3. Remove the optical drive (2).



Reverse this procedure to install the optical drive.

## Keyboard

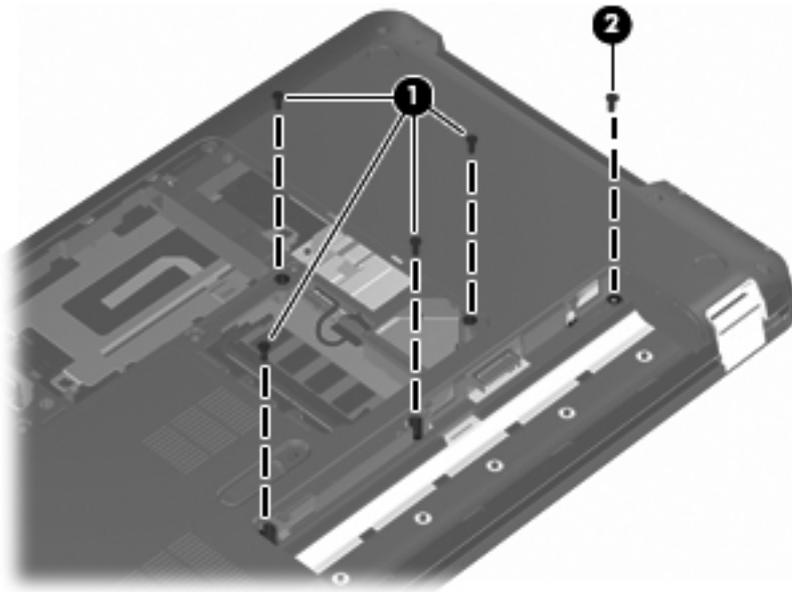
For a list of keyboards available for your country or region and their spare part numbers, see Computer major components.

Before removing the keyboard:

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 following components:
  - a. [Battery on page 40](#)
  - b. [Hard drive cover on page 41](#)
  - c. [Hard drive on page 42](#)
  - d. [Optical drive on page 49](#)

To remove the keyboard:

1. Position the computer upside down with the front toward you.
2. Remove the four Phillips PM2.5×5.0 screws (1) and the Phillips PM2.5×4.0 screw (2) that secure the keyboard to the computer.

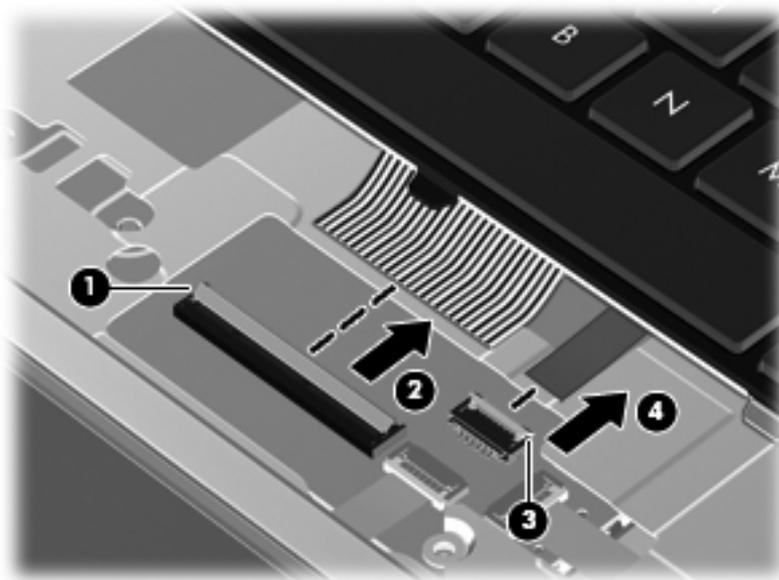


3. Turn the computer display-side up, with the front toward you, and open the computer as far as possible.

4. Lift (1) and release (2) the keyboard until the keyboard connector on the system board is accessible.



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



Reverse this procedure to install the switch cover and keyboard.

## Top cover



**NOTE:** The top cover spare part kit includes the TouchPad.

Description	Spare part number
For use with computer models in etched finish equipped with fingerprint reader	603684-001
For use with computer models with black finish	603685-001
For use with computer models with chrome finish	603688-001
For use with computer models with midnight blue finish	615934-001
For use with computer models with shell white finish	603686-001
For use with computer models with Sonoma red finish	603687-001

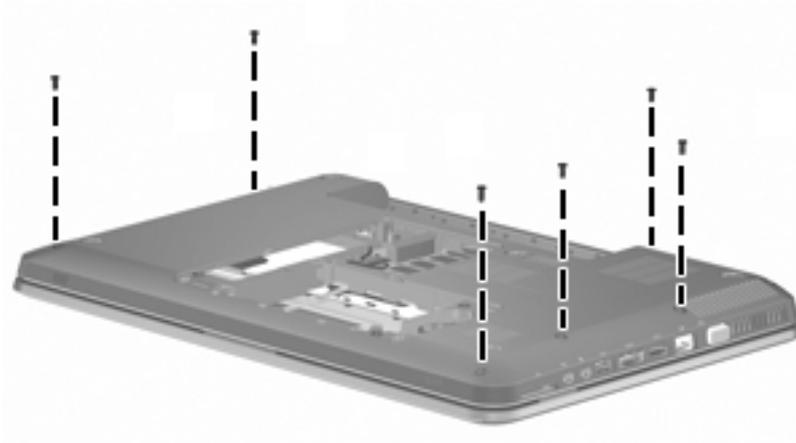
Before removing the top cover:

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 following components:
  - a. [Battery on page 40](#)
  - b. [Hard drive cover on page 41](#)
  - c. [Hard drive on page 42](#)
  - d. [Optical drive on page 49](#)
  - e. [Keyboard on page 50](#)

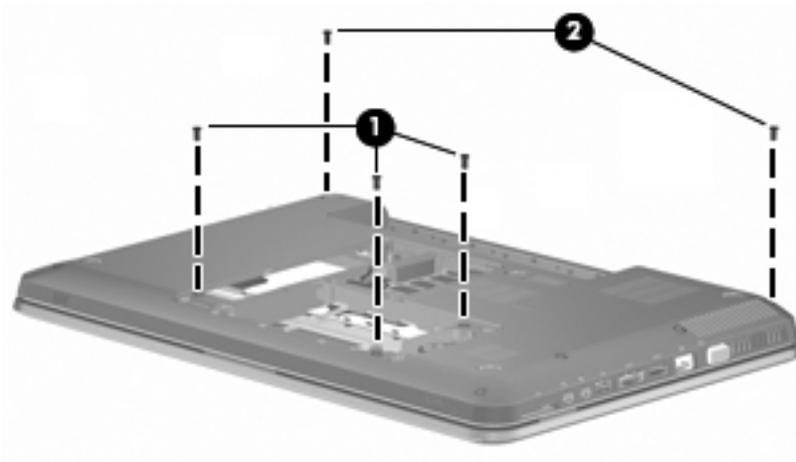
To remove the top cover:

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

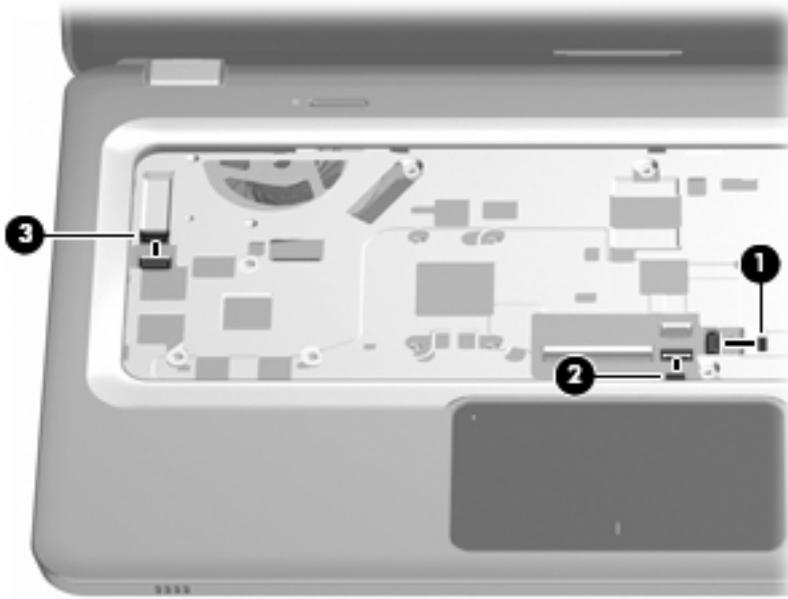
2. Remove the six Phillips PM2.5×7.0 screws that secure the top cover to the computer.



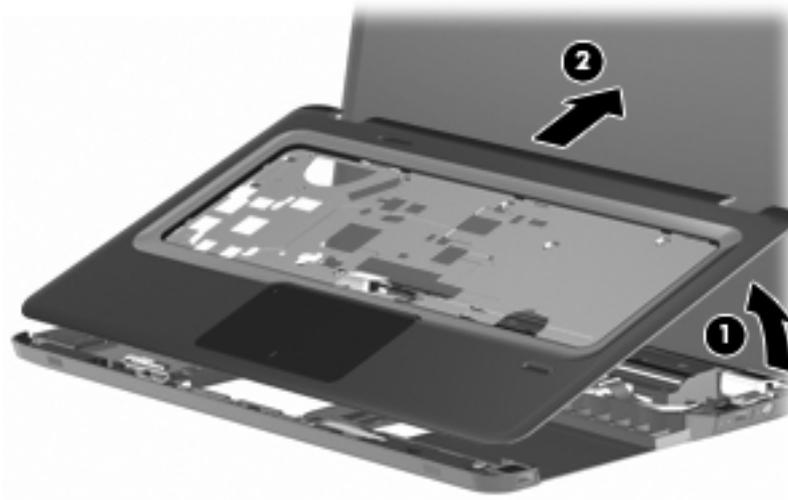
3. Remove the three Phillips PM2.5×5.0 screws (1) and the two Phillips PM2.5×9.0 screws (2) that secure the top cover to the computer.



4. Turn the computer right-side up, with the front toward you.
5. Disconnect the following cables from the system board:
  - Fingerprint reader board cable (1)
  - TouchPad cable (2)
  - Power button cable (3)



6. Lift the rear edge of the top cover (1) until it rests at an angle, and then remove the top cover (2).



Reverse this procedure to install the top cover.

## Power button board

Description	Spare part number
Power button board (includes cable)	603682-001

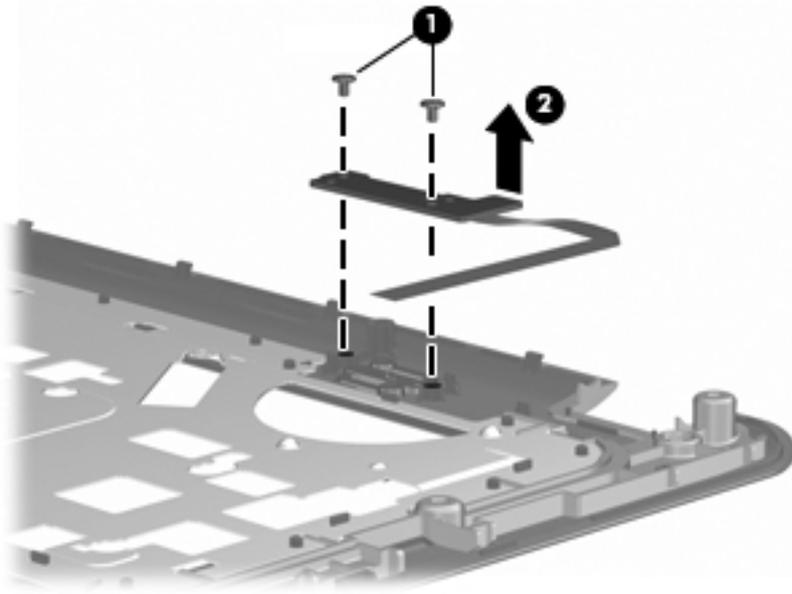
Before removing the power button board:

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 following components:
  - a. [Battery on page 40](#)
  - b. [Hard drive cover on page 41](#)
  - c. [Hard drive on page 42](#)
  - d. [Optical drive on page 49](#)
  - e. [Keyboard on page 50](#)
  - f. [Top cover on page 52](#)

To remove the power button board:

1. Turn the top cover upside down with the front toward you.
2. Remove the two screws (1) that secure the power button board to the top cover.

3. Remove the power button board (2) and cable.



Reverse this procedure to install the power button board.

## Touchscreen display assembly



**NOTE:** The display assembly includes a webcam, two microphones, and two wireless antenna transceivers and cables.

Description	Spare part number
TouchScreen HD display assembly with etched finish with webcam and two microphones	631019-001

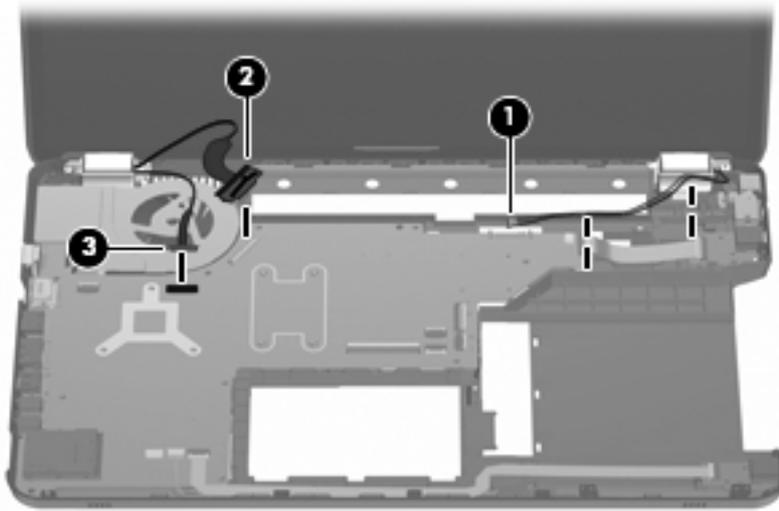
Before removing the display assembly:

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 following components:
  - a. [Battery on page 40](#)
  - b. [Hard drive cover on page 41](#)
  - c. [Hard drive on page 42](#)
  - d. [WLAN module on page 44](#)
  - e. [Optical drive on page 49](#)
  - f. [Keyboard on page 50](#)
  - g. [Top cover on page 52](#)

To remove the Touchscreen display assembly:

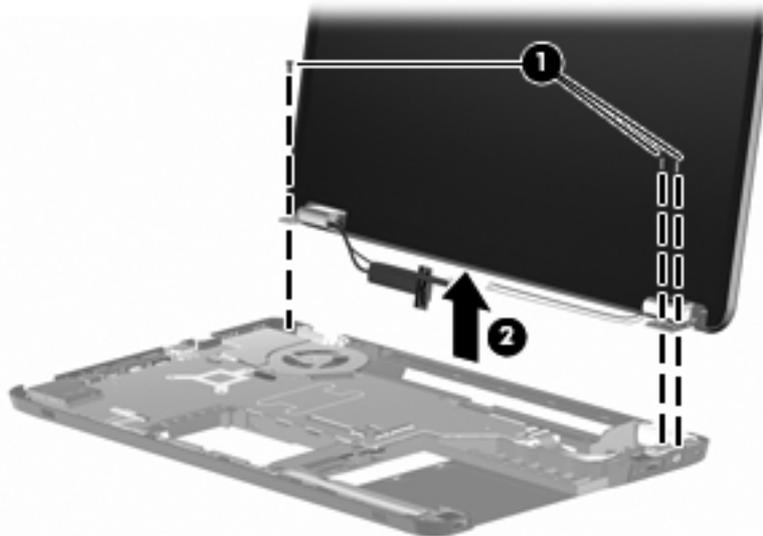
1. Remove the WLAN cables (1) from under the system board.
2. Disconnect the display panel cable (2) from the system board.

3. Disconnect the touchscreen cable (3) from the system board.

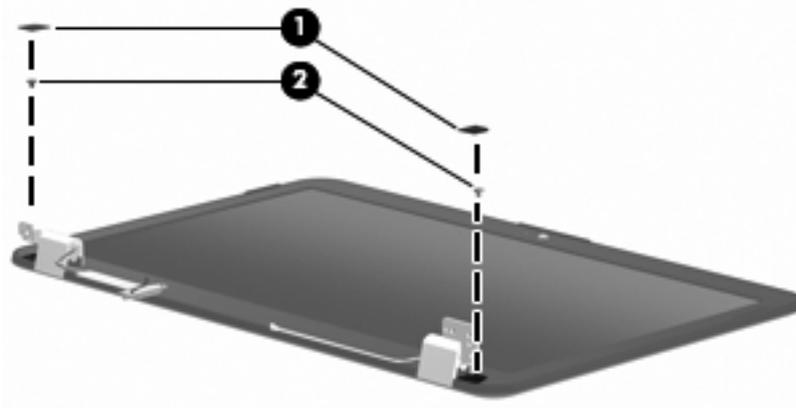


**⚠ CAUTION:** Support the display assembly when removing the following screws. Failure to support the display assembly might result in damage to the display assembly and other computer components.

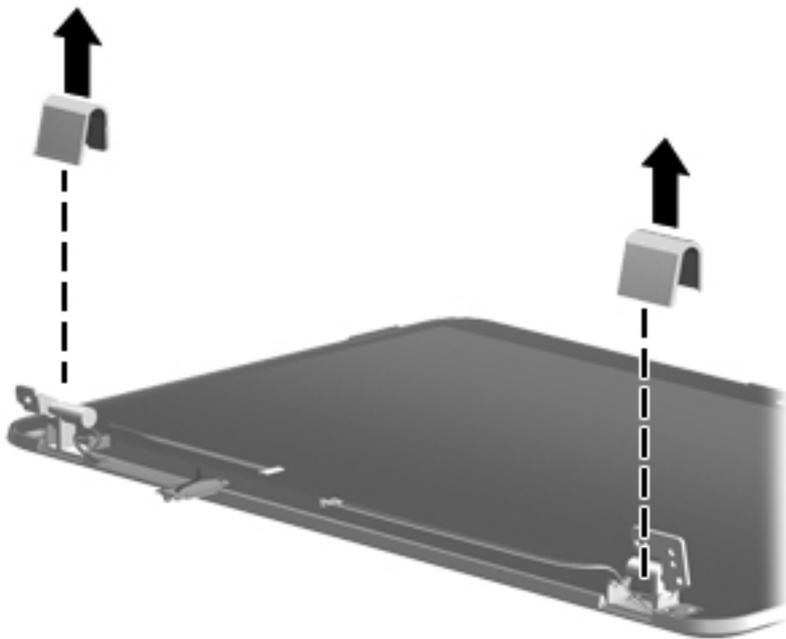
4. Remove the three screws (1) that secure the display assembly to the computer.
5. Remove the Touchscreen display assembly (2).



6. To replace the display enclosure or any of the display assembly internal components, remove the following:
  - Two rubber screw covers on the display bezel bottom edge (1). The display rubber screw covers are included in the Display Rubber Kit, spare part number 603659-001.
  - Two screws (2).

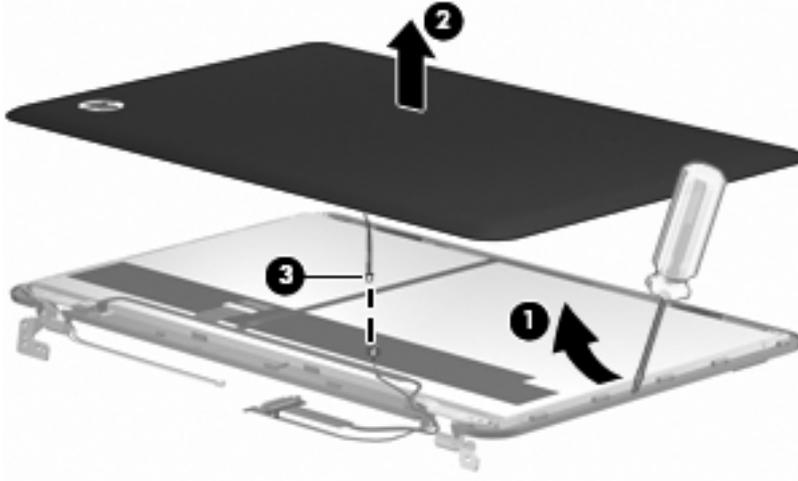


7. To remove the hinge covers, pop off the cover from each hinge.

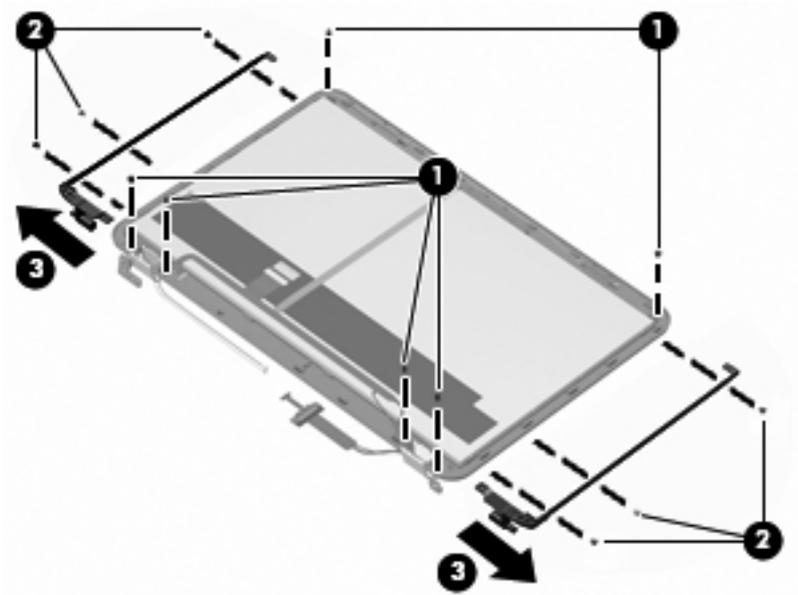


8. Pry the display panel from the display enclosure (1) by working your way around the perimeter of the panel using a flat head screwdriver.
9. Separate the display panel from the display enclosure (2).
10. Disconnect the display logo cable (3) from the display panel cable.

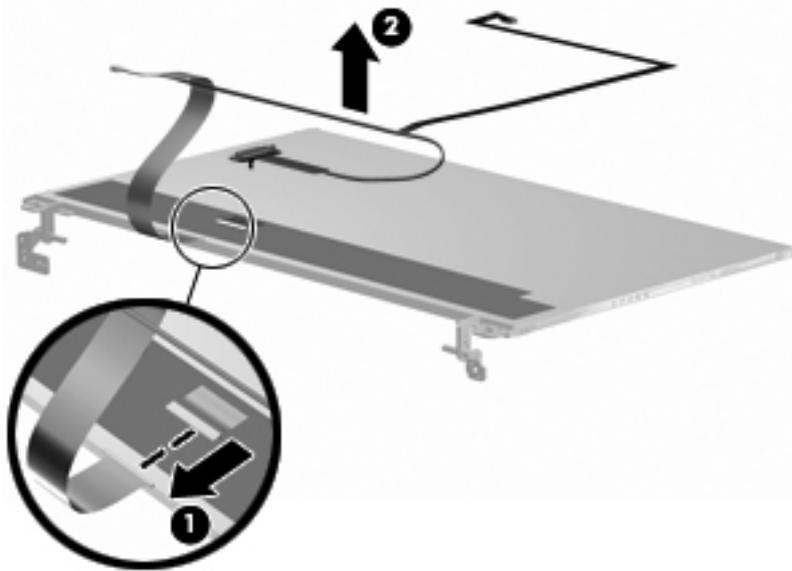
11. Remove the display enclosure. The Touchscreen display enclosure spare part number is 603663-001.



12. To replace the display hinges, remove the six screws (1) that secure the display hinges to the top of the display panel.
13. Remove the three screws (2) on the side of each display hinge.
14. Remove the display hinge (3). The display hinge is available in the Display Hinge Kit, spare part number 603664-001.



- 15.** To remove the display panel cable, remove the adhesive plastic strip (1) from the display panel cable, and then disconnect the cable (2). Lift and remove the cable (3). The Touchscreen Display Cable Kit is spare part number 603655-001.



Reverse this procedure to reassemble and install the display assembly.

## BrightView display assembly



**NOTE:** The display assembly includes two wireless antenna transceivers and cables.

Description	Spare part number
For use with computer models with black finish and WiMax	629279-001
For use with computer models with etched finish and WiMax	629280-001
For use with computer models with black finish	603647-001
For use with computer models with chrome finish	603650-001
For use with computer models with etched finish	595131-001
For use with computer models with midnight blue finish	615932-001
For use with computer models with shell white finish	603648-001
For use with computer models with Sonoma red finish	603649-001

Before removing the BrightView display assembly:

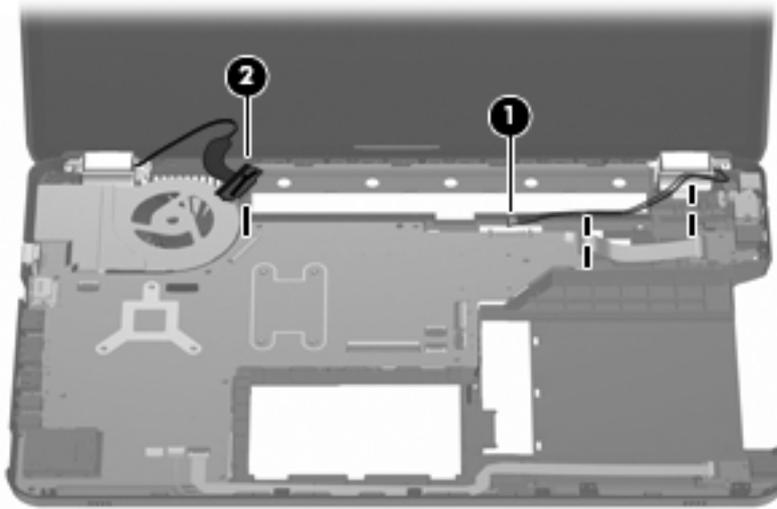
1. Shut down the computer. If you are unsure whether the computer is off or in Hibernation, turn the computer on, and then shut it down through the operating system.
2. Disconnect all external devices connected to the computer.
3. Disconnect the power from the computer by first disconnecting the power cord from the AC outlet and then disconnecting the AC adapter from the computer.
4. Remove the following components:
  - a. [Battery on page 40](#)
  - b. [Hard drive cover on page 41](#)
  - c. [Hard drive on page 42](#)
  - d. [WLAN module on page 44](#)
  - e. [Optical drive on page 49](#)
  - f. [Keyboard on page 50](#)
  - g. [Top cover on page 52](#)

To remove the BrightView display assembly:

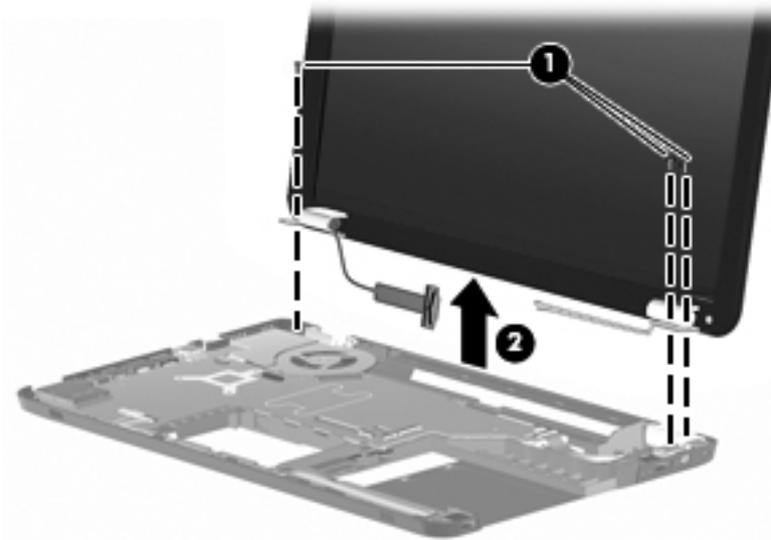
1. Remove the WLAN cables (1) from under the system board.

2. Disconnect the display panel cable (2) from the system board.

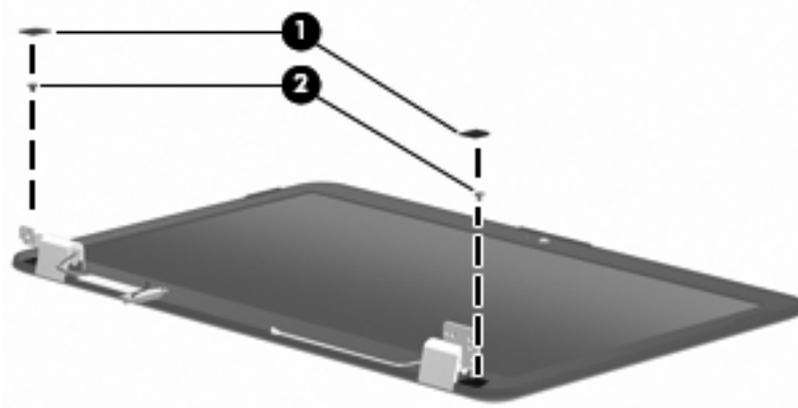
**⚠ CAUTION:** Support the display assembly when removing the following screws. Failure to support the display assembly might result in damage to the display assembly and other computer components.



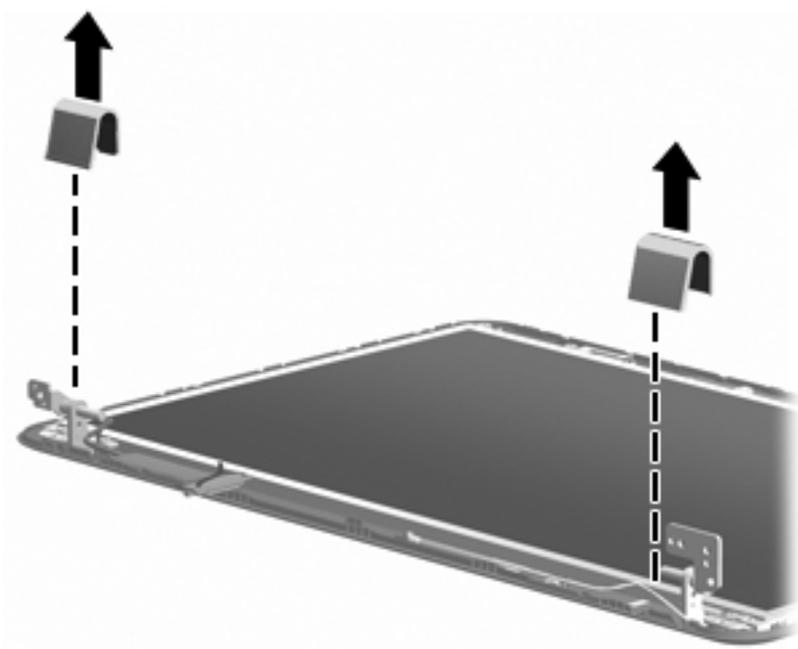
3. Remove the three screws (1) that secure the display assembly to the computer.
4. Remove the BrightView display assembly (2).



5. To replace the display bezel or any of the display assembly internal components, remove the following:
  - Two rubber screw covers on the display bezel bottom edge (1).
  - Two screws (2). The display rubber screw covers are included in the Display Rubber Kit, spare part number 603659-001.

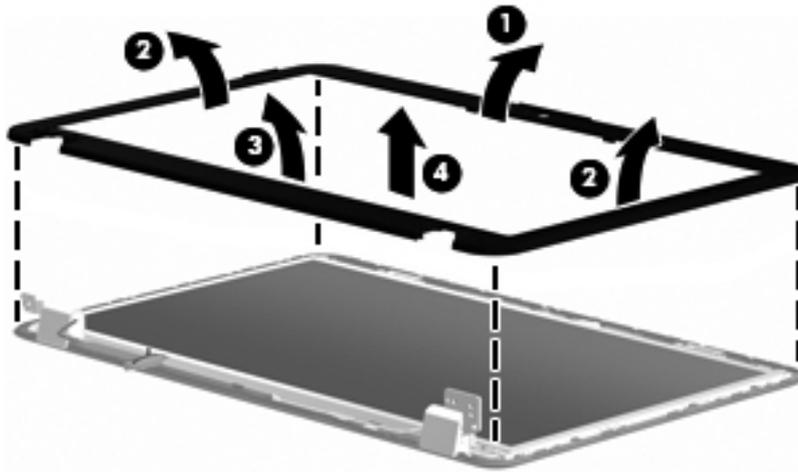


6. Remove the hinge covers by popping off the cover from each hinge.

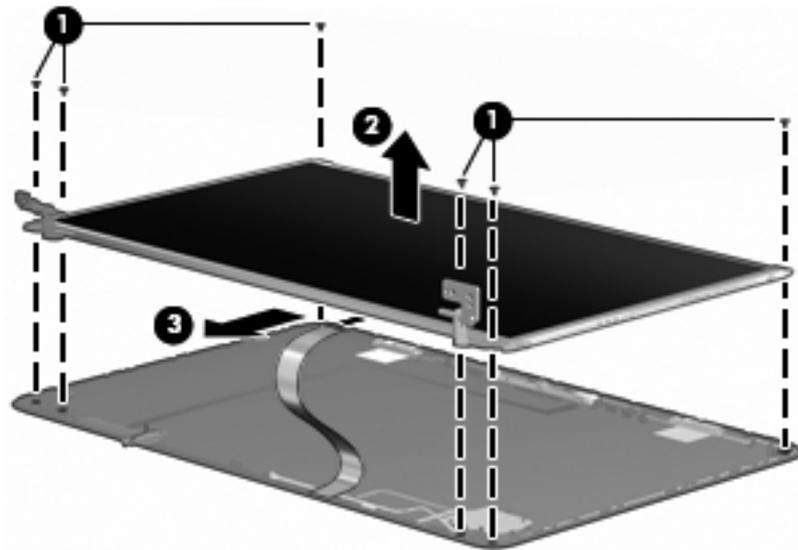


7. Flex the inside edges of the top edge (1), the left and right sides (2), and the bottom edge (3) of the display bezel until the bezel disengages from the display enclosure.

8. Remove the display bezel (4). The display bezel is available using spare part number 603651-001.

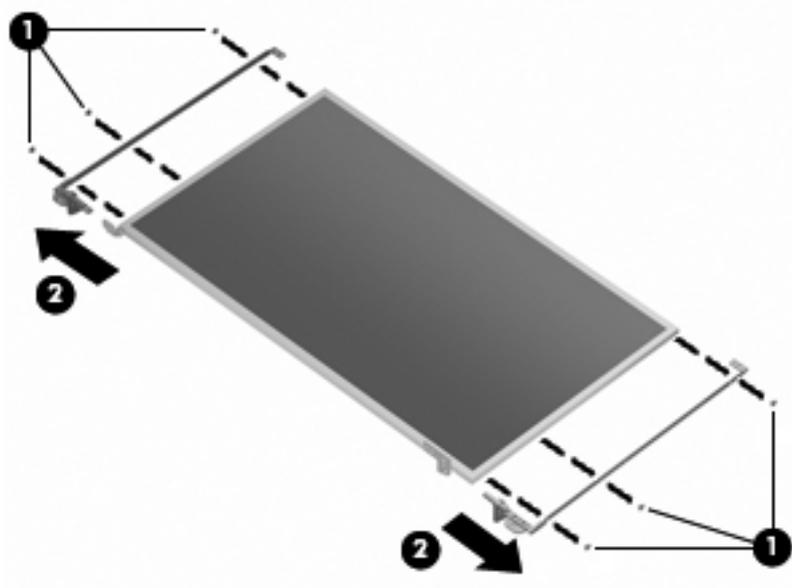


9. To replace the display panel, remove the six screws (1) from the display hinges.
10. Separate the display panel from the display enclosure (2), and then disconnect the display LED cable (3) from the display panel cable. The display panel spare part number is 559130-001.

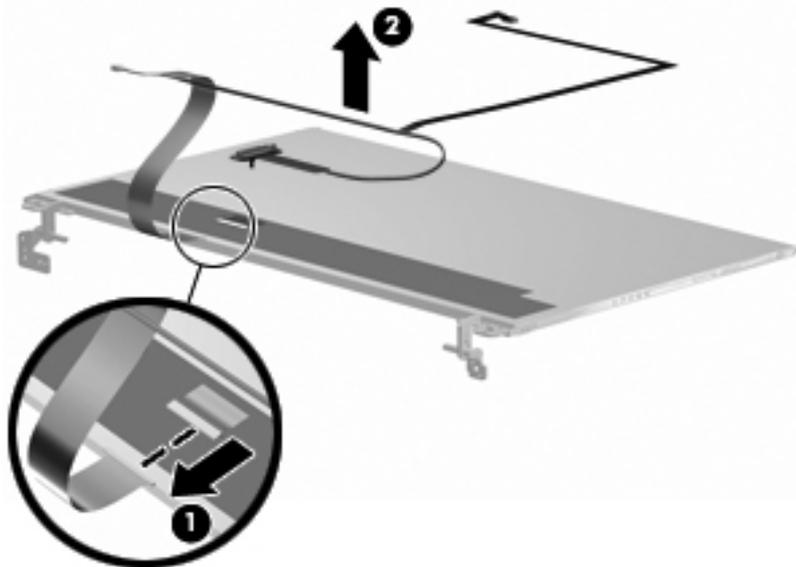


11. To replace the display hinges, remove the three screws (1) that secure each display hinge to the display panel.

- 12.** Remove the display hinges (2). The display hinges are available in the BrightView Display Hinge Kit, spare part 603656-001. The display hinge screws are available in the Display Screw Kit, spare part number 603658-001.



- 13.** To remove the display panel cable, remove the adhesive plastic strip (1) from the display panel cable, and then disconnect the cable (2). Lift and remove the cable (3). The BrightView Display Cable Kit is spare part number 603657-001. The BrightView Display Cable Kit with WiMAX is spare part number 629284-001.



## Webcam/microphone module

Description	Spare part number
Webcam/microphone module (includes cable)	603660-001

Before removing the webcam/microphone module:

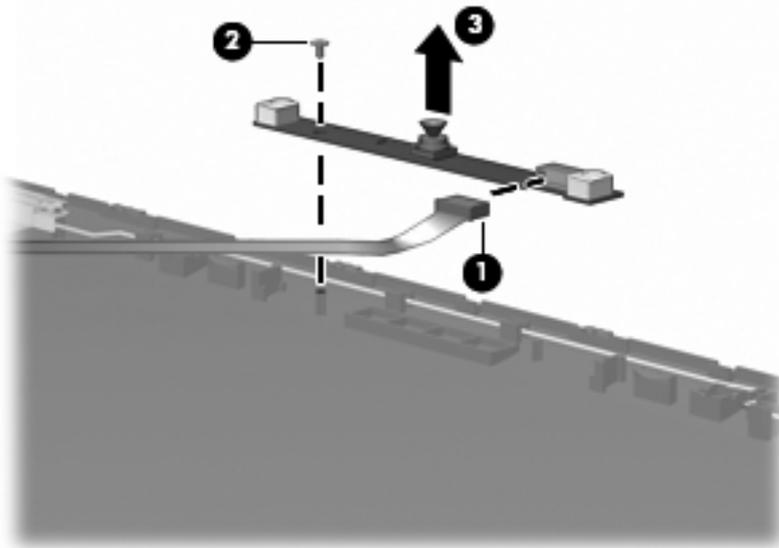
1. Shut down the computer. If you are unsure whether the computer is off or in Hibernation, turn the computer on, and then shut it down through the operating system.
2. Disconnect all external devices connected to the computer.
3. Disconnect the power from the computer by first disconnecting the power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

To access the BrightView webcam/microphone module, remove the display bezel. For instructions, see [BrightView display assembly on page 62](#).

To access the Touchscreen webcam/microphone module, remove the display panel from the display enclosure. For instructions, see [Touchscreen display assembly on page 57](#).

To replace the webcam/microphone module:

1. Disconnect the webcam/microphone module cable (1) from the webcam/microphone module.
2. Remove the screw securing the webcam/microphone module to the display enclosure (2).
3. Release the webcam/microphone module from the display enclosure (3).



Reverse this procedure to install the webcam/microphone module.

## Bluetooth module



**NOTE:** The Bluetooth module spare part kit does not include a Bluetooth module cable. The Bluetooth module cable spare part number is 603645-001.

Description	Spare part number
Bluetooth module	537921-001

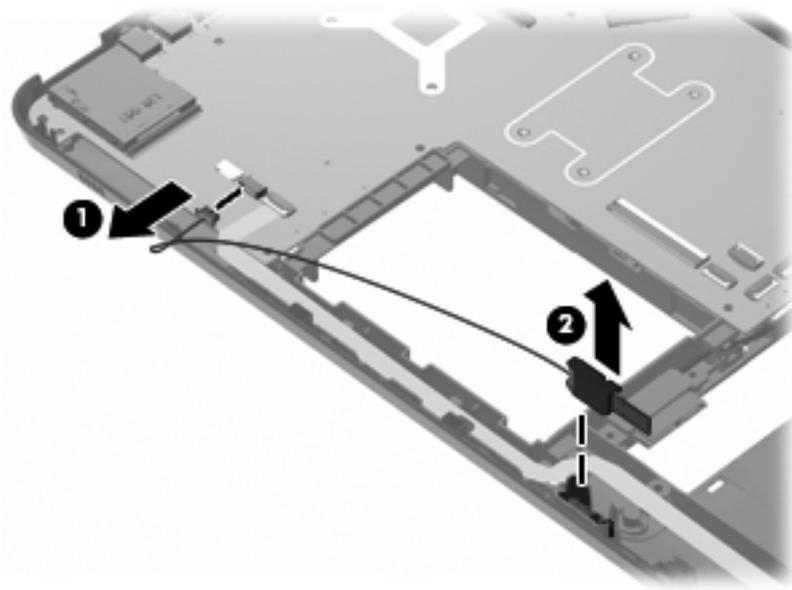
Before removing the Bluetooth module:

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 following components:
  - a. [Battery on page 40](#)
  - b. [Hard drive cover on page 41](#)
  - c. [Hard drive on page 42](#)
  - d. [Optical drive on page 49](#)
  - e. [Keyboard on page 50](#)
  - f. [Top cover on page 52](#)
  - g. [Touchscreen display assembly on page 57](#) or [BrightView display assembly on page 62](#)

To remove the Bluetooth module:

1. Disconnect the Bluetooth module cable (1) from the system board.

2. Slide the Bluetooth module out of the slot and remove the module (2) from the computer.



Reverse this procedure to install the Bluetooth module.

## USB board

Description	Spare part number
USB board (includes cable)	603683-001

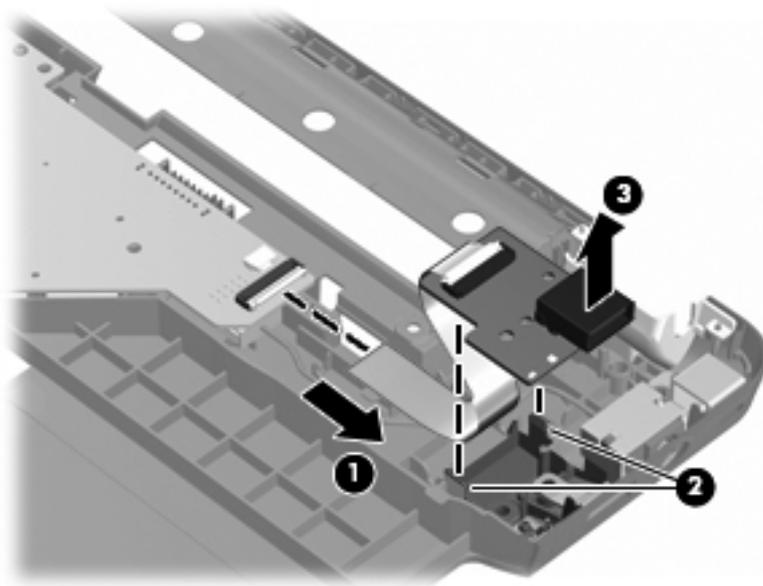
Before removing the USB board:

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 following components:
  - a. [Battery on page 40](#)
  - b. [Hard drive cover on page 41](#)
  - c. [Hard drive on page 42](#)
  - d. [Optical drive on page 49](#)
  - e. [Keyboard on page 50](#)
  - f. [Top cover on page 52](#)
  - g. [Touchscreen display assembly on page 57](#) or [BrightView display assembly on page 62](#)

To remove the USB board (right-side):

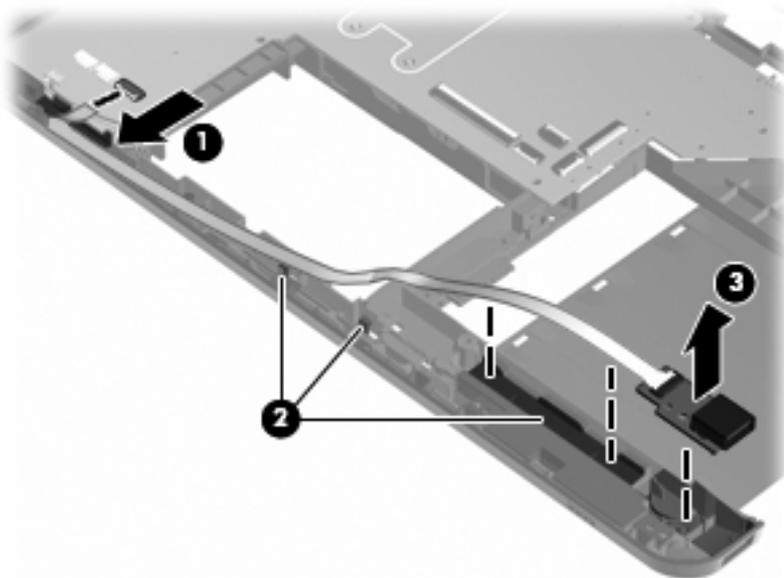
1. Disconnect the USB board cable (1) from the LIF connector on the system board.
2. Remove the screws (2) that secures the USB board to the base enclosure.

3. Remove the USB board (3) from the base enclosure.



To remove the USB board (left-side):

1. Disconnect the USB board cable (1) from the LIF connector on the system board
2. Remove the USB cable from the clips (2) attaching the cable to the base enclosure.
3. Remove the USB board from the base enclosure (3).



Reverse this procedure to install the USB board.

## Power connector

Description	Spare part number
Power connector	603692-001

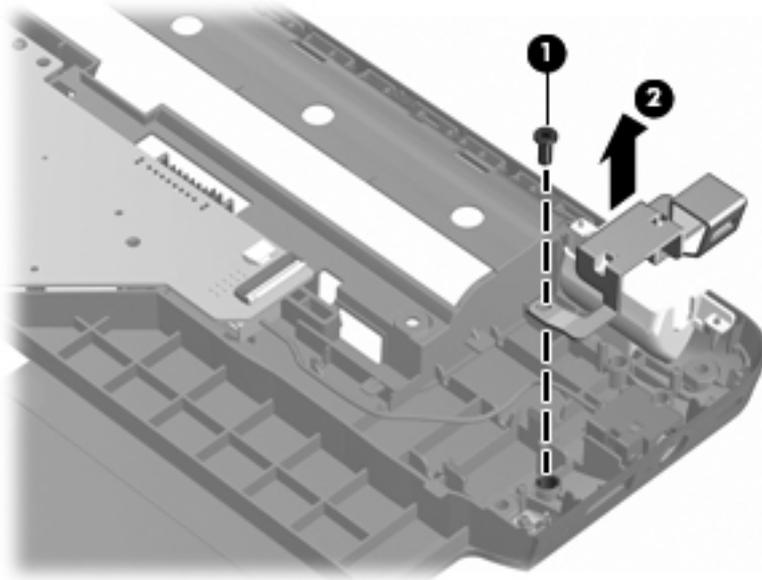
Before removing the power connector cable:

1. Shut down the computer. If you are unsure whether the computer is off or in Hibernation, turn 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 following components:
  - a. [Battery on page 40](#)
  - b. [Hard drive cover on page 41](#)
  - c. [Hard drive on page 42](#)
  - d. [Optical drive on page 49](#)
  - e. [Keyboard on page 50](#)
  - f. [Top cover on page 52](#)
  - g. [Touchscreen display assembly on page 57](#) or [BrightView display assembly on page 62](#)
  - h. [USB board on page 70](#)

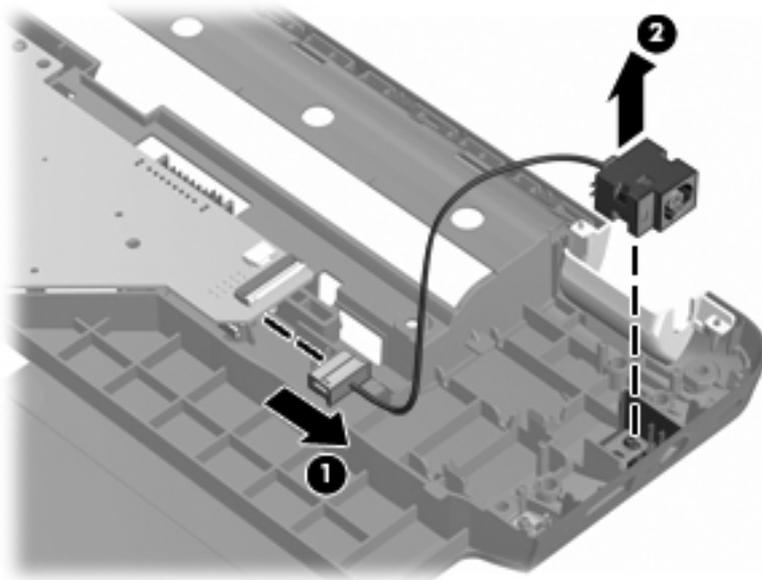
To remove the power connector cable:

1. Remove the screw (1) that secures the power connector and bracket to the base enclosure.

2. Remove the power connector bracket (2).



3. Disconnect the power cable (1) from the system board and release the cable from the clips built into the base enclosure.
4. Remove the power connector (2) from the clip built into the base enclosure.



Reverse this procedure to install the power connector and cable.

## System board



**NOTE:** The system board spare kit includes replacement thermal material.

Description	Spare part number
For use with computer models equipped with a graphics subsystem with discrete memory	633554-001
For use with computer models equipped with a graphics subsystem with UMA memory	633555-001

Before removing the system 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 following components:
  - a. [Battery on page 40](#)
  - b. [Hard drive cover on page 41](#)
  - c. [Hard drive on page 42](#)
  - d. [Optical drive on page 49](#)
  - e. [Keyboard on page 50](#)
  - f. [Top cover on page 52](#)
  - g. [Touchscreen display assembly on page 57](#) or [BrightView display assembly on page 62](#)

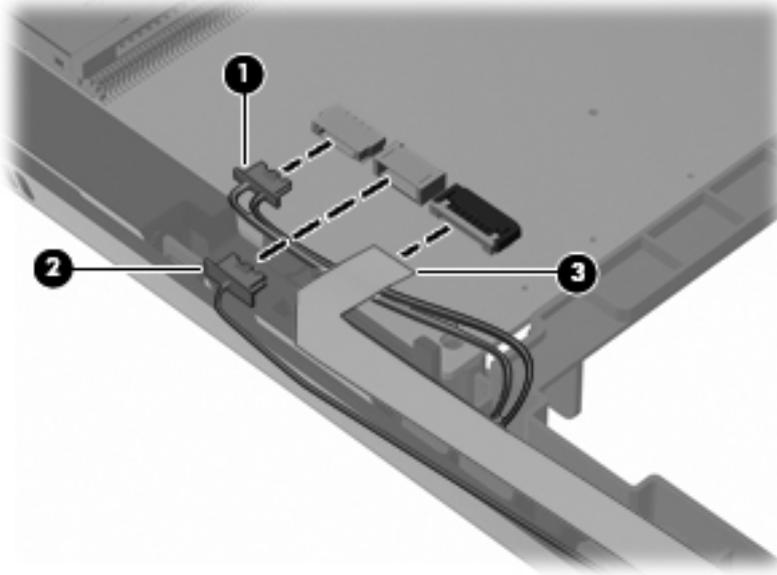
When replacing the system board, be sure that the following components are removed from the defective system board and installed on the replacement system board:

- [RTC battery on page 48](#)
- [Memory module on page 46](#)
- [WLAN module on page 44](#)
- [Fan/heat sink assembly on page 77](#)
- [Processor on page 80](#)

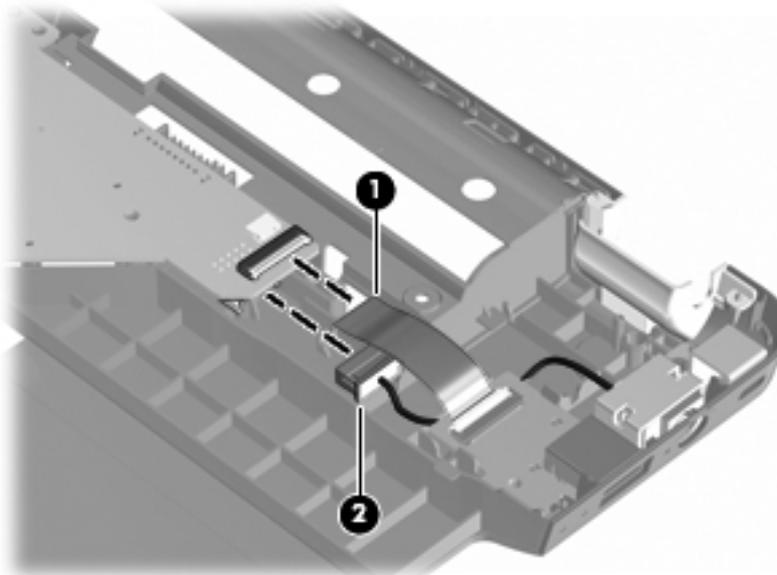
To remove the system board:

**1.** Disconnect the following cables from the system board:

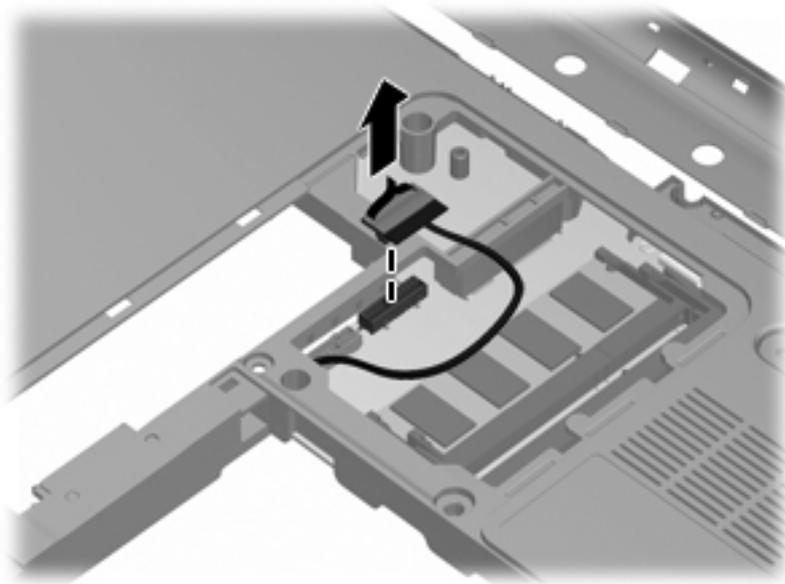
- Left-side USB board cable (1)
- Bluetooth cable (2)
- Speaker cable (3)



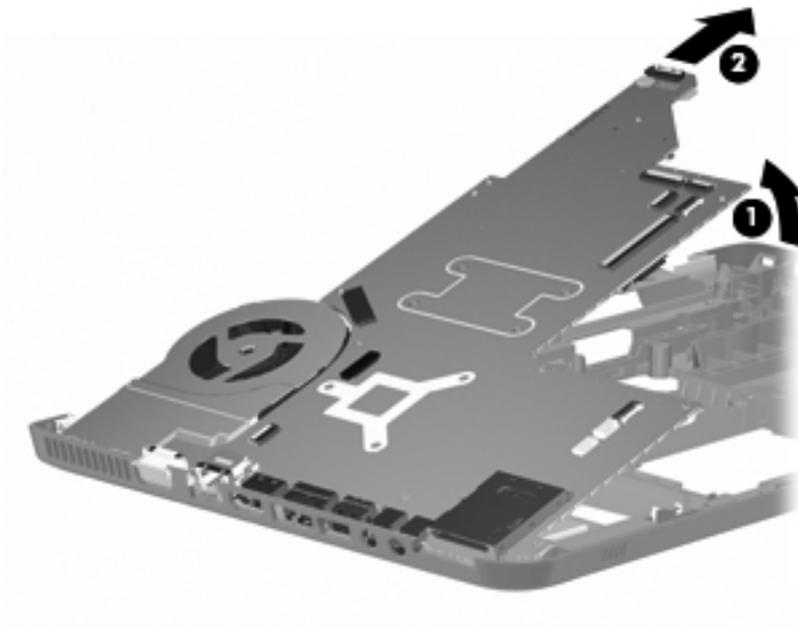
- Right-side USB board cable (1)
- Power connector cable (2)



- Optical drive cable



2. Lift up on the right side of the system board until it is at approximately a 45-degree angle (1).
3. Lift the system board to the right and up and out of the base enclosure (2).



Reverse this procedure to install the system board.

## Fan/heat sink assembly

 **NOTE:** The fan/heat sink assembly spare kit includes replacement thermal material.

Description	Spare part number
For use with computer models equipped with a graphics subsystem with discrete memory	634454-001
For use with computer models equipped with a graphics subsystem with UMA memory	634455-001

 **NOTE:** To properly ventilate the computer, allow at least a 7.6-cm (3-inch) clearance on the right side and rear panel of the computer. The computer uses an electric fan for ventilation. The fan is controlled by a temperature sensor and is designed to turn on automatically when high temperature conditions exist. These conditions are affected by high external temperatures, system power consumption, power management/battery conservation configurations, battery fast charging, and software requirements. Exhaust air is displaced through the ventilation grill located on the left side of the computer.

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 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 following components:
  - a. [Battery on page 40](#)
  - b. [Hard drive cover on page 41](#)
  - c. [Hard drive on page 42](#)
  - d. [Optical drive on page 49](#)
  - e. [Keyboard on page 50](#)
  - f. [Top cover on page 52](#)
  - g. [Touchscreen display assembly on page 57](#) or [BrightView display assembly on page 62](#)
  - h. [USB board on page 70](#)
  - i. [System board on page 74](#)

To remove the fan/heat sink assembly:

1. Turn the system board upside down, with the fan toward you
2. Disconnect the fan cable (1) from the system board.
3. Loosen the seven captive screws (2) and (3) that secure the fan/heat sink assembly to the system board.



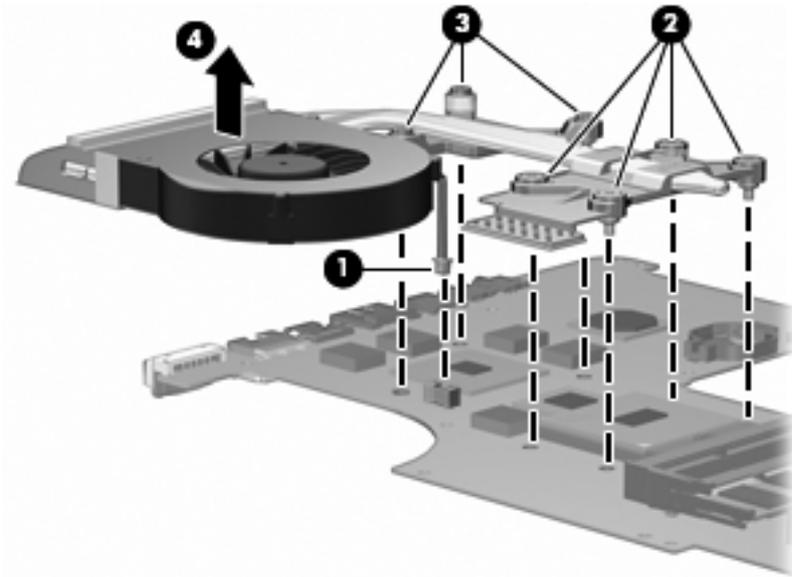
---

**NOTE:** The screws (3) that secure the section of the fan/heat sink assembly that services the graphics subsystem memory component are present only on computer models equipped with a graphics subsystem with discrete memory.

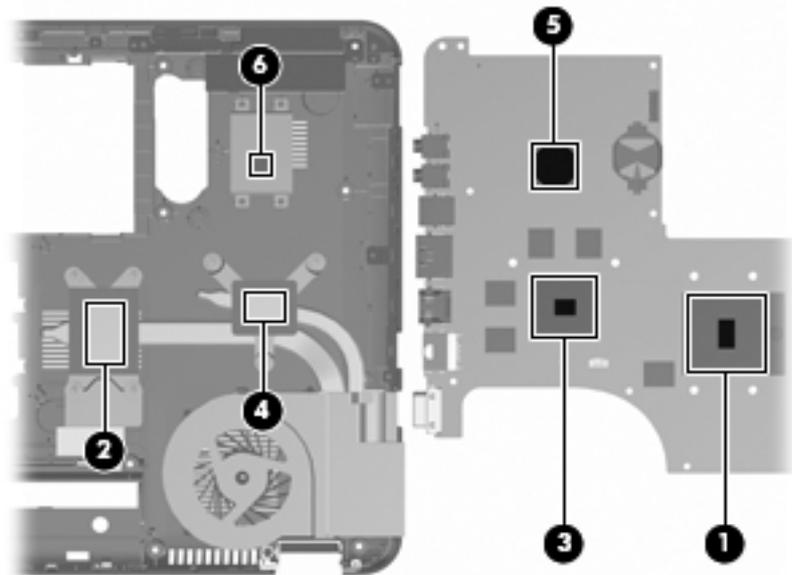
**NOTE:** Due to the adhesive quality of the thermal material located between the fan/heat sink assembly and system board components, it might be necessary to move the fan/heat sink assembly from side to side to detach the assembly.

---

4. Remove the fan/heat sink assembly (4).



**NOTE:** The thermal material must be thoroughly cleaned from the surfaces of the fan/heat sink assembly and the system board each time the fan/heat sink assembly is removed. Thermal paste is applied to the fan/heat sink assembly to correspond with components on the system board as follows: the processor (1) and (2), the Northbridge chip (3) and (4), and the graphics subsystem chip (5) and (6). Replacement thermal material is included with all fan/heat sink assembly, system board, and processor spare part kits.



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

## Processor



**NOTE:** The processor spare part kit includes thermal material.

Description	Spare part number
Intel Core i7-2820QM 2.30-GHz (turbo up to 3.40-GHz) processor, 8-MB L2 cache, 1600 MHz, 45 W	634694-001
Intel Core i7-2720QM 2.20-GHz (turbo up to 3.30-GHz) processor, 6-MB L2 cache, 1600 MHz, 45 W	631254-001
Intel Core i7-2630QM 2.00-GHz (turbo up to 2.90-GHz) processor, 6-MB L2 cache, 1600 MHz, 45 W	635501-001

Before removing the processor:

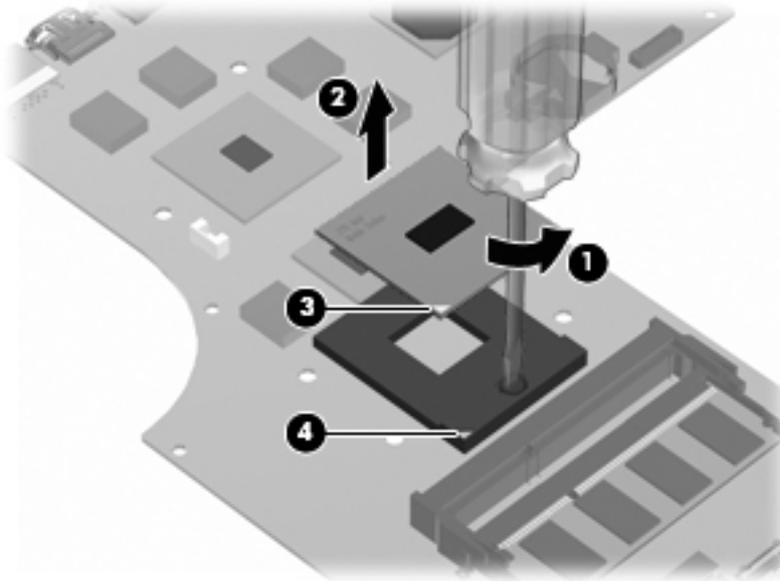
1. Shut down the computer. If you are unsure whether the computer is off or in Hibernation, turn the computer on, and then shut it down through the operating system.
2. Disconnect all external devices connected to the computer.
3. Disconnect the power from the computer by first disconnecting the power cord from the AC outlet and then disconnecting the AC adapter from the computer.
4. Remove the following components:
  - a. [Battery on page 40](#)
  - b. [Hard drive cover on page 41](#)
  - c. [Hard drive on page 42](#)
  - d. [Optical drive on page 49](#)
  - e. [Keyboard on page 50](#)
  - f. [Top cover on page 52](#)
  - g. [Touchscreen display assembly on page 57](#) or [BrightView display assembly on page 62](#)
  - h. [USB board on page 70](#)
  - i. [System board on page 74](#)
  - j. [Fan/heat sink assembly on page 77](#)

To replace 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 installing the processor.



Reverse this procedure to install the processor.

# Speaker assembly

Description	Spare part number
Speaker assembly	603694-001

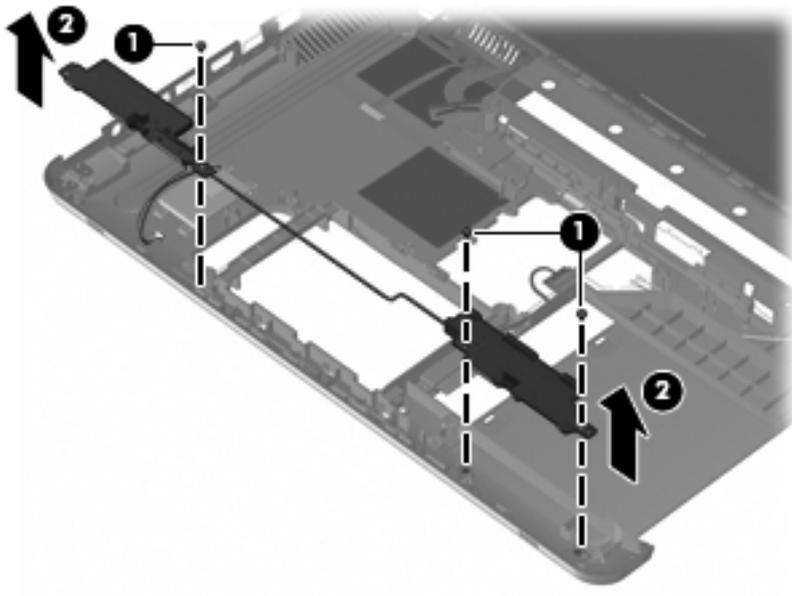
Before removing the speaker assembly:

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 following components:
  - a. [Battery on page 40](#)
  - b. [Hard drive cover on page 41](#)
  - c. [Hard drive on page 42](#)
  - d. [Optical drive on page 49](#)
  - e. [Keyboard on page 50](#)
  - f. [Top cover on page 52](#)
  - g. [Touchscreen display assembly on page 57](#) or [BrightView display assembly on page 62](#)
  - h. [System board on page 74](#)

To remove the speaker assembly:

1. Remove the three screws (1) securing the speaker assembly to the base enclosure.
2. Disconnect the speaker assembly cable (2) from the system board.

3. Remove the speaker assembly (3).



Reverse this procedure to install the speaker assembly.

---

# 5 Setup Utility (BIOS)

## Starting Setup Utility

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

---

 **NOTE:** The Fingerprint Reader (select models only) cannot be used to access Setup Utility.

---

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

To start Setup Utility:

1. Open Setup Utility by turning on or restarting the computer. When the Press the ESC key for Startup Menu screen appears, press the **f10** key.  
– or –  
Open Setup Utility by turning on or restarting the computer. When the Press the ESC key for Startup Menu screen appears, press the **esc** key.
2. When the Startup Menu appears, press the **f10** key.

## Using Setup Utility

### Changing the language of Setup Utility

To change the language of Setup Utility:



**NOTE:** If Setup Utility is not running, begin at step 1. If Setup Utility is 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 screen appears, press the **f10** key.

– or –

Open Setup Utility by turning on or restarting the computer. When the Press the ESC key for Startup Menu screen appears, press the **esc** key. When the Startup Menu appears, 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 the **enter** key.
4. When a confirmation prompt with your language selected is displayed, 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 navigate Setup Utility:

- Use the arrow keys to choose a menu or a menu item.
- Use either the arrow keys or the **f5** or **f6** keys to choose an item in a list or to toggle a field, for example an Enable/Disable field.
- Press the **enter** key to select an item.
- Press the **esc** key to close a text box or return to the menu display.
- Press the **f1** key to display additional navigation and selection information.

## Displaying system information

Use Setup Utility to view the system time and date and information that identifies the computer.

To display the system information using Setup Utility:

---

 **NOTE:** If Setup Utility is running, begin at step 1. If Setup Utility is not 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 screen appears, press the **f10** key.

– or –

Open Setup Utility by turning on or restarting the computer. When the Press the ESC key for Startup Menu screen appears, press the **esc** key. When the Startup Menu appears, press the **f10** key.

2. Select the **Main** menu.
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

To restore Setup Utility default settings:

---

 **NOTE:** If Setup Utility is not running, begin at step 1. If Setup Utility is 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 screen appears, press the **f10** key.

– or –

Open Setup Utility by turning on or restarting the computer. When the Press the ESC key for Startup Menu screen appears, press the **esc** key. When the Startup Menu appears, 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 screen 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:** Your password, security, and language settings are not changed when you restore the factory default settings.

---

## Exiting Setup Utility

Exit Setup Utility with or without saving changes.

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

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

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

If the Setup Utility menus are not visible, press the **esc** key to return to the menu display. 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 provide an overview of Setup Utility options.

 **NOTE:** Some Setup Utility menu items might not be supported by the computer.

### Main menu

Select	Function
System information	<ul style="list-style-type: none"><li>• View and change the system time and date.</li><li>• View identification information about the computer.</li><li>• View specification information about the processor, memory size, system BIOS, and keyboard controller version (select models only).</li></ul>

### Security menu

Select	Function
Administrator password	Enter, change, or delete an administrator password.
Power-On Password	Enter, change, or delete a power-on password.

### System Configuration menu

Select	Function
Language Support	Change the language of Setup Utility.
Virtualization Technology (select models only)	Enable/disable the processor Virtualization Technology.
LAN Power Saving (select models only)	Enable/disable LAN Power Saving. When enabled, saves power when the computer is in DC mode.
Fan Always On	Enabled/disable Fan Always On. When enabled, the computer fan is always on.

Select	Function
Action Keys Mode	Enable/disable the Action Keys.
Boot Options	<ul style="list-style-type: none"> <li>• POST (power-on self test) <b>f10</b> and <b>f12</b> Delay (sec.)—Set the delay for the <b>f10</b> and <b>f12</b> functions of Setup Utility in intervals of 5 seconds each (0, 5, 10, 15, 20).</li> <li>• HP QuickWeb— <ul style="list-style-type: none"> <li>◦ Enable/disable the HP QuickWeb Boot Menu during POST.</li> <li>◦ Delay to boot Windows—Set the delay for the HP QuickWeb Boot Menu to 2, 3, 5, 10, 15, or 30 seconds.</li> </ul> </li> <li>• CD-ROM Boot—Enable/disable boot from CD-ROM.</li> <li>• Floppy Boot—Enable/disable boot from diskette.</li> <li>• Internal Network Adapter Boot—Enable/disable boot from the internal network adapter.</li> <li>• Boot Order—Set the boot order for: <ul style="list-style-type: none"> <li>◦ Hard Drive</li> <li>◦ Internal CD/DVD ROM Drive</li> <li>◦ USB Diskette on Key/USB Hard Drive</li> <li>◦ USB CD/DVD ROM Drive</li> <li>◦ USB Floppy</li> <li>◦ Network Adapter</li> </ul> </li> </ul>

## Diagnostics menu

Select	Function
Primary Hard Disk Self Test	Run a comprehensive self-test on the hard drive.
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.

# 6 Specifications

## Computer specifications

	<b>Metric</b>	<b>U.S.</b>
<b>Dimensions</b>		
Width	37.8 cm	14.9 in
Depth	24.5 cm	9.6 in
Height (front to back)	3.2 to 3.5 cm	1.3 to 1.4 in
Diagonal	39.6 cm	15.6 in
<b>Weight</b> (with optical drive, hard drive, and battery)	2.5 g to 2.9 kg	5.5 lbs to 6.5 lbs
<b>Input power</b>		
Operating voltage	18.5 V dc @ 3.5 A - 65 W	
Operating current	3.5 A or 4.74 A	
<b>Temperature</b>		
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
<b>Relative humidity</b>		
Operating	10% to 90%	
Nonoperating	5% to 95%	
<b>Maximum altitude</b> (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
<b>NOTE:</b> Applicable product safety standards specify thermal limits for plastic surfaces. The computer operates well within this range of temperatures.		

## 39.6-cm (15.6-inch) display specifications

<b>Number of colors</b>	Up to 262,114
<b>Contrast ratio</b>	500:1 (typical)
<b>Brightness</b>	220 nits (typical)
Pitch	0.252 × 0.252 mm
Format	1366 × 768
Configuration	RGB vertical stripe
<b>Backlight</b>	Edge lit
<b>Character display</b>	80 × 25
<b>Total power consumption</b>	4.7 W
<b>Viewing angle</b>	±45° horizontal, ±15° upper vertical, ±35° lower vertical (typical)

# Hard drive specifications

	1-TB*	750-GB**	640-GB*	500-GB**	320-GB**	250-GB**	160-GB**
<b>Dimensions</b>							
Height	12.5 mm	12.5 mm	9.5 mm	9.5 mm	9.5 mm	9.5 mm	9.5 mm
Length	100.2 mm	100.2 mm	100.2 mm	100.35 mm	100.35 mm	100.35 mm	100.35 mm
Width	69.85 mm	69.85 mm	69.85 mm	69.85 mm	69.85 mm	69.85 mm	69.85 mm
Weight	152 g	152 g	98 g	110 g	110 g	105 g	105 g
<b>Interface type</b>	SATA(3 GB/sec)	SATA (3 GB/sec)	SATA (3 GB/sec)	SATA	SATA	SATA	SATA
<b>Transfer rate</b>							
Synchronous (maximum)	97 MB/sec	97 MB/sec	106 MB/sec	1.1 GB/sec (internal)	1.1 GB/sec (internal)	1.1 GB/sec (internal)	1.1 GB/sec (internal)
Security	ATA security	ATA security	ATA security	ATA security	ATA security	ATA security	ATA security
<b>Seek times</b> (typical read, including setting)							
Single track	2 ms	2 ms	1.5 ms	1.5 ms	1.5 ms	1.5 ms	1.5 ms
Average (read/write)	12/16 ms	12/16 ms	12/13 ms	11/13 ms	11/13 ms	11/13 ms	11/13 ms
Maximum	21 ms	21 ms	24 ms	22 ms	22 ms	22 ms	22 ms
<b>Logical blocks</b>	1,953,525,168	1,465,149,168	1,250,263,728	976,773,168	625,142,448	488,397,168	312,581,808
<b>Disc rotational speed</b>	5200 and 5400-rpm	5200 and 5400-rpm	5400 and 7200-rpm	5400 and 7200-rpm	7200-rpm	7200-rpm	7200-rpm
<b>Operating temperature</b>	0°C to 60°C (32°F to 140°F)						
*1 TB = 1 trillion bytes when referring to hard drive storage capacity. Actual accessible capacity is less.							
**1 GB = 1 billion bytes when referring to hard drive storage capacity. Actual accessible capacity is less.							
<b>NOTE:</b> Certain restrictions and exclusions apply. Contact technical support for details.							

# LightScribe DVD±R/RW SuperMulti DL Drive specifications

<b>Applicable disc</b>	<b>Read:</b>	<b>Write:</b>
	CD-DA, CD+(E)G, CD-MIDI, CDTEXT, CD-ROM, CD-ROM XA, MIXED MODE CD, CD-I, CD-I Bridge (Photo-CD, Video CD), Multisession CD (Photo-CD, CD-EXTRA, Portfolio, CDR, 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	CD-R and CD-RW DVD+R, DVD+RW, DVD-R, DVD-RW, DVD-RAM
<b>Access time</b>	<b>CD</b>	<b>DVD</b>
Random	<175 ms	<230 ms
Full stroke	< 285 ms	< 335 ms
<b>Cache buffer</b>	2 MB	
<b>Data transfer rate</b>		
24X CD-ROM	3,600 KB/sec	
8X DVD	10,800 KB/sec	
24X CD-R	3,600 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	
<b>Transfer mode</b>	Multiword DMA Mode	

# Blu-ray ROM with LightScribe DVD±R/RW SuperMulti DL Drive specifications

<b>Applicable disc</b>	<b>Read:</b>	<b>Write:</b>
	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	DVD-RAM (Ver.2), DVD+R, DVD-R, CD-R, and CD-RW
<b>Access time</b>	<b>BD</b>	<b>DVD</b>
Random	< 230 ms	< 180 ms
<b>Cache buffer</b>	8 MB	
<b>Data transfer rate</b>		
24X CD-ROM	3,600 KB/sec	
8X DVD	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	
1X BD-ROM	4,500 KB/sec	
1X BD-R read	4,500 KB/sec	
1X BD-RE read	4,500 KB/sec	
<b>Transfer mode</b>	Multiword DMA Mode	

## System DMA specifications

<b>Hardware DMA</b>	<b>System function</b>
DMA0	Not applicable
DMA1	Not applicable
DMA2	Not applicable
DMA3	Not applicable
DMA4	Direct memory access controller

## UMA system interrupt specifications

<b>Hardware IRQ</b>	<b>System function</b>
IRQ0	System timer
IRQ1	Standard PS/2 keyboard
IRQ4	ENE CIR receiver
IRQ8	System CMOS/real-time clock
IRQ10	Intel 5 series/3400 chipset family SMBus controller — 3B30
IRQ12	Synaptics PS/2 TouchPad
IRQ13	Numeric data processor
IRQ16	Intel 5 series/3400 chipset family USB enhanced host controller — 3B3C Intel 5 series/3400 chipset family PCI express root port 2 — 3B44 Intel management engine interface
IRQ17	Intel 5 series/3400 chipset family PCI express root port 1 — 3B42
IRQ19	Intel 5 series 4 port SATA AHCI controller Intel turbo boost technology driver
IRQ21	Intel 5 series/3400 chipset family USB enhanced host controller — 3B34
IRQ22	High definition audio controller
IRQ23	HP mobile data protection sensor
IRQ81–190	Microsoft ACPI-compliant system
IRQ-2	Intel graphics media accelerator HD

## Discrete system interrupt specifications

Hardware IRQ	System function
IRQ0	System timer
IRQ1	Standard PS/2 keyboard
IRQ4	ENE CIR receiver
IRQ8	System CMOS/real-time clock
IRQ10	Intel 5 series/3400 chipset family SMBus controller — 3B30
IRQ12	Synaptics PS/2 TouchPad
IRQ13	Numeric data processor
IRQ16	Intel 5 series/3400 chipset family USB enhanced host controller — 3B3C Intel 5 series/3400 chipset family PCI express root port 2 — 3B44 Intel management engine interface Intel processor PCI express root port 1 — D138
IRQ17	High definition audio controller Intel 5 series/3400 chipset family PCI express root port 1 — 3B42
IRQ19	Intel 5 series 4 port SASTA AHCI controller
IRQ21	Intel 5 series/3400 chipset family USB enhanced host controller — 3B34
IRQ22	High definition audio controller
IRQ23	HP mobile data protection sensor
IRQ81–190	Microsoft ACPI-compliant system
IRQ-2	EG MADISON

# Switchable graphics system interrupt specifications

Hardware IRQ	System function
IRQ0	System timer
IRQ1	Standard PS/2 keyboard
IRQ4	ENE CIR receiver
IRQ8	System CMOS/real-time clock
IRQ10	Intel 5 series/3400 chipset family SMBus controller — 3B30
IRQ12	Synaptics PS/2 TouchPad
IRQ13	Numeric data processor
IRQ16	Intel 5 series/3400 chipset family USB enhanced host controller — 3B3C
	Intel 5 series/3400 chipset family PCI express root port 2 — 3B44
	Intel management engine interface
	Intel Graphics Media Accelerator HD
	Intel processor PCI express root port 1 — 0045
IRQ17	High definition audio controller
	Intel 5 series/3400 chipset family PCI express root port 1 — 3B42
IRQ19	Intel 5 series 4 port SASTA AHCI controller
	Intel Turbo Boost technology drive
IRQ21	Intel 5 series/3400 chipset family USB enhanced host controller — 3B34
IRQ22	High definition audio controller
IRQ23	HP mobile data protection sensor
IRQ81-190	Microsoft ACPI-compliant system
IRQ-3	ATI Mobility Radeon HD 5470
IRQ-2	Intel Wifi Link 1000 BGN

# Switchable graphics system I/O address specifications

<b>I/O address (hex)</b>	<b>System function (shipping configuration)</b>
00 - 1F	DMA controller
00–1F	PCI bus
20 - 21	Programmable interrupt controller
24 - 25	Programmable interrupt controller
28 - 29	Programmable interrupt controller
2C - 2D	Programmable interrupt controller
2E - 2F	Motherboard resources
30 - 31	Programmable interrupt controller
34 - 35	Programmable interrupt controller
38 - 39	Programmable interrupt controller
3C - 3D	Programmable interrupt controller
40 - 43	System Timer
4E - 4F	Motherboard resources
50 - 53	System timer
60	Standard PS/2 keyboard
61	Motherboard resources
62	Microsoft ACPI-compliant embedded controller
63	Motherboard resources
64	Standard PS/2 keyboard
65	Motherboard resources
66	Microsoft ACPI-compliant embedded controller
67	Motherboard resources
70 - 77	System CMOS/real time clock
70–77	Motherboard resources
80	Motherboard resources
81 - 91	DMA controller
92	Motherboard resources
93–9F	DMA controller
A0 - A1	Programmable interrupt controller

<b>I/O address (hex)</b>	<b>System function (shipping configuration)</b>
A4 - A5	Programmable interrupt controller
A8 - A9	Programmable interrupt controller
AC - AD	Programmable interrupt controller
B0 - B1	Programmable interrupt controller)
B2 - B3	Motherboard resources
B4 - B5	Programmable interrupt controller
B8 - B9	Programmable interrupt controller
BC - BD	Programmable interrupt controller
C0 - DF	DMA controller
F0	Numeric data processor
380 - 38E	Motherboard resources
3B0 - 3BB	Intel Graphics Media Accelerator HD
3C0 - 3DF	Intel Graphics Media Accelerator HD
400 - 47F	Motherboard resources
4D0 - 4D1	Programmable interrupt controller
500 - 57F	Motherboard resources
680 - 69F	Motherboard resources
800 - 80F	Motherboard resources
D00 - FFFF	PCI bus
164E - 164F	Motherboard resources
2000 - 2FFF	Intel 5 Series/3400 Series Chipset Family PCI Express Root Port 2 - 3B44
3000 - 3FFF	Intel 5 Series/3400 Series Chipset Family PCI Express Root Port 2 - 3B42
4000 - 4FFF	Intel processor PCI Express Root Port - 0045
4F00 - 4FFF	ATI Mobility Radeon HD 5470
5000 - 501F	Intel 5 Series/3400 Series Chipset Family SMBus Controller - 3B42
5020 - 503F	Intel 5 Series 8 Port SATA AHCI controller
5040 - 5047	Intel 5 Series 6 Port SATA AHCI controller
5048 - 504F	Intel 5 Series 4 Port SATA AHCI controller
5050 - 5057	Intel Graphics Media Accelerator HD
5058 - 505B	Intel 5 Series 7 Port SATA AHCI controller
505C - 505F	Intel 5 Series 5 Port SATA AHCI controller

<b>I/O address (hex)</b>	<b>System function (shipping configuration)</b>
FFFF - FFFF	Motherboard resources
FFFF - FFFF	Motherboard resources

# UMA system I/O address specifications

I/O address (hex)	System function (shipping configuration)
00 - 1F	DMA controller
00-1F	PCI bus
20 - 21	Programmable interrupt controller
24 - 25	Programmable interrupt controller
28 - 29	Programmable interrupt controller
2C - 2D	Programmable interrupt controller
2E - 2F	Motherboard resources
30 - 31	Programmable interrupt controller
34 - 35	Programmable interrupt controller
38 - 39	Programmable interrupt controller
3C - 3D	Programmable interrupt controller
40 - 43	System Timer
4E - 4F	Motherboard resources
50 - 53	System timer
60	Standard PS/2 keyboard
61	Motherboard resources
62	Microsoft ACPI-compliant embedded controller
63	Motherboard resources
64	Standard PS/2 keyboard
65	Motherboard resources
66	Microsoft ACPI-compliant embedded controller
67	Motherboard resources
70 - 77	System CMOS/real time clock
70-77	Motherboard resources
80	Motherboard resources
81 - 91	DMA controller
92	Motherboard resources
93-9F	DMA controller
A0 - A1	Programmable interrupt controller
A4 - A5	Programmable interrupt controller

<b>I/O address (hex)</b>	<b>System function (shipping configuration)</b>
A8 - A9	Programmable interrupt controller
AC - AD	Programmable interrupt controller
B0 - B1	Programmable interrupt controller
B2 - B3	Motherboard resources
B4 - B5	Programmable interrupt controller
B8 - B9	Programmable interrupt controller
BC - BD	Programmable interrupt controller
C0 - DF	DMA controller
F0	Numeric data processor
380 - 38E	Motherboard resources
3B0 - 3BB	Intel Graphics Media Accelerator HD
3C0 - 3DF	Intel Graphics Media Accelerator HD
400 - 47F	Motherboard resources
4D0 - 4D1	Programmable interrupt controller
500 - 57F	Motherboard resources
680 - 69F	Motherboard resources
800 - 80F	Motherboard resources
D00 - FFFF	PCI bus
164E - 164F	Motherboard resources
2000 - 2FFF	Intel 5 Series/3400 Series Chipset Family PCI Express Root Port 2 - 3B44
3000 - 3FFF	Intel 5 Series/3400 Series Chipset Family PCI Express Root Port 2 - 3B42
4000 - 401F	Intel 5 Series/3400 Series Chipset Family SMBus Controller - 3B30
4020 - 403F	Intel 5 Series 8 Port SATA AHCI controller
4040 - 4047	Intel 5 Series 6 Port SATA AHCI controller
4048 - 404F	Intel 5 Series 4 Port SATA AHCI controller
4050 - 4057	Intel Graphics Media Accelerator HD
4058 - 405B	Intel 5 Series 7 Port SATA AHCI controller
405C - 405F	Intel 5 Series 5 Port SATA AHCI controller
FFFF - FFFF	Motherboard resources
FFFF - FFFF	Motherboard resources

# Discrete system I/O address specifications

I/O address (hex)	System function (shipping configuration)
00 - 1F	DMA controller
00-1F	PCI bus
20 - 21	Programmable interrupt controller
24 - 25	Programmable interrupt controller
28 - 29	Programmable interrupt controller
2C - 2D	Programmable interrupt controller
2E - 2F	Motherboard resources
30 - 31	Programmable interrupt controller
34 - 35	Programmable interrupt controller
38 - 39	Programmable interrupt controller
3C - 3D	Programmable interrupt controller
40 - 43	System Timer
4E - 4F	Motherboard resources
50 - 53	System timer
60	Standard PS/2 keyboard
61	Motherboard resources
62	Microsoft ACPI-compliant embedded controller
63	Motherboard resources
64	Standard PS/2 keyboard
65	Motherboard resources
66	Microsoft ACPI-compliant embedded controller
67	Motherboard resources
70 - 77	System CMOS/real time clock
70-77	Motherboard resources
80	Motherboard resources
81 - 91	DMA controller
92	Motherboard resources
93-9F	DMA controller
A0 - A1	Programmable interrupt controller
A4 - A5	Programmable interrupt controller

<b>I/O address (hex)</b>	<b>System function (shipping configuration)</b>
A8 - A9	Programmable interrupt controller
AC - AD	Programmable interrupt controller
B0 - B1	Programmable interrupt controller)
B2 - B3	Motherboard resources
B4 - B5	Programmable interrupt controller
B8 - B9	Programmable interrupt controller
BC - BD	Programmable interrupt controller
C0 - DF	DMA controller
F0	Numeric data processor
380 - 38E	Motherboard resources
3B0 - 3BB	ATI Mobility Radeon HD 5650
3B0 - 3BB	Intel processor PCI Express Root Port 1 - D138
3C0 - 3DF	ATI Mobility Radeon HD 5650
3C0 - 3DF	Intel processor PCI Express Root Port 1 - D138
400 - 47F	Motherboard resources
4D0 - 4D1	Programmable interrupt controller
500 - 57F	Motherboard resources
680 - 69F	Motherboard resources
800 - 80F	Motherboard resources
D00 - FFFF	PCI bus
164E - 164F	Motherboard resources
2000 - 2FFF	Intel 5 Series/3400 Series Chipset Family PCI Express Root Port 2 - 3B44
3000 - 3FFF	Intel 5 Series/3400 Series Chipset Family PCI Express Root Port 2 - 3B42
4000 - 40FF	ATI Mobility Radeon HD 5650
4000 - 40FF	Intel Processor PCI Express Root Port 1 - D138
5000 - 501F	Intel 5 Series/3400 Series Chipset Family SMBus controller - 3B30
5020 - 503F	Intel 5 Series 4 Port SATA AHCI controller
5040 - 5047	Intel 5 Series 4 Port SATA AHCI controller
5048 - 504F	Intel 5 Series 4 Port SATA AHCI controller
5050 - 5053	Intel 5 Series 4 Port SATA AHCI controller
5054 - 5057	Intel 5 Series 4 Port SATA AHCI controller

<b>I/O address (hex)</b>	<b>System function (shipping configuration)</b>
FFFF - FFFF	Motherboard resources
FFFF - FFFF	Motherboard resources

## System memory map specifications

Size	Memory address	System function
640 KB	00000000-0009FFFF	Base memory
128 KB	000A0000-000BFFFF	Video memory
64 KB	000C0000-000CFFFF	Video BIOS
96 KB	000D0000-000E7FFF	Unused
96 KB	000E8000-000FFFFF	System BIOS
15 MB	00100000-00FFFFFF	Extended memory
58 MB	04800000-07FFFFFF	Super extended memory
58 MB	04800000-07FFFFFF	Unused
2 MB	08000000-080FFFFF	Video memory (direct access)
4 GB	08200000-FFFFFFF	Unused
64 KB	FFF0000-FFFFFFF	System BIOS

---

# 7 Backup and Recovery

## Recovering system information

Recovery after a system failure is as complete as the 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 the 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:** If the computer includes a solid-state drive (SSD), you might not have a recovery partition. Recovery discs are 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 > Computer**. If the partition is present, an HP Recovery drive is listed in the Hard Disk Drives section of the window.

---

## Creating recovery discs

 **NOTE:** HP recommends creating recovery discs to be sure that you can restore the 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.

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

**NOTE:** If the computer does not include an internal optical drive, use an optional external optical drive (purchased separately) to create recovery discs, or purchase the recovery discs for the computer from the HP Website.

Note the following guidelines before creating recovery discs:

- Use high-quality DVD-R, double-layer DVD-R, DVD+R, double-layer 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 using 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, you can 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 Manager**.

Recovery Manager opens.

2. Click **Advanced Options**.

 **NOTE:** If you are operating the computer on battery power, you are prompted to connect to AC power before you can go to the next step.

3. Click **Recovery disc creation**, and then click **Next**.
4. Follow the on-screen instructions.

# Backing up your information

## When to back up

- On a regularly scheduled basis

---

 **NOTE:** Set reminders to back up your information periodically.

---

- Before the computer is repaired or restored
- Before adding or modifying hardware or software

## Backup suggestions

- Create a set of recovery discs using Recovery Manager.
- Create system restore points using the Windows System Restore feature, and periodically copy them to disc.
- Store personal files in the Documents folder 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 is a time-saver if you have to reset your preferences.

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

- a. Display the screen.
- b. Copy the screen:
  - To copy only the active window, press [alt+fn+prt sc](#).
  - To copy the entire screen, press [fn+prt sc](#).
- c. Open a word-processing document, and then select **Edit > Paste**.

## 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 the 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.

---

Create additional restore points to provide increased protection for the system files and settings.

## When to create restore points

- Before adding or extensively modifying 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 Maintenance > System**.
2. In the left pane, click **System Protection**.
3. Click the **System Protection** tab.
4. Under **Automatic restore points**, select the disk for which you want to create a restore point.
5. Click **Create**.  
The System Protection window opens.
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:

1. Select **Start > Control Panel > System and Maintenance > System**.
2. In the left pane, click **System protection**.
3. Click the **System Protection** tab.
4. Click the **System Restore** button, and then click **Next**.  
The System Restore window opens.
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 from either the Start button or **f11**. This restores the computer to its factory condition.

To restore the system from the partition:

1. Access Recovery Manager in either of the following ways:
  - Select **Start > All Programs > Recovery Manager > Recovery Manager**.
  - or–
  - Restart the computer and press **f11** while the “Press <F11> for recovery” message appears on the screen, and then select **Recovery Manager**.

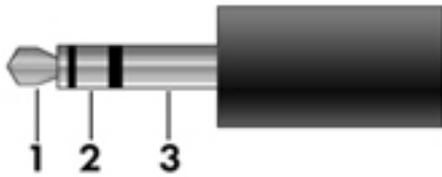
Recovery Manager opens.

2. Click **Advanced Options**.

3. Click **System recovery**, and then click **Next**.
4. Follow the on-screen instructions.

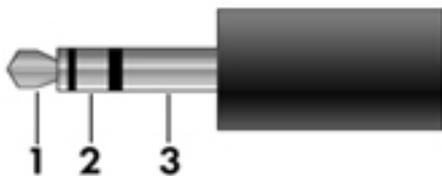
## 8 Connector pin assignments

### Audio-in (microphone)



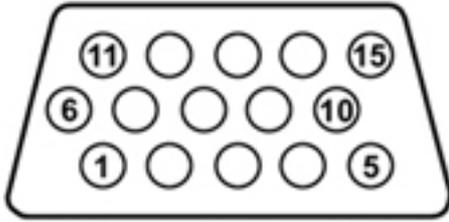
Pin	Signal
1	Audio signal in
2	Audio signal in
3	Ground

### Audio-out (headphone)



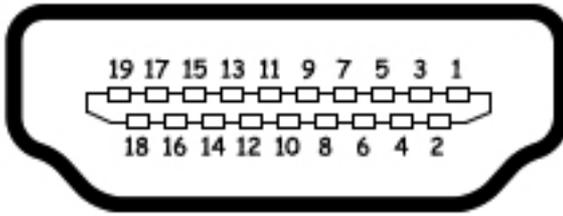
Pin	Signal
1	Audio out, left channel
2	Audio out, right channel
3	Ground

## External monitor



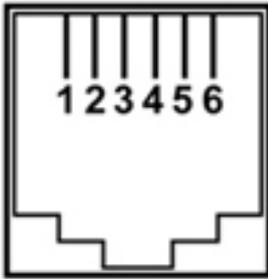
Pin	Signal
1	Red analog
2	Green analog
3	Blue analog
4	Not connected
5	Ground
6	Ground analog
7	Ground analog
8	Ground analog
9	+5 VDC
10	Ground
11	Monitor detect
12	DDC 2B data
13	Horizontal sync
14	Vertical sync
15	DDC 2B clock

# HDMI



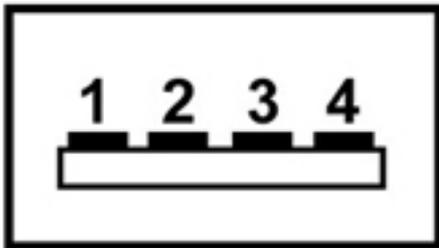
Pin	Signal
1	Transition minimized differential signal (TMDS) data 2+
2	TMDS data 2 shield
3	TMDS data 2-
4	TMDS data 1+
5	TMDS data 1 shield
6	TMDS data 1-
7	TMDS data 0+
8	TMDS data 0 shield
9	TMDS data 0-
10	TMDS clock+
11	TMDS clock shield
12	TMDS clock-
13	Consumer electric control (CEC)
14	Not connected
15	DDC clock
16	DDC data
17	Ground
18	+5V power
19	Hot plug detect

## RJ-11 (modem)



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

## 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.
- 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 or 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-mm<sup>2</sup> 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-mm<sup>2</sup> 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-mm<sup>2</sup> 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-mm<sup>2</sup> 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. Caution must be exercised 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) Website 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).



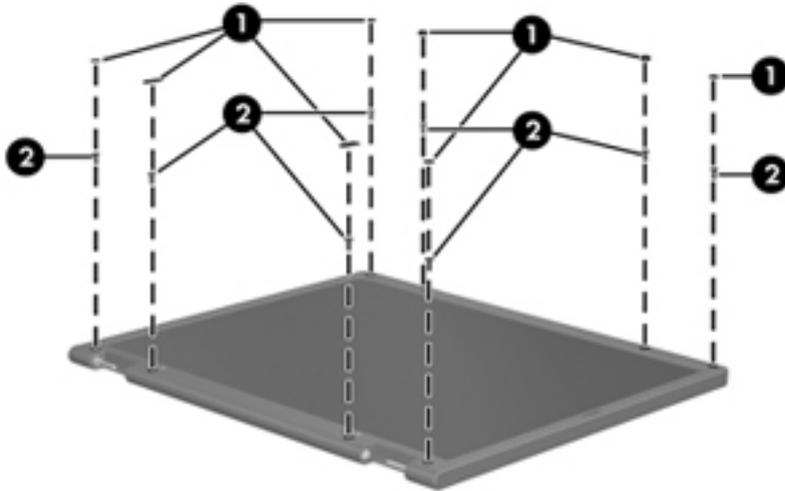
---

📄 **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.

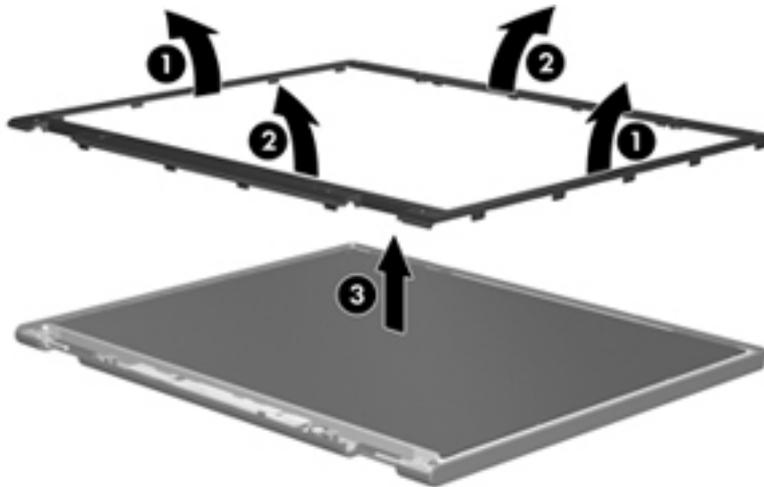
---

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.

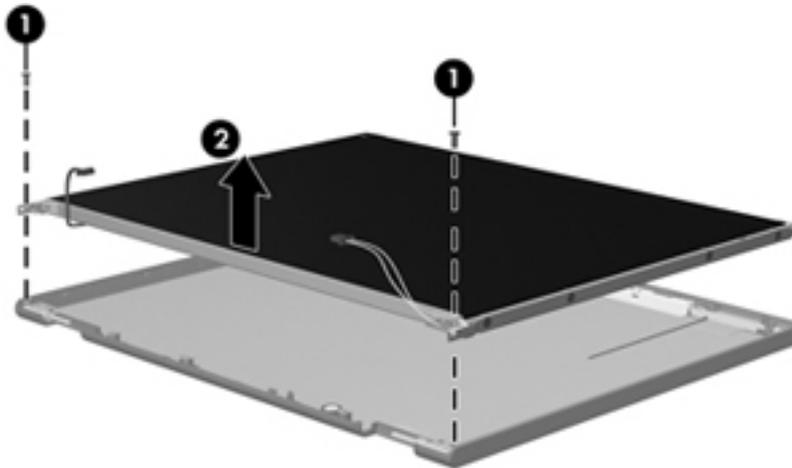


2. Lift up and out on the left and right inside edges (1) and the top and bottom inside edges (2) of the display bezel until the bezel disengages from the display assembly.
3. Remove the display bezel (3).

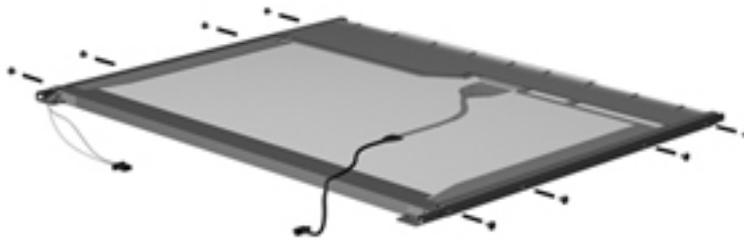


4. Remove all screws (1) that secure the display panel assembly to the display enclosure.

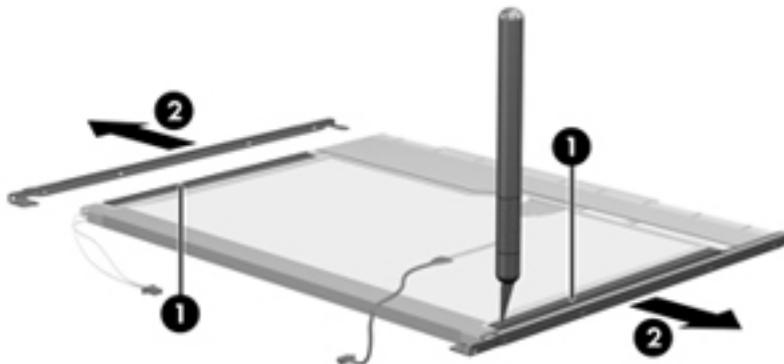
5. Remove the display panel assembly (2) from the display enclosure.



6. Turn the display panel assembly upside down.
7. Remove all screws that secure the display panel frame to the display panel.

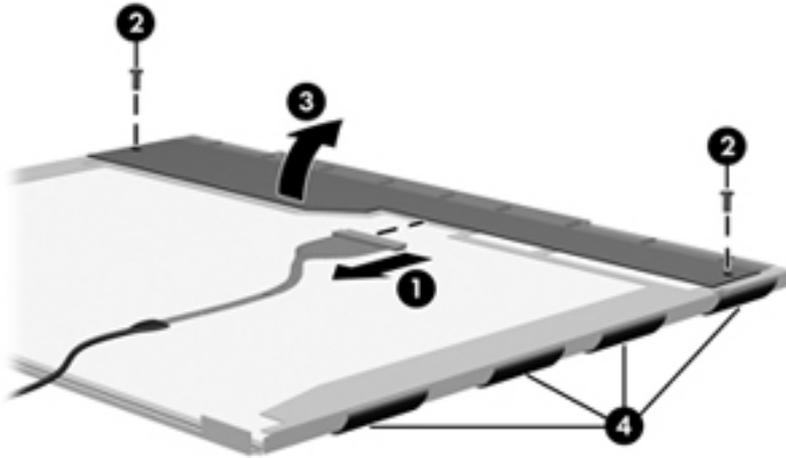


8. Use a sharp-edged tool to cut the tape (1) that secures the sides of the display panel to the display panel frame.
9. Remove the display panel frame (2) from the display panel.

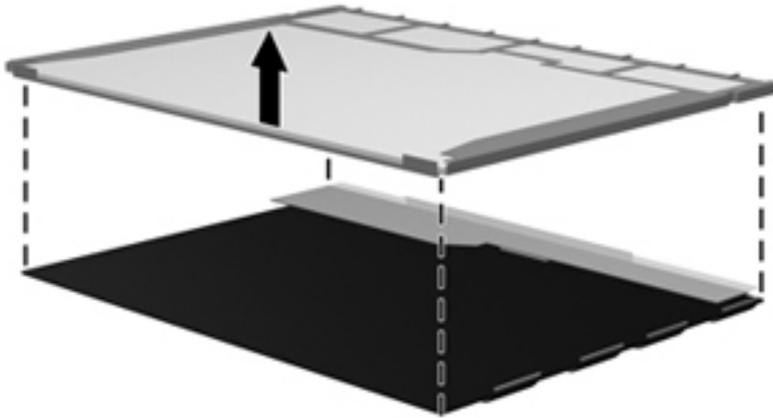


10. Disconnect the display cable (1) from the LCD panel.
11. Remove the screws (2) that secure the LCD panel to the display rear panel.
12. Release the LCD panel (3) from the display rear panel.

**13.** Release the tape (4) that secures the LCD panel to the display rear panel.



**14.** Remove the LCD panel.



**15.** Recycle the LCD panel and backlight.

# Index

## A

- AC adapter
  - spare part numbers 27
- AC adapter, spare part numbers 30
- administrator password 87
- antennas 14
- applications key, Windows 9
- audio, product description 2
- audio-in (microphone) jack
  - pin assignments 113
- audio-out (headphone) jack
  - pin assignments 113

## B

- backing up
  - customized window, toolbar, and menu bar settings 109
  - personal files 109
  - templates 109
- backup 107
- backup suggestions 109
- base enclosure
  - spare part number 20
- base enclosure, spare part number 32
- battery
  - removal 40
  - spare part numbers 20, 28, 40
- battery bay, identifying 12
- battery release latch 12
- bays
  - battery 12
  - primary hard drive 12
- Blu-ray Disc ROM Drive, precautions 34

- Blu-ray ROM with LightScribe Combo Drive
  - removal 49
  - spare part number 19, 25, 30, 49
- Blu-ray ROM with LightScribe DVD  $\pm$ R/RW SuperMulti DL Drive
  - specifications 93
- Blu-ray ROM with LightScribe DVD  $\pm$ RW SuperMulti DL Drive
  - removal 49
  - spare part number 19, 25, 49
  - spare part numbers 31
- Bluetooth module
  - removal 68
  - spare part number 19, 28, 68
- Bluetooth module cable
  - spare part number 19, 29, 68
- boot options 88
- boot order 88
- buttons
  - left TouchPad 6
  - power 8
  - right TouchPad 6
  - TouchPad On/Off 6

## C

- cable housing, spare part number 27, 30
- cables, service considerations 34
- caps lock light, identifying 7
- changing the language of Setup Utility 84
- chipset, product description 1
- compartments, memory module 12
- components
  - bottom 12
  - display 13

- front 10
  - left-side 11
  - right-side 10
  - top 5
  - computer feet
    - locations 39
    - spare part number 39
  - computer specifications 89
  - connectors, power 10
  - connectors, service considerations 34
- ## D
- Diagnostics menu 88
  - diskette drive, precautions 34
  - display assembly
    - BrightView removal 62
    - spare part numbers 18, 28, 29, 31
    - Touchscreen removal 57
  - display bezel
    - release 67
    - spare part number 23, 29, 65
  - Display Cable Kit
    - spare part number 29, 31
    - spare part numbers 21, 23
  - display components
    - recycling 119
    - spare part numbers 21
  - display enclosure
    - removal 58
    - spare part number 29
    - spare part numbers 21, 23, 30, 31
  - display hinge
    - removal 60, 65
    - spare part numbers 60, 66
  - display hinge cover
    - spare part number 22, 23

- display hinge covers
  - spare part number 29, 30
- Display Hinge Kit
  - spare part number 29
  - spare part numbers 21, 23
- Display Hinge Kit, spare part numbers 60, 66
- display panel
  - product description 1
  - removal 65
  - spare part number 23
  - spare part numbers 28, 65
- Display Rubber Kit, spare part number 22, 24, 29
- Display Screw Kit, spare part number 22, 24, 29
- display specifications 90
- displaying system information 85
- drive recovery 107
- drives
  - boot order 88
  - preventing damage 34
- DVD±RW and CD-RW Combo Drive
  - precautions 34
- DVD±RW SuperMulti Double-Layer Drive with LightScribe
  - removal 49
  - spare part number 19, 25, 30, 49
- E**
- electrostatic discharge 35
- eSATA/USB port, identifying 11
- esc key, identifying 9
- Ethernet, product description 2
- exiting Setup Utility 86
- external media cards, product description 3
- external monitor port
  - pin assignments 114
- F**
- f11 111
- fan always on 87
- fan/heat sink assembly
  - removal 77
  - spare part numbers 19, 77
- feet
  - locations 39
  - spare part number 39
- fingerprint reader, identifying 8
- fn key, identifying 9
- full system recovery 107
- function keys, identifying 9
- G**
- graphics, product description 1
- grounding equipment and methods 37
- H**
- hard drive
  - precautions 34
  - product description 2
  - removal 42
  - spare part numbers 20, 25, 30, 31, 42
  - specifications 91
- hard drive bay cover
  - illustrated 26
- hard drive cover
  - removal 41
- Hard Drive Hardware Kit
  - spare part number 20, 25, 30, 42
- hard drive self test 88
- HDMI port
  - pin assignments 115
- headphone (audio-out) jack
  - pin assignments 113
- hinge
  - removal 60, 65
  - spare part numbers 60, 66
- hinge covers
  - BrightView removing 64
  - Touchscreen removing 59
- HP QuickWeb, Setup Utility 88
- I**
- I/O address specifications
  - discrete 103
  - switchable graphics 98
  - UMA 101
- integrated webcam light, identifying 13
- internal microphones, identifying 13
- interrupt specifications
  - discrete 96
  - switchable graphics 97
  - UMA 95
- J**
- jacks
  - RJ-45 (network) 11
- K**
- keyboard
  - product description 3
  - removal 50
  - spare part numbers 18, 28, 29
- keys
  - esc 9
  - fn 9
  - function 9
  - Windows applications 9
  - Windows logo 9
- L**
- LAN Power Saving 87
- language support 87
- latch
  - battery release 12
- lights
  - caps lock 7
  - mute 7
  - power 7
  - TouchPad 7
  - volume mute 7
  - webcam 13
  - wireless 7
- LightScribe DVD±R/RW SuperMulti DL Drive
  - specifications 92
- M**
- Main menu 87
- mass storage devices 0, 0
- memory map specifications 106
- memory module
  - product description 1
  - removal 46
  - spare part numbers 20, 29, 46
- memory module compartment, identifying 12
- memory test 88

- microphone
    - product description 2
  - microphone (audio-in jack)
    - pin assignments 113
  - model name 1
  - modem jack
    - pin assignments 116
  - monitor port, external 11
  - mute light, identifying 7
- N**
- navigating in Setup Utility 85
- O**
- operating system, product description 4
  - optical drive
    - illustrated 25
    - precautions 34
    - product description 2
    - removal 49
    - spare part numbers 19, 25, 30, 31, 49
    - specifications 92, 93
  - optical drive cable
    - spare part number 19
  - optical drive cable, spare part number 30
- P**
- packing guidelines 36
  - passwords 87
  - performing a system recovery 111
  - pin assignments
    - audio-in 113
    - audio-out 113
    - external monitor 114
    - HDMI 115
    - headphone 113
    - microphone 113
    - modem 116
    - monitor 114
    - RJ-11 116
    - Universal Serial Bus (USB) 116
  - plastic parts, precautions 33
  - Plastics Kit
    - contents 26
    - spare part number 20, 26
  - Plastics Kit, spare part number 30
  - pointing device
    - product description 3
  - ports
    - eSATA/USB 11
    - external monitor 11
    - HDMI 11
    - product description 3
    - USB 10, 11
  - power button board
    - removal 55
    - spare part number 18, 30, 55
  - power button, identifying 8
  - power connector
    - removal 72
    - spare part number 18, 30, 72
  - power connector bracket
    - removing 73
  - power connector, identifying 10
  - power cord
    - set requirements 117
    - spare part numbers 27, 28
  - power lights, identifying 7
  - power requirements, product description 4
  - power-on password 87
  - primary hard drive bay, identifying 12
  - processor
    - product description 1
    - removal 80
    - spare part numbers 19, 31, 32, 80
  - product description
    - audio 2
    - chipset 1
    - display panel 1
    - Ethernet 2
    - external media cards 3
    - graphics 1
    - hard drives 2
    - keyboard 3
    - memory module 1
    - microphone 2
    - operating system 4
    - optical drives 2
    - pointing device 3
    - ports 3
    - power requirements 4
    - processors 1
    - product name 1
  - security 4
  - serviceability 4
  - TV tuner 3
  - webcam 2
  - wireless 2
  - product name 1
  - program recovery 107
- R**
- recovery
    - discs 107
    - from the recovery discs 111
    - from the recovery partition 111
    - partition 107
    - system 107
  - recovery discs 111
  - Recovery Manager 107
  - recovery, system 107
  - remote control, spare part number 27
  - removal/replacement
    - preliminaries 33
  - restore points 109
  - restoring default settings 86
  - RJ-11 (modem) jack
    - pin assignments 116
  - RJ-45 (network) jack, identifying 11
  - RTC battery
    - removal 48
    - spare part number 20, 29, 48
  - rubber feet
    - spare part number 20, 39
  - rubber feet, spare part number 30
- S**
- Screw Kit
    - spare part number 27
  - Screw Kit, spare part number 30
  - secondary hard drive self test 88
  - security cable slot, identifying 10
  - Security menu 87
  - security, product description 4
  - selecting in Setup Utility 85
  - service considerations 33
  - service tag 15, 38
  - serviceability, product description 4

- slots
    - security cable 10
  - solid-state drive
    - spare part number 42
  - solid-state drive (SSD) 107, 111
  - speaker assembly
    - removal 82
    - spare part number 19, 30, 82
  - speakers 10
  - specifications
    - Blu-ray ROM with LightScribe DVD±R/RW SuperMulti DL Drive 93
    - computer 89
    - discrete I/O addresses 103
    - display 90
    - hard drive 91
    - interrupt 96, 97
    - interrupts 95
    - LightScribe DVD±R/RW SuperMulti DL Drive 92
    - memory map 106
    - optical drive 92, 93
    - switchable graphics I/O addresses 98
    - system DMA 94
    - UMA I/O addresses 101
  - starting Setup Utility 84
  - static-shielding materials 37
  - supported discs 108
  - system board
    - removal 74
    - spare part numbers 19, 31, 74
  - System Configuration menu 87
  - system DMA 94
  - system failure or instability 107
  - system information 87
  - system memory map 106
  - system recovery 107
  - system restore points 107
- T**
- thermal material, replacement 79
  - thermal module
    - spare part numbers 31
  - tools required 33
  - top cover
    - etched spare part numbers 52
    - removal 52
    - spare part numbers 19, 30, 31
  - TouchPad
    - buttons 6
    - identifying 5
  - TouchPad light, identifying 7
  - TouchPad On/Off button 6
  - transporting guidelines 36
  - TV tuner
    - spare part number 27
  - TV tuner antenna
    - spare part number 27
  - TV tuner antenna, spare part number 28
  - TV tuner, product description 3
  - TV tuner, spare part number 28
- U**
- Universal Serial Bus (USB) port
    - pin assignments 116
  - USB board
    - removal 70
    - spare part number 20, 30, 70
  - USB ports, identifying 10, 11
  - using Setup Utility 84
  - using system restore points 109
- V**
- vents, identifying 12
  - Virtualization Technology 87
  - volume mute light, identifying 7
- W**
- webcam
    - product description 2
  - webcam, identifying 13
  - webcam/microphone module
    - removal 67
    - spare part number 21, 23, 29
    - spare part numbers 67
  - Windows applications key, identifying 9
  - Windows logo key, identifying 9
  - wireless antennas 14
  - wireless light, identifying 7
  - wireless, product description 2
  - WLAN module
    - removal 44
    - spare part numbers 19, 28, 31, 44
  - workstation guidelines 36

