HP Mini 210

Maintenance and Service Guide

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MSG revision history

Revision	Publication date	Description
A	October 2010	Display panels have been added in the following locations: Computer major components on page 15, Sequential part number listing on page 22, Display assembly on page 57. A new part number for the top cover with Touchpad and Touchpad cable was added in the following locations: Computer major components on page 15, Sequential part number listing on page 22, Top cover on page 51. System boards have been added in the following locations: Product description on page 1, Computer major components on page 15, Sequential part number listing on page 22, System board on page 63. The 6-cell 2.55-Ah, 55-hr Lithium-ion battery was added in the following locations: Product description on page 1, Computer major components on page 15, Sequential part number listing on page 22, Battery on page 33. The DC bracket has been added to the following locations: Miscellaneous parts on page 21, Sequential part number listing on page 22; Power connector cable and DC bracket on page 66 Service access covers have been added in the following locations: Computer major components on page 15, Sequential part number listing on page 22, Service access cover on page 36. An HP Mini sleeve was added in the following location: Sequential part number listing on page 22.

Safety warning notice

⚠ **WARNING!** To reduce the possibility of heat-related injuries or of overheating the device, do not place the device directly on your lap or obstruct the device air vents. Use the device 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 device 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).

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1 Product description

Category	Description
Product name	HP Mini 210 Netbook PC
Processor	Intel® Atom™ N455 single-core, 1.66-GHz processor, 512-KB level 2 cache, 667-MHz front-side bus (FSB), 6.5 W, UMA/UMA HD discrete/UMA, XSLOT, HD discrete Intel Atom N475 single-core, 1.83-GHz processor, 512-KB level 2 cache, 667-MHz FSB, 6.5 W, UMA, XSLOT/UMA, HD discrete/UMA, XSLOT, HD discrete Intel Atom N550 dual-core, 1.5-GHz processor, 512-KB level 2 cache, 667-MHz FSB, 8.5 W, UMA XSLOT/UMA HD discrete
Chipset	Intel NM10 Express
Graphics	Intel Graphics Media Accelerator 3150 Unified Memory Architecture (UMA) graphics subsystem with Broadcom Crystal High Definition (HD) Enhanced Video Accelerator hardware decoder (select models only) and support for DVD playback from external drive or Flash streaming and playback of locally-stored downloaded media files
Display	The display assembly includes 1 webcam, 1 microphone, 1 speaker box, and 2 wireless local-area network (WLAN) antenna transceivers/cables; wireless wide-area network (WWAN) (select models only). Wide-aspect 16:9 ratio panels, typical brightness: 200 nits **25.7-cm** (10.1-in) (1024×600) Wide Super Video Graphics Adapter (WSVGA), AntiGlare (AG) with optical polymethyl methacrylate (PMMA) **25.7-cm** (10.1-in) (1366×768) HD AG with PMMA
Memory	One customer-accessible/upgradable memory module slot PC3-1333, 667-MHz, DDR3 Supports the following configurations: • 1-GB total system memory **NOTE:** Supported on all operating systems. • 2-GB total system memory **NOTE:** Supported only on computers with Windows® 7 Premium, Windows 7 Professional, Windows 7 Starter with Notebook Certificate of Authenticity (COA) for China, and Windows 7 Starter with Notebook COA Emerging Markets.

Category	Description
Hard drives	Supports the following **9.5-mm** (0.37-in) × **6.35-cm** (2.5-inch), parallel SATA, 7200-rpm or 5400-rpm hard drives: • 320-GB **NOTE:** Supported only on computers with Windows 7 Starter with Notebook COA Emerging Markets, Windows 7 Basic with Notebook COA for China, Windows 7 Premium, and Windows 7 Professional. • 250-GB • 160-GB **NOTE:** Supported on all operating systems
Optical drive	Supports external USB optical drives only
Audio/Visual	HD audio Supports Dolby advanced audio Integrated 1.5-W speakers (2) Fixed integrated, digital microphone Fixed integrated VGA webcam, 640×480 resolution, F/2.8 lens, up to 30 frames per second
Modem	Supports external USB modems only
Ethernet	Integrated Realtek RTL8105EL 10/100 network interface card (NIC)
Wireless	Integrated WLAN by way of: • Broadcom 802.11b/g/n (1x1) and Bluetooth™ 3.0 combination • Broadcom 4313 802.11b/g/n 1x1 WiFi and 2070 Bluetooth 2.1+Enhanced Data Rate (EDR) Combo Adapter (Bluetooth 3.0 and high-speed ready) • Ralink RT3090BC4 802.11b/g/n 1x1 WiFi and Bluetooth 2.1+EDR Combo Adapter (Bluetooth 3.0 and high-speed ready) • Atheros AR9285 802.11.b/g/n 1x1 WiFi Adapter 2 WWAN antennas built into display assembly (select models only) 2 WLAN antennas built into display assembly WWAN by way of: • Ericcson F3307 HSPA Mini Card (select models only) • Qualcomm Gobi 2000 3G module (select models only) GPS by way of Broadcom GPS Mini Card (select models only) Subscriber identity module (SIM) security

Category	Description
External media cards	Digital Media Slot with push-push technology, supporting: • Memory Stick (MS) • Memory Stick Pro (MSP) • MultiMediaCard (MMC) • Secure Digital (SD) Memory Card • Secure Digital High Capacity (SDHC) Memory Card • Secure Digital Extended Capacity (SDxC) Memory Card **NOTE:** SDxC supported for capacity; not speed
Internal media cards	Two Mini Card slots: • Full-size Mini Card slot with support for WWAN, GPS • Half-size Mini Card slot with support for WLAN or WLAN+Bluetooth combo
Ports	Audio-in/out combo RJ-45 (Ethernet; includes link and activity lights) USB 2.0 (3) VGA, supporting up to 1600x900 external resolution @ 60 Hz, hot plug/unplug, and auto detection for correct output to wide-aspect vs. standard-aspect video 3-pin AC power External monitor
Keyboard/pointing device	93% island-style keyboard HP TouchPad with multi-touch/gesture and left and right buttons support Supports external numeric keypad only TouchPad on/off button with LED indicator
Power requirements	40-W UMA AC adapter (non-Smart) with localized cable plug support AC adapter connector on cable **1.0-m** (3.3-ft) power cord 3-cell Lithium-ion (Li-ion) battery (2.55-Ah, 28-Wh) 6-cell Li-ion high-capacity battery (3.0-Ah, 66-Wh) 6-cell Li-ion high-capacity battery (2.55-Ah, 55-Wh)
Security	Supports security cable

Category	Description
Operating system	Windows 7 Home Basic
	Windows 7 Home Premium (select countries)
	Windows 7 Starter
	Windows 7 Professional (select countries)
	Support for HP QuickWeb (Windows 7 only) (select models only)
	USB Key Recovery support (for Service, refurbish centers, and repair centers)
Serviceability	**End-user replaceable parts:**
	AC adapter
	Battery (system)
	Hard drive
	Memory module
	WLAN module or WLAN+Bluetooth module
	WWAN module (select models only)
	GPS module (select models only)

2 External component identification

Identifying the hardware

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

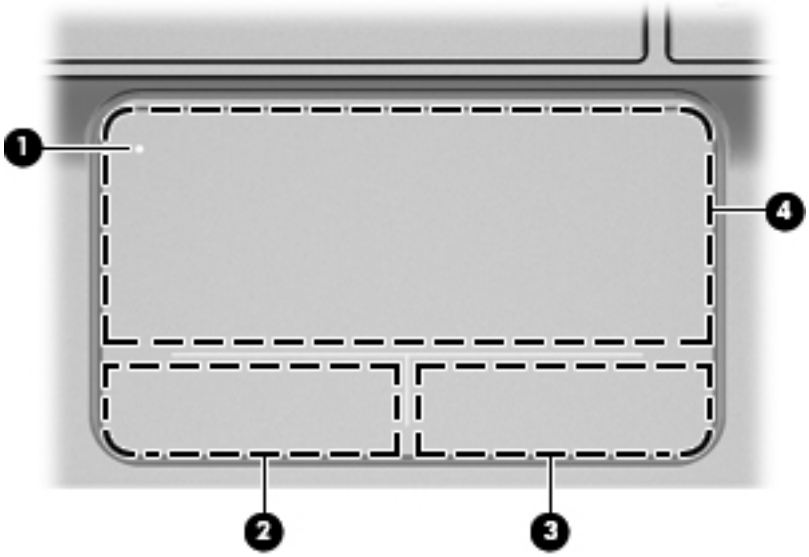
To see a list of hardware installed in the computer, follow these steps:

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

You can also add hardware or modify computer configurations using Device Manager.

Top

TouchPad

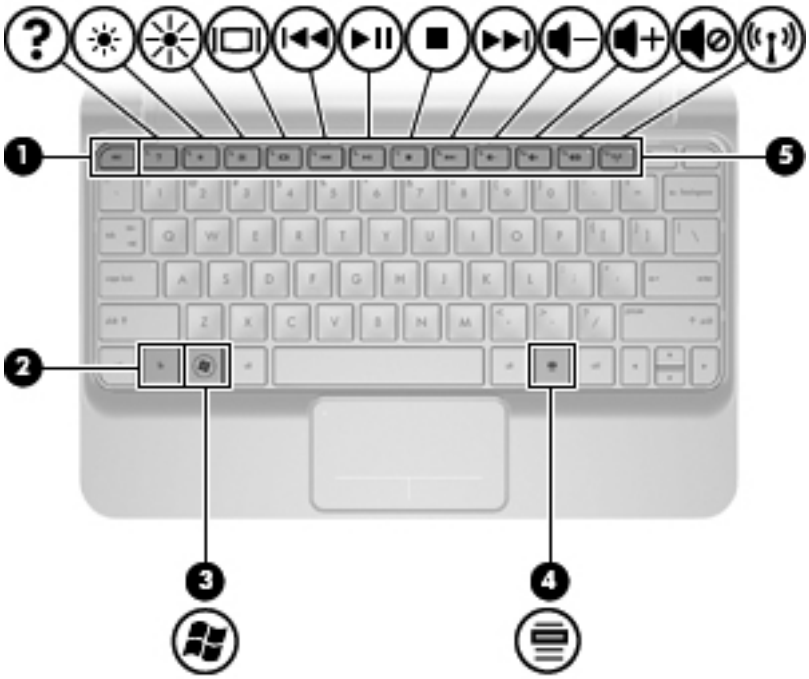


Component		Description
(1)	TouchPad light	Turns the TouchPad on and off. Quickly double-tap the TouchPad light to turn the TouchPad on and off.
(2)	Left TouchPad button	Functions like the left button on an external mouse.
(3)	Right TouchPad button	Functions like the right button on an external mouse.
(4)	TouchPad zone	Moves the pointer and selects or activates items on the screen.

Lights

Component			Description
(1)	●	TouchPad light	• Amber: The TouchPad is off. • Off: The TouchPad is on.
(2)		Caps lock light	• On: Caps lock is on. • Off: Caps lock is off.
(3)		Mute light	• Amber: Computer sound is off. • Off: Computer sound is on.
(4)		Wireless light	• White: An integrated wireless device, such as a wireless local area network (WLAN) device and/or a Bluetooth® device, is on. • Amber: All wireless devices are off.

Keys

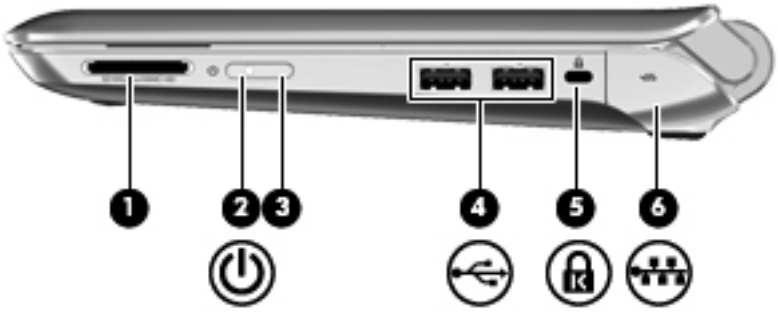


Component		Description
(1)	esc key	Displays system information when pressed in combination with the fn key.
(2)	fn key	Displays system information when pressed in combination with the esc key.
(3)	Windows® logo key	Displays the Windows Start menu.
(4)	Windows applications key	Displays a shortcut menu for items beneath the pointer.
(5)	Action keys	Execute frequently used system functions.

Front

Component	Description
Speakers (2)	Produce sound.

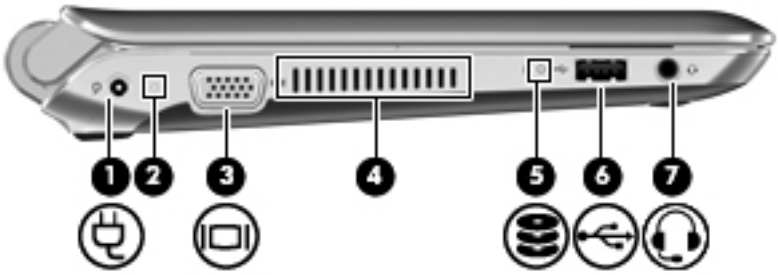
Right side



Component			Description
(1)		Digital Media Slot	Supports the following digital card formats: • Memory Stick (MS) • Memory Stick Pro (MSP) • MultiMediaCard (MMC) • Secure Digital (SD) Card • Secure Digital High Capacity (SDHC) Memory Card • Secure Digital Extended Capacity (SDxC) Memory Card
(2)		Power light	• On: The computer is on. • Blinking: The computer is in the Sleep state. • Off: The computer is off or in Hibernation.
(3)		Power switch	• When the computer is off, slide the switch to turn on the computer. • When the computer is on, slide the switch briefly to initiate Sleep. • When the computer is in the Sleep state, slide the switch briefly to exit Sleep. • When the computer is in Hibernation, slide the switch briefly to exit Hibernation. If the computer has stopped responding and operating system shutdown procedures are ineffective, slide and hold the power switch for at least 5 seconds to turn off the computer. To learn more about your power settings, select **Start > Control Panel > System and Security > Power Options**, or refer to the *HP Notebook Reference Guide*.
(4)		USB ports (2)	Connect optional USB devices.

Component		Description
(5)	Security cable slot	Attaches an optional security cable to the computer. **NOTE:** The security cable is designed to act as a deterrent, but it may not prevent the computer from being mishandled or stolen.
(6)	RJ-45 (network) jack	Connects a network cable.

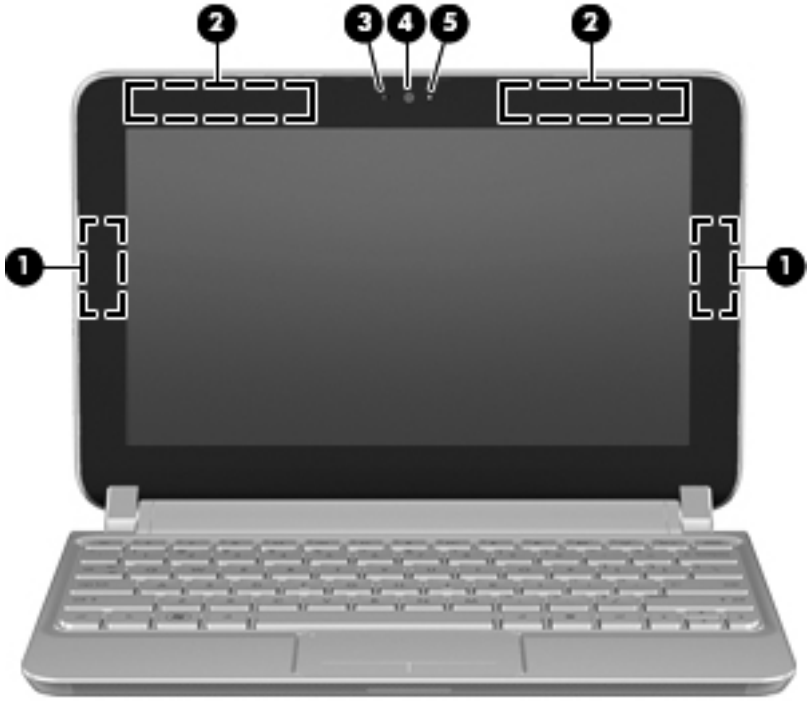
Left side



Component		Description
(1)	Power connector	Connects an AC adapter.
(2)	Battery light	• Off: The computer is running on battery power. • Blinking white: The battery has reached a low or critical battery level. • Amber: A battery is charging. • White: The computer is connected to external power and the battery is fully charged.
(3)	External monitor port	Connects an external VGA monitor or projector.
(4)	Vent	Enables airflow to cool internal components. **NOTE:** The computer fan starts up automatically to cool internal components and prevent overheating. It is normal for the internal fan to cycle on and off during routine operation.
(5)	Drive light	Blinking: The hard drive is being accessed.

Component		Description
(6)	USB port	Connects an optional USB device.
(7)	Audio-out (headphone) jack/Audio-in (microphone) jack	Connects optional powered stereo speakers, headphones, earbuds, a headset, or television audio. Also connects an optional headset microphone. **WARNING!** To reduce the risk of personal injury, adjust the volume before putting on headphones, earbuds, or a headset. For additional safety information, refer to the *Regulatory, Safety, and Environmental Notices*. **NOTE:** When a device is connected to the jack, the computer speakers are disabled.

Display

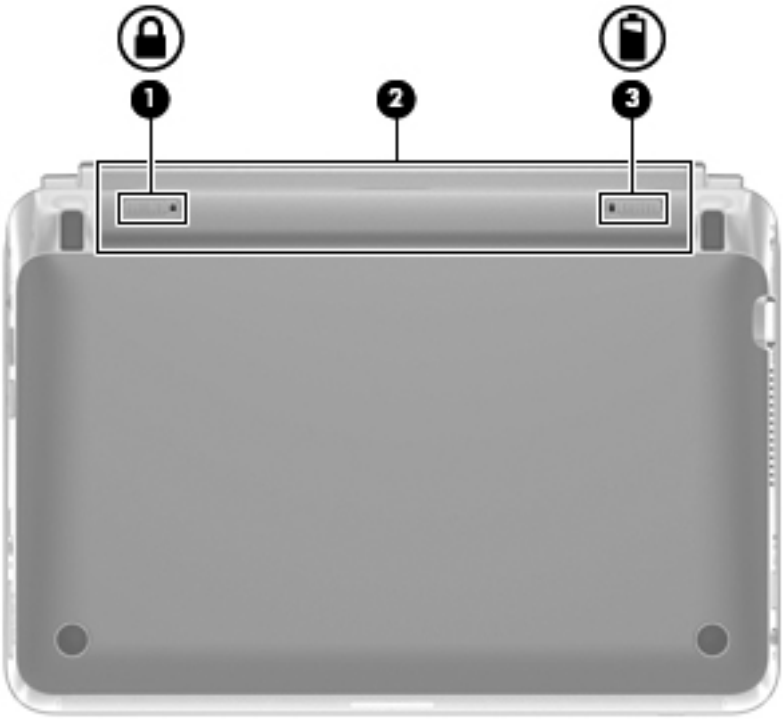


Component		Description
(1)	WLAN antennas (2)*	Send and receive wireless signals to communicate with wireless local area networks (WLAN).
(2)	WWAN antennas (2)* (select models only)	Send and receive wireless signals to communicate with wireless wide-area networks (WWAN).
(3)	Internal microphone	Records sound.
(4)	Webcam	Records video and captures still photographs. To use the webcam, select **Start > All Programs > HP > HP MediaSmart > HP MediaSmart Webcam**.

Component		Description
(5)	Webcam light	On: The webcam is in use.

*The antennas are not visible from the outside of the computer. For optimal transmission, keep the areas immediately around the antennas free from obstructions. To see wireless regulatory notices, refer to the section of the *Regulatory, Safety, and Environmental Notices* that applies to your country or region. These notices are located in Help and Support.

Bottom

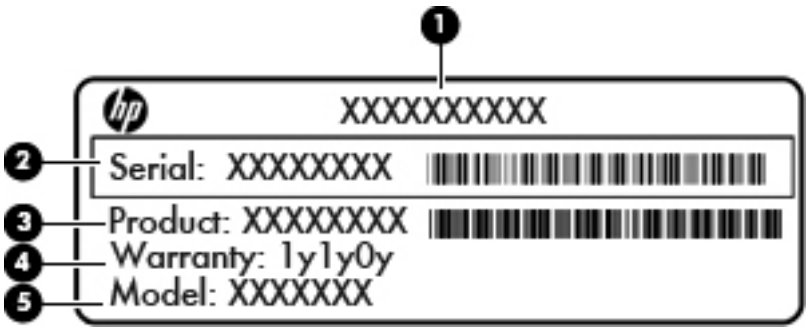


Component		Description
(1)	Battery locking latch	Locks the battery into the battery bay.
(2)	Battery bay	Holds the battery.
(3)	Battery release latch	Releases the battery from the battery bay.

3 Illustrated parts catalog

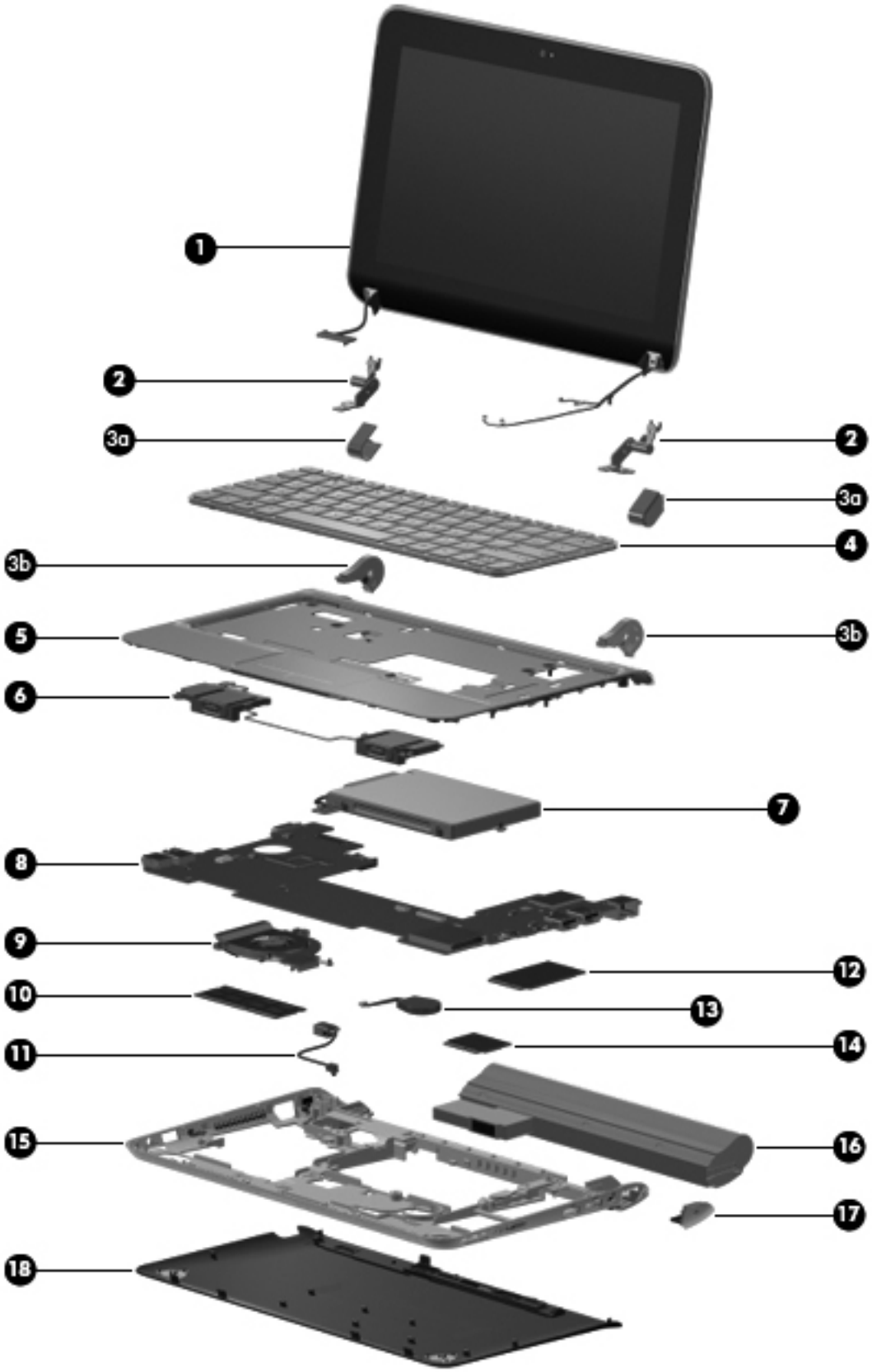
Service tag

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



Component	
(1)	Product name
(2)	Serial number (s/n)
(3)	Part number/Product number (p/n)
(4)	Warranty period
(5)	Model description

Computer major components



Item	Description	Spare part number
(1)	**Display assembly, 25.7-cm** (10.1-in) (includes display panel cable, 2 WLAN transceivers and cables, 2 WWAN transceivers and cables (select models only), and webcam/microphone module and cable):	
	• WSVGA, flush glass display assembly in charcoal	622334-001
	• WSVGA, flush glass display assembly in crimson red	622335-001
	• WSVGA, flush glass display assembly in luminous rose	622336-001
	• WSVGA, flush glass display assembly in ocean drive blue	622337-001
	• WSVGA, flush glass display assembly in lavender frost	622338-001
	• WSVGA, flush glass display assembly in leaf green	622332-001
	• WSVGA, flush glass display assembly in icy berry	635289-001
	• WSVGA, flush glass display assembly in raspberry	635291-001
	• HD, flush glass display assembly in charcoal	622339-001
	• HD, flush glass display assembly in crimson red	622340-001
	• HD, flush glass display assembly in luminous rose	622341-001
	• HD, flush glass display assembly in ocean drive blue	622342-001
	• HD, flush glass display assembly in lavender frost	622343-001
	• HD, flush glass display assembly in leaf green	622333-001
	• HD, flush glass display assembly in icy berry	635286-001
	• HD, flush glass display assembly in raspberry	635288-001
(2)	**Display hinges**	626591-001
(3a) (3b)	**Display hinge covers** (internal and external)	626590-001
(4)	**Keyboard** (includes cable)	
	• For use in Belgium	622344-A41
	• For use in Brazil	622344-201
	• For use in the Czech Republic	622344-221
	• For use in Denmark, Finland, and Norway	622344-DH1
	• For use in France	622344-051
	• For use in French Canada	622344-121
	• For use in Germany	622344-041
	• For use in Greece	622344-DJ1
	• For use in Hungary	622344-211
	• For use in Israel	622344-BB1
	• For use in Italy	622344-061
	• For use in Japan	622344-291
	• For use in Latin America	622344-161

Item	Description	Spare part number
	• For use in the Netherlands	622344-B31
	• For use in Portugal	622344-131
	• For use in Russia	622344-251
	• For use in Saudi Arabia	622344-171
	• For use in Slovenia	622344-BA1
	• For use in South Korea	622344-AD1
	• For use in Spain	622344-071
	• For use in Switzerland	622344-BG1
	• For use in Taiwan	622344-AB1
	• For use in Thailand	622344-281
	• For use in Turkey	622344-141
	• For use in the United Kingdom and Singapore	622343-031
	• For use in the United States	622344-001
(5)	**Top cover** (includes TouchPad and TouchPad cable)	635012-001
(6)	**Speakers** (include cable)	622354-001
(7)	**Hard drive** (includes bracket and screws)	
	• 320-GB, 7200-rpm	627731-001
	• 250-GB, 7200-rpm	613047-001
	• 160-GB, 7200-rpm	622655-001
	Hard Drive Hardware Kit (not illustrated; includes hard drive bracket and screws)	626589-001
(8)	**System board** (includes processor and replacement thermal material):	
	N455 processors:	
	Intel® Atom™ N455 1.66-GHz processor, 512-KB level 2 cache, 667-MHz front-side bus (FSB), 6.5 W, single-core (SC), UMA, XSLOT	622355-001
	Intel Atom N455 1.66-GHz processor, 512-KB level 2 cache, 667-MHz FSB, 6.5 W, SC, HD discrete, XSLOT	622358-001
	Intel Atom N455 1.66-GHz processor, 512-KB level 2 cache, 667-MHz FSB, 6.5 W, SC, UMA	627756-001
	Intel Atom N455 1.66-GHz processor, 512-KB level 2 cache, 667-MHz FSB, 6.5 W, SC, HD discrete	627759-001
	N475 processors:	
	Intel Atom N475 1.83-GHz processor, 512-KB level 2 cache, 667-MHz FSB, 6.5 W, SC, UMA, XSLOT	622356-001
	Intel Atom N475 1.83-GHz processor, 512-KB level 2 cache, 667-MHz FSB, 6.5W, SC, XSLOT, HD discrete	622359-001
	Intel Atom N475 1.83-GHz processor, 512-KB level 2 cache, 667-MHz FSB, 6.5 W, SC, UMA	627757-001

Item	Description	Spare part number
	Intel Atom N475 1.83-GHz processor, 512-KB level 2 cache, 667-MHz FSB, 6.5 W, SC, HD discrete	627760-001
	N550 processors:	
	Intel Atom N550 1.5-GHz processor, 1-MB level 2 cache, 667-MHz FSB, 8.5 W, dual-core (DC) UMA, XSLOT	622357-001
	Intel Atom N550 1.5-GHz processor, 1-MB level 2 cache, 667-MHz FSB, 8.5 W, DC, XSLOT, HD discrete	622360-001
	Intel Atom N550 1.5-GHz processor, 1-MB level 2 cache, 667-MHz FSB, 8.5 W, DC, UMA	627758-001
	Intel Atom N550 1.5-GHz processor, 1-MB level 2 cache, 667-MHz FSB, 8.5 W, DC, HD discrete	627761-001
(9)	**Fan/heat sink assembly** (includes replacement thermal material)	622330-001
(10)	**Memory module** (667-MHz, DDR3):	
	1-GB	621563-001
	2-GB	621567-001
(11)	**Power connector cable**	622329-001
(12)	**WWAN or GPS module** (select models only)	
	Ericsson F3307 HSPA 900-MHz Broadband module	612600-001
	Broadcom GPS Mini Card	621754-001
	Qualcomm Gobi 2000 3G module	531993-001
(13)	**RTC battery**	622351-001
(14)	**WLAN module**	
	Atheros AR9285G 802.11b/g/n 1x1 WiFi Adapter	605560-005
	Broadcom 4313/2070 802.11b/g/n (1x1) WiFi Mini Card	593836-001
	Broadcom 4313/2070 802.11b/g/n (1x1) and Bluetooth high-speed Half Mini Card	600370-001
	Ralink RT3090BC4 802.11b/g/n 1x1 WiFi and Bluetooth 2.1+EDR Combo Adapter (Bluetooth 3.0+high-speed ready)	602992-001
(15)	**Base enclosure** (includes 4 rubber feet and power connector bracket)	622328-001
(16)	**Battery**	
	6-cell Li-ion high-capacity (66-WHr 3.0-Ah)	614875-001
	6-cell Li-ion high-capacity (55-WHr 2.5-Ah)	614874–001
	3-cell Li-ion (28-WHr 2.55-Ah)	614873-001
(17)	**Network jack (RJ-45) cover**	626580-001
(18)	**Service access cover**	
	Charcoal (for use in all countries and regions except Brazil)	626028-001
	Charcoal (for use only in Brazil)	626574-001

Item	Description	Spare part number
	Crimson red (for use in all countries and regions except Brazil)	626029-001
	Leaf green (for use in all countries and regions except Brazil)	626033-001
	Crimson red (for use only in Brazil)	626575-001
	Luminous rose (for use in all countries and regions except Brazil)	626030-001
	Ocean drive blue (for use in all countries and regions except Brazil)	626031-001
	Lavender frost (for use in all countries and regions except Brazil)	626032-001
	Lavender frost (for use only in Brazil)	626578-001
	Icy berry (for use in all countries and regions except Brazil)	635298-001
	Raspberry (for use in all countries and regions except Brazil)	635300-001
	Rubber Kit (not illustrated; includes 4 rubber feet)	622352-001

Mass storage device

NOTE: The hard drive spare part kit includes a bracket and screws.

Description	Spare part number
Hard drive	
320-GB, 7200-rpm	627731-001
250-GB, 7200-rpm	613047-001
160-GB, 7200-rpm	622655-001
Hard Drive Hardware Kit (not illustrated; includes hard drive bracket and screws)	626589-001

Miscellaneous parts

Description	Spare part number
Power cord:	
For use in Argentina	490371-D01
For use in Australia	490371-011
For use in Brazil	490371-202
For use in Denmark	490371-081
For use in Europe	490371-021
For use in India	490371-D61
For use in Israel	490371-BB1
For use in Italy	490371-061
For use in Japan	490371-291
For use in the People's Republic of China	490371-AA1
For use in Singapore and the United Kingdom	490371-031
For use in South Africa	490371-AR1
For use in South Korea	490371-AD1
For use in Switzerland	490371-111
For use in Taiwan	490371-AB1
For use in Thailand	490371-201
Screw Kit	622353-001
AC adapter (40-W , non-smart RC/V 2W)	624502-001
HP Mini sleeve	
Luminous rose	628344-001
Leaf green	628345-001
Ocean drive blue	628346-001
Lavender frost	628347-001
Crimson red	628348-001
DC Bracket	635873-001

Sequential part number listing

Spare part number	Description
490371-001	Power cord for use in North America
490371-011	Power cord for use in Australia
490371-021	Power cord for use in Europe, the Middle East, and Africa
490371-031	Power cord for use in Singapore and the United Kingdom
490371-061	Power cord for use in Italy
490371-081	Power cord for use in Denmark
490371-111	Power cord for use in Switzerland
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-AR1	Power cord for use in South Africa
490371-BB1	Power cord for use in Israel
490371-D01	Power cord for use in Argentina
490371-D61	Power cord for use in India
531993-001	Qualcomm Gobi 2000 3G WWAN module (select models only)
584383-001	External DVD±RW and CD-RW SuperMulti Double-Layer Combo Drive with LightScribe (select models only)
593836-001	Broadcom 4313/2070 802.11b/g/n (1x1) WiFi Mini Card
600370-001	Broadcom 4313/2070 802.11b/g/n (1x1) and Bluetooth high-speed Half Mini Card
602992-001	Ralink RT3090BC4 802.11b/g/n 1x1 WiFi and Bluetooth 2.1+EDR Combo Adapter (Bluetooth 3.0+high-speed ready)
605560-005	Atheros AR9285G 802.11b/g/n 1x1 WiFi Adapter
612600-001	Ericsson F3307 HSPA 900-MHz Broadband WWAN module (select models only)
613047-001	250-GB, 7200-rpm hard drive (includes bracket and screws)
614873-001	3-cell Li-ion battery (28-WHr 2.55-Ah)
614874-001	6-cell Li-ion high-capacity (55-WHr 2.5-Ah)
614875-001	6-cell Li-ion high-capacity battery (66-WHr 3.0-Ah)
626590-001	Display Hinge Cover Kit (includes internal and external display hinge covers)
621563-001	1-GB memory module (667-MHz, DDR3)
621567-001	2-GB memory module (667-MHz, DDR3)

Spare part number	Description
621754-001	Broadcom GPS Mini Card (select models only)
622328-001	Base enclosure (includes 4 rubber feet and power connector bracket)
622329-001	Power connector cable
622330-001	Fan/heat sink assembly (includes replacement thermal material)
622332-001	**25.7-cm** (10.1-in) WSVGA, flush glass display assembly in leaf green (includes display panel cable, 2 WLAN transceivers and cables, 2 WWAN transceivers and cables (select models only), and webcam/microphone module and cable)
622333-001	**25.7-cm** (10.1-in) HD, flush glass display assembly in leaf green (includes display panel cable, 2 WLAN transceivers and cables, 2 WWAN transceivers and cables (select models only), and webcam/microphone module and cable)
622334-001	**25.7-cm** (10.1-in) WSVGA, flush glass display assembly in charcoal (includes display panel cable, 2 WLAN transceivers and cables, 2 WWAN transceivers and cables (select models only), and webcam/microphone module and cable)
622335-001	**25.7-cm** (10.1-in) WSVGA, flush glass display assembly in crimson red (includes display panel cable, 2 WLAN transceivers and cables, 2 WWAN transceivers and cables (select models only), and webcam/microphone module and cable)
622336-001	**25.7-cm** (10.1-in) WSVGA, flush glass display assembly in luminous rose (includes display panel cable, 2 WLAN transceivers and cables, 2 WWAN transceivers and cables (select models only), and webcam/microphone module and cable)
622337-001	**25.7-cm** (10.1-in) WSVGA, flush glass display assembly in ocean drive blue (includes display panel cable, 2 WLAN transceivers and cables, 2 WWAN transceivers and cables (select models only), and webcam/microphone module and cable)
622338-001	**25.7-cm** (10.1-in) WSVGA, flush glass display assembly in lavender frost (includes display panel cable, 2 WLAN transceivers and cables, 2 WWAN transceivers and cables (select models only), and webcam/microphone module and cable)
622339-001	**25.7-cm** (10.1-in) HD, flush glass display assembly in charcoal (includes display panel cable, 2 WLAN transceivers and cables, 2 WWAN transceivers and cables (select models only), and webcam/microphone module and cable)
622340-001	**25.7-cm** (10.1-in) HD, flush glass display assembly in crimson red (includes display panel cable, 2 WLAN transceivers and cables, 2 WWAN transceivers and cables (select models only), and webcam/microphone module and cable)
622341-001	**25.7-cm** (10.1-in) HD, flush glass display assembly in luminous rose (includes display panel cable, 2 WLAN transceivers and cables, 2 WWAN transceivers and cables (select models only), and webcam/microphone module and cable)
622342-001	**25.7-cm** (10.1-in) HD, flush glass display assembly in ocean drive blue (includes display panel cable, 2 WLAN transceivers and cables, 2 WWAN transceivers and cables (select models only), and webcam/microphone module and cable)
622343-001	**25.7-cm** (10.1-in) HD, flush glass display assembly in lavender frost (includes display panel cable, 2 WLAN transceivers and cables, 2 WWAN transceivers and cables (select models only), and webcam/microphone module and cable)
622344-001	Keyboard for use in the United States (includes cable)
622344-031	Keyboard for use in the United Kingdom and Singapore (includes cable)
622344-041	Keyboard for use in Germany (includes cable)
622344-051	Keyboard for use in France (includes cable)
622344-061	Keyboard for use in Italy (includes cable)

Spare part number	Description
622344-071	Keyboard for use in Spain (includes cable)
622344-121	Keyboard for use in French Canada (includes cable)
622344-131	Keyboard for use in Portugal (includes cable)
622344-141	Keyboard for use in Turkey (includes cable)
622344-161	Keyboard for use in Latin America (includes cable)
622344-171	Keyboard for use in Saudi Arabia (includes cable)
622344-201	Keyboard for use in Brazil (includes cable)
622344-211	Keyboard for use in Hungary (includes cable)
622344-221	Keyboard for use in the Czech Republic (includes cable)
622344-251	Keyboard for use in Russia (includes cable)
622344-281	Keyboard for use in Thailand (includes cable)
622344-291	Keyboard for use in Japan (includes cable)
622344-A41	Keyboard for use in Belgium (includes cable)
622344-AB1	Keyboard for use in Taiwan (includes cable)
622344-AD1	Keyboard for use in South Korea (includes cable)
622344-B31	Keyboard for use in the Netherlands (includes cable)
622344-BA1	Keyboard for use in Slovenia (includes cable)
622344-BB1	Keyboard for use in Israel (includes cable)
622344-BG1	Keyboard for use in Switzerland (includes cable)
622344-DH1	Keyboard for use in Denmark, Finland, and Norway (includes cable)
622344-DJ1	Keyboard for use in Greece (includes cable)
635012-001	Top cover (includes TouchPad and TouchPad cable)
622351-001	RTC battery
622352-001	Rubber Kit (includes 4 rubber feet)
622353-001	Screw Kit
622354-001	Speakers (include cable)
622355-001	System board with Intel Atom N455 1.66-GHz processor, 512-KB level 2 cache, 667-MHz FSB, 6.5 W, SC, UMA, XSLOT
622356-001	System board with Intel Atom N475 1.83-GHz processor, 512-KB level 2 cache, 667-MHz FSB, 6.5 W, SC, UMA, XSLOT
622357-001	System board with Intel Atom N550 1.5-GHz processor, 1-MB level 2 cache, 667-MHz FSB, 8.5 W, DC UMA, XSLOT
622358-001	System board with Intel Atom N455 1.66-GHz processor, 512-KB level 2 cache, 667-MHz FSB, 6.5 W, SC, HD discrete, XSLOT
622359-001	System board with Intel Atom N475 1.83-GHz processor, 512-KB level 2 cache, 667-MHz FSB, 6.5W, SC, XSLOT, HD discrete

Spare part number	Description
622360-001	System board with Intel Atom N550 1.5-GHz processor, 1-MB level 2 cache, 667-MHz FSB, 8.5 W, DC, XSLOT, HD discrete
622655-001	160-GB, 7200-rpm hard drive (includes bracket and screws)
624502-001	40-W AC adapter, non-Smart RC/V 2W
626028-001	Service access cover, charcoal (for use in all countries and regions except Brazil)
626029-001	Service access cover, crimson red (for use in all countries and regions except Brazil)
626030-001	Service access cover, luminous rose (for use in all countries and regions except Brazil)
626031-001	Service access cover, ocean drive blue (for use in all countries and regions except Brazil)
626032-001	Service access cover, lavender frost (for use in all countries and regions except Brazil)
626574-001	Service access cover, charcoal (for use only in Brazil)
626575-001	Service access cover, crimson red (for use only in Brazil)
626578-001	Service access cover, lavender frost (for use only in Brazil)
626580-001	Network jack (RJ-45) cover
626589-001	Hard Drive Hardware Kit (includes hard drive bracket and screws)
626590-001	Display hinge covers (includes internal and external display hinge covers)
626591-001	Display Hinge Kit
627731-001	320-GB, 7200-rpm hard drive (includes bracket and screws)
627756-001	System board with Intel Atom N455 1.66-GHz processor, 512-KB level 2 cache, 667-MHz FSB, 6.5 W, SC, UMA
627757-001	System board with Intel Atom N475 1.83-GHz processor, 512-KB level 2 cache, 667-MHz FSB, 6.5 W, SC, UMA
627758-001	System board with Intel Atom N550 1.5-GHz processor, 1-MB level 2 cache, 667-MHz FSB, 8.5 W, DC, UMA
627759-001	System board with Intel Atom N455 1.66-GHz processor, 512-KB level 2 cache, 667-MHz FSB, 6.5 W, SC, HD discrete
627760-001	System board with Intel Atom N475 1.83-GHz processor, 512-KB level 2 cache, 667-MHz FSB, 6.5 W, SC, HD discrete
627761-001	System board with Intel Atom N550 1.5-GHz processor, 1-MB level 2 cache, 667-MHz FSB, 8.5 W, DC, HD discrete
628344-001	HP Mini sleeve, luminous rose
628345–001	HP Mini sleeve, leaf green
628346-001	HP Mini sleeve, ocean drive blue
628347-001	HP Mini sleeve, lavender frost
628348-001	HP Mini sleeve, crimson red
630966-001	System board with Intel Atom N455 1.66-GHz processor, 512-KB level 2 cache, 667-MHz FSB, 6.5 W, SC, UMA
630967-001	System board with Intel Atom N455 1.66-GHz processor, 512-KB level 2 cache, 667-MHz FSB, 6.5 W, SC, UMA

Spare part number	Description
630968-001	System board with Intel Atom N550 1.5-GHz processor, 1-MB level 2 cache, 667-MHz FSB, 8.5 W, DC UMA, XSLOT
630969-001	System board with Intel Atom N455 1.66-GHz processor, 512-KB level 2 cache, 667-MHz FSB, 6.5 W, SC, UMA, XSLOT
630970-001:	System board with Intel Atom N475 1.83-GHz processor, 512-KB level 2 cache, 667-MHz FSB, 6.5 W, SC, UMA, XSLOT
630971-001	System board with Intel Atom N550 1.5-GHz processor, 1-MB level 2 cache, 667-MHz FSB, 8.5 W, DC UMA, XSLOT
630972-001	System board with Intel Atom N455 1.66-GHz processor, 512-KB level 2 cache, 667-MHz FSB, 6.5 W, SC, UMA, HD Discrete
630973-001	System board with Intel Atom N475 1.83-GHz processor, 512-KB level 2 cache, 667-MHz FSB, 6.5 W, SC, UMA, HD Discrete
630974-001	System board with Intel Atom N550 1.5-GHz processor, 1-MB level 2 cache, 667-MHz FSB, 8.5 W, DC UMA, HD Discrete
630975–001	System board with Intel Atom N455 1.66-GHz processor, 512-KB level 2 cache, 667-MHz FSB, 6.5 W, SC, UMA, XSLOT, HD Discrete
630976-001	System board with Intel Atom N475 1.83-GHz processor, 512-KB level 2 cache, 667-MHz FSB, 6.5 W, SC, UMA, XSLOT, HD Discrete
630977-001	System board with Intel Atom N550 1.5-GHz processor, 1-MB level 2 cache, 667-MHz FSB, 8.5 W, DC UMA, XSLOT
634873-001	DC bracket
635286-001	**25.7-cm** (10.1-in) HD, flush glass display assembly in icy berry (includes display panel cable, 2 WLAN transceivers and cables, 2 WWAN transceivers and cables (select models only), and webcam/microphone module and cable)
635288-001	**25.7-cm** (10.1-in) HD, flush glass display assembly in raspberry (includes display panel cable, 2 WLAN transceivers and cables, 2 WWAN transceivers and cables (select models only), and webcam/microphone module and cable)
635289-001	**25.7-cm** (10.1-in) WSVGA, flush glass display assembly in icy berry (includes display panel cable, 2 WLAN transceivers and cables, 2 WWAN transceivers and cables (select models only), and webcam/microphone module and cable)
635291-001	**25.7-cm** (10.1-in) WSVGA, flush glass display assembly in raspberry (includes display panel cable, 2 WLAN transceivers and cables, 2 WWAN transceivers and cables (select models only), and webcam/microphone module and cable)
635298-001	Service access cover, icy berry (for use in all countries and regions except Brazil)
635300-001	Service access cover, raspberry (for use in all countries and regions except Brazil)

4 Removal and replacement procedures

Preliminary replacement requirements

Tools required

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

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

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 device, be sure that cables are placed in their proper locations during the reassembly process. Improper cable placement can damage the device.

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 device, damage to a drive, or loss of information, observe these precautions:

Before removing or inserting a hard drive, shut down the device. If you are unsure whether the device is off or in Hibernation, turn the device 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.

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 may have occurred.

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

△ **CAUTION:** To prevent damage to the device 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

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

Packaging and transporting guidelines

Follow these grounding guidelines when packaging and transporting equipment:

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

Workstation guidelines

Follow these grounding workstation guidelines:

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

Equipment guidelines

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

- When seated, wear a wrist strap connected to a grounded system. Wrist straps are flexible straps with a minimum of one megohm ±10% resistance in the ground cords. To provide proper ground, wear a strap snugly against the skin at all times. On grounded mats with banana-plug connectors, use alligator clips to connect a wrist strap.
- When standing, use foot straps and a grounded floor mat. Foot straps (heel, toe, or boot straps) can be used at standing workstations and are compatible with most types of shoes or boots. On conductive floors or dissipative floor mats, use foot straps on both feet with a minimum of one megohm resistance between the operator and ground. To be effective, the conductive strips must be worn in contact with the skin.

The following grounding equipment is recommended to prevent electrostatic damage:

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

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

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

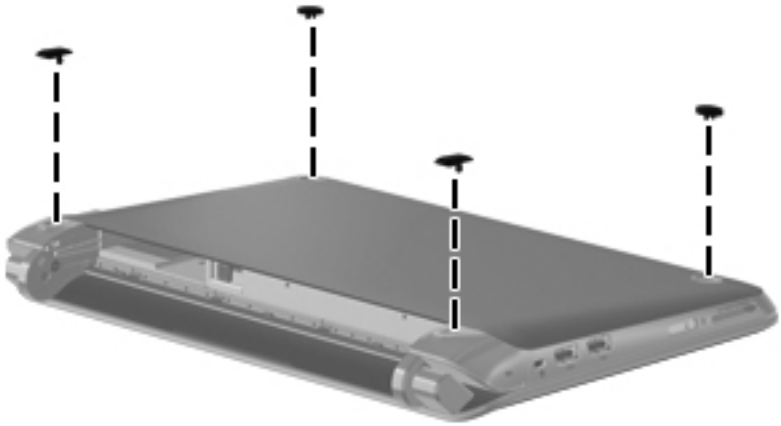
Component replacement procedures

This chapter provides removal and replacement procedures.

There are as many as 33 screws, in 5 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.

Computer feet

The computer feet are adhesive-backed rubber pads. The feet are included in the Rubber Feet Kit, spare part number 622352-001. There are 4 rubber feet that attach to the base enclosure in the locations shown in the following illustration.



Battery

Description	Spare part number
6-cell Li-ion high-capacity (66-WHr 3.0-Ah)	614875-001
6-cell Li-ion high-capacity (55-WHr 2.5-Ah)	614874-001
3-cell Li-ion (28-WHr 2.55-Ah)	614873-001

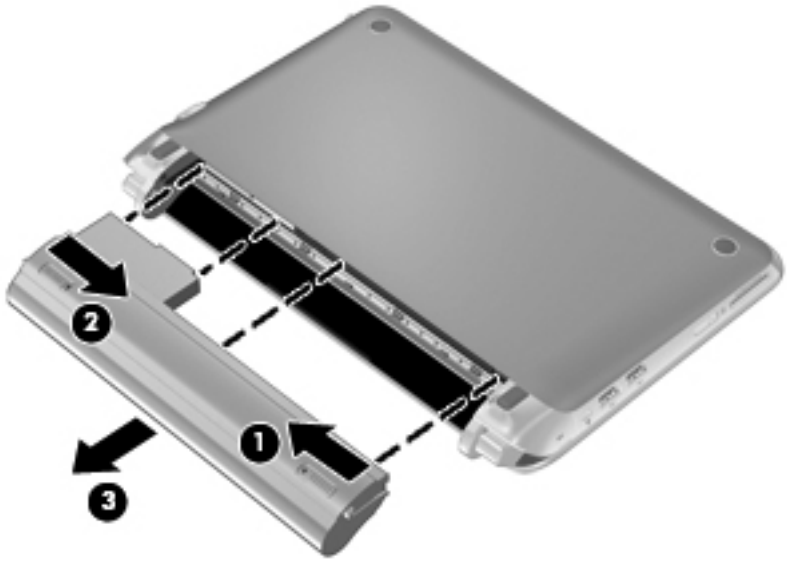
Remove the battery:

△ **CAUTION:** Removing a battery that is the sole power source for the computer can cause loss of information. To prevent loss of information, save your work and initiate Hibernation or shut down the computer through Windows before removing the battery.

1. Save your work and shut down the computer.
2. Disconnect all external devices connected to the computer.
3. Unplug the power cord from the AC outlet.
4. With the display closed, position the computer upside down on a flat surface with the battery bay toward you.
5. Slide the battery locking latch **(1)** inward to unlock the battery.

NOTE: You can identify when the battery locking latch is unlocked by the red icon that appears inside the latch.

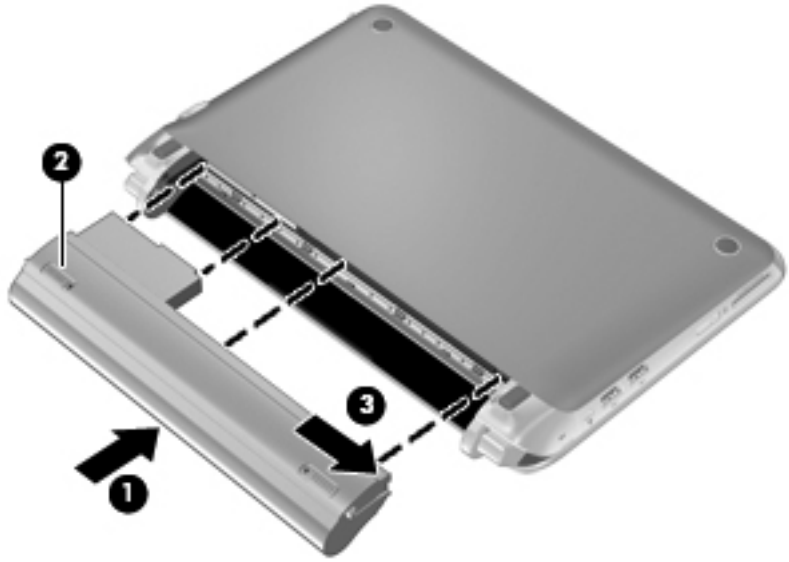
6. Slide and hold the battery release latch **(2)** while removing the battery **(3)** from the battery bay.



To insert the battery:

1. Insert the battery **(1)** into the battery bay until the battery release latch **(2)** clicks.

2. Slide the battery locking latch **(3)** to the right to lock the battery into the battery bay.



SIM

NOTE: This section applies only to models with WWAN capability.

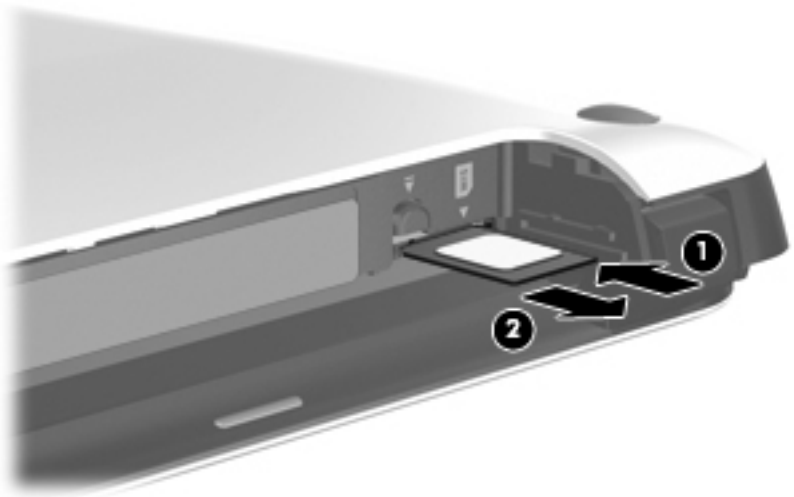
NOTE: If there is a SIM inserted in the SIM slot, it must be removed before disassembling the computer. Be sure that the SIM is reinserted in the SIM slot after reassembling the computer.

Before removing the SIM, follow these steps:

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 unplugging the power cord from the AC outlet and then unplugging the AC adapter from the computer.
4. Remove the battery (see Battery on page 33).

Remove the SIM:

1. Press in on the SIM **(1)** to release it from the SIM slot.
2. Remove the SIM **(2)** from the SIM slot.



Install the SIM by inserting it into the SIM slot until you hear a click.

Service access cover

Description	Spare part number
Service access cover, charcoal (for use in all countries and regions except Brazil)	626028-001
Service access cover, charcoal (for use only in Brazil)	626574-001
Service access cover, crimson red (for use in all countries and regions except Brazil)	626029-001
Service access cover, crimson red (for use only in Brazil)	626575-001
Service access cover, luminous rose (for use in all countries and regions except Brazil)	626030-001
Service access cover, ocean drive blue (for use in all countries and regions except Brazil)	626031-001
Service access cover, lavender frost (for use in all countries and regions except Brazil)	626032-001
Service access cover, lavender frost (for use only in Brazil)	626578-001
Service access cover, Icy Berry (for use in all countries and regions except Brazil)	635298-001
Service access cover, Raspberry (for use in all countries and regions except Brazil)	635300-001
Service access cover, Leaf green (for use in all countries and regions except Brazil)	626033-001

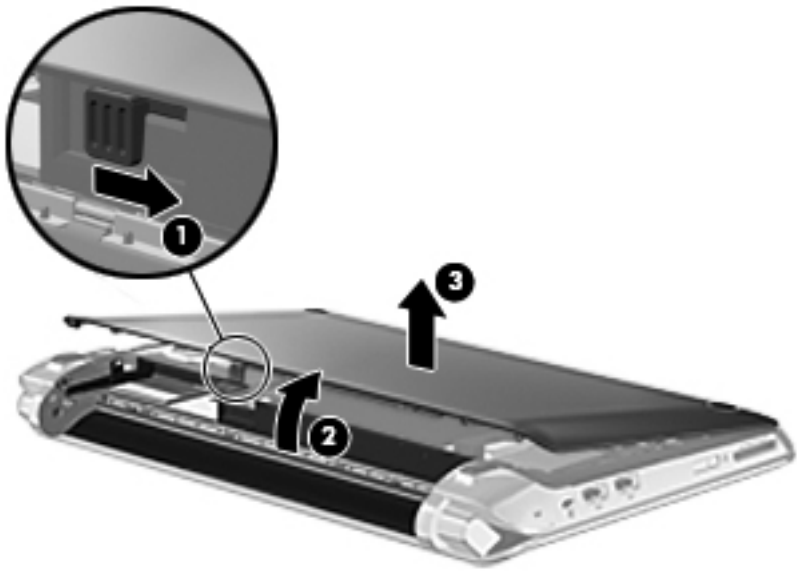
Before removing the service access cover, follow these steps:

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 unplugging the power cord from the AC outlet and then unplugging the AC adapter from the computer.
4. Remove the battery (see Battery on page 33).

Remove the service access cover:

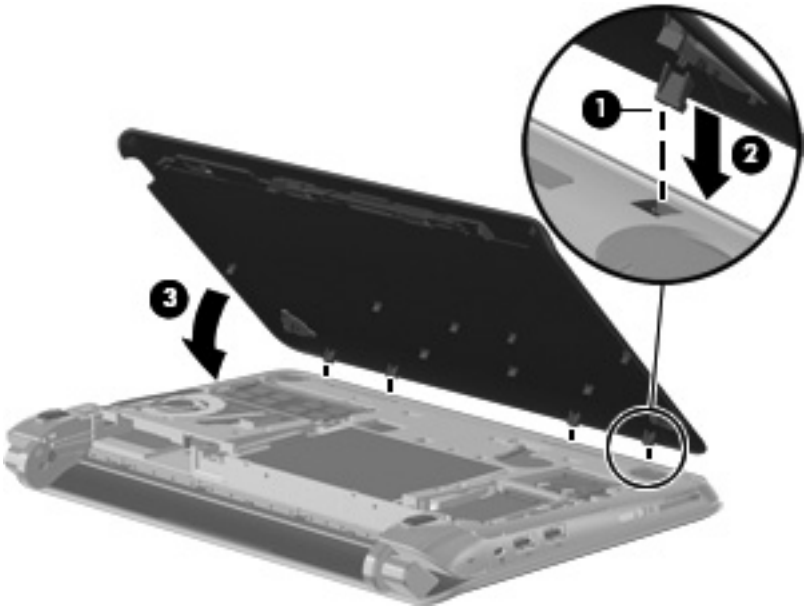
1. Slide the service access cover release lever **(1)** to the right.
2. Lift up the edge **(2)** of the service access cover until the tabs on the opposite side of the cover are clear of the slots in the base enclosure.

3. Remove the cover **(3)**.

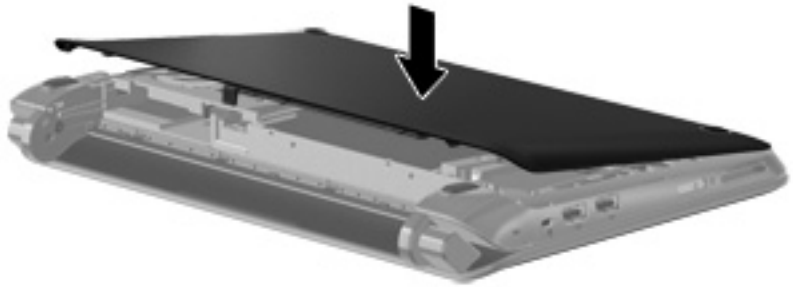


Install the service access cover:

1. Align the tabs **(1)** on the service access cover with the slots in the base enclosure.
2. Insert the tabs into the slots **(2)**, and swing the cover **(3)** down.



3. Press down firmly on the cover until it clicks into place.



Hard drive

NOTE: The hard drive spare part kit includes a bracket and screws.

Description	Spare part number
Hard drive:	
320-GB, 7200-rpm	627731-001
250-GB, 7200-rpm	613047-001
160-GB, 7200-rpm	622655-001
Hard Drive Hardware Kit (includes hard drive bracket and screws)	626589-001

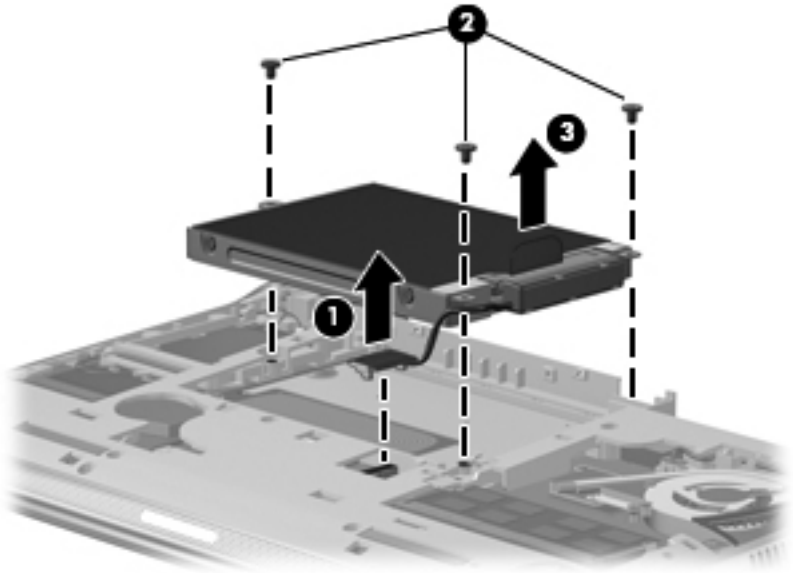
Before removing the hard drive, follow these steps:

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 unplugging the power cord from the AC outlet and then unplugging the AC adapter from the computer.
4. Remove the following components:
   a. Battery (see Battery on page 33).
   b. Service access cover (see Service access cover on page 36).

Remove the hard drive:

1. Disconnect the hard drive cable **(1)** from the system board.
2. Remove the 3 Phillips 2.0x4.0 screws **(2)** that secure the hard drive to the computer.

3. Use the Mylar tab **(3)** to remove the hard drive from the computer.

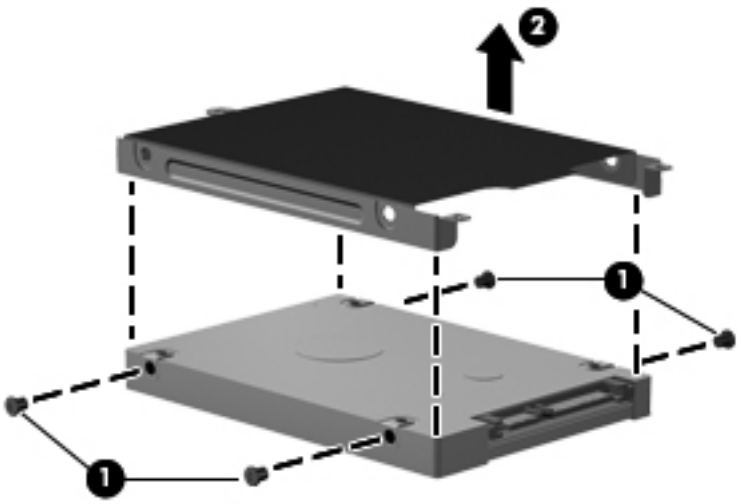


4. If it is necessary to replace the hard drive bracket, follow these steps:

   a. Disconnect the cable adapter from the hard drive.

   b. Remove the 4 Phillips 3.0×3.0 screws **(1)** that secure the hard drive bracket to the drive.

   c. Remove the hard drive bracket **(2)**.



Reverse this procedure to reassemble and install the hard drive.

WWAN and GPS modules (select models only)

NOTE: The WWAN module and the GPS module are very similar. Either of them can populate the WWAN slot.

Description	Spare part number
Ericsson F3307 HSPA 900-MHz Broadband WWAN module (select models only)	612600-001
Broadcom GPS Mini Card (select models only)	621754-001
Qualcomm Gobi 2000 3G WWAN module (select models only)	531993-001

CAUTION: The WWAN module and the WLAN module are not interchangeable.

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 device functionality, and then contact technical support.

Before removing the WWAN or GPS module, follow these steps:

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 unplugging the power cord from the AC outlet and then unplugging the AC adapter from the computer.
4. Remove the following components:
   a. Battery (see Battery on page 33).
   b. Service access cover (see Service access cover on page 36).

Remove the WWAN or GPS module:

1. Disconnect the antenna cable or cables **(1)** from the WWAN or GPS module.

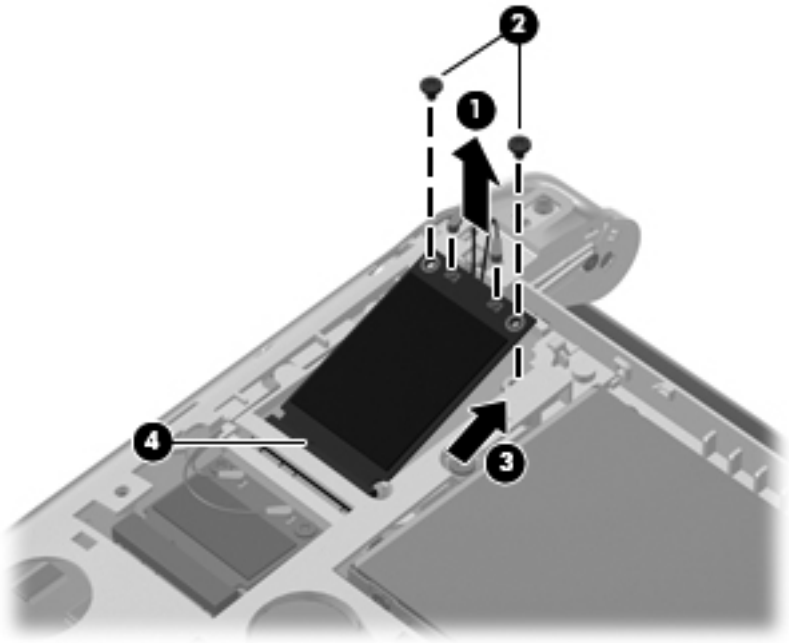
   NOTE: The antenna cable with the red label is connected to the WWAN module “Main” terminal. The antenna cable with the blue label is connected to the WWAN or GPS module “Aux” terminal.

   NOTE: The GPS module does not use the Main cable, therefore the Main cable is not connected. When you work with the GPS module, it is important to keep the plastic tubing that covers the Main cable in place.

2. Remove the 2 Phillips 2.0×3.0 screws **(2)** that secure the WWAN or GPS module to the system board. (The module tilts up.)

3. Remove the WWAN or GPS module **(3)** by pulling the module away from the slot at an angle.

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



Reverse this procedure to install the WWAN or GPS module.

WLAN module

Description	Spare part number
Atheros AR9285G 802.11b/g/n 1x1 WiFi Adapter	605560-005
Broadcom 4313/2070 802.11b/g/n (1x1) and Bluetooth high-speed Half Mini Card	600370-001
Broadcom 4313/2070 802.11b/g/n (1x1) WiFi Mini Card	593836-001
Ralink RT3090BC4 802.11b/g/n 1x1 WiFi and Bluetooth 2.1+EDR Combo Adapter (Bluetooth 3.0+high-speed ready)	602992-001

△ **CAUTION:** The WLAN module and the WWAN module are not interchangeable.

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.

Before removing the WLAN module, follow these steps:

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 device by first unplugging the power cord from the AC outlet and then unplugging the AC adapter from the computer.
4. Remove the following components:
   a. Battery (see Battery on page 33).
   b. Service access cover (see Service access cover on page 36).

Remove the WLAN module:

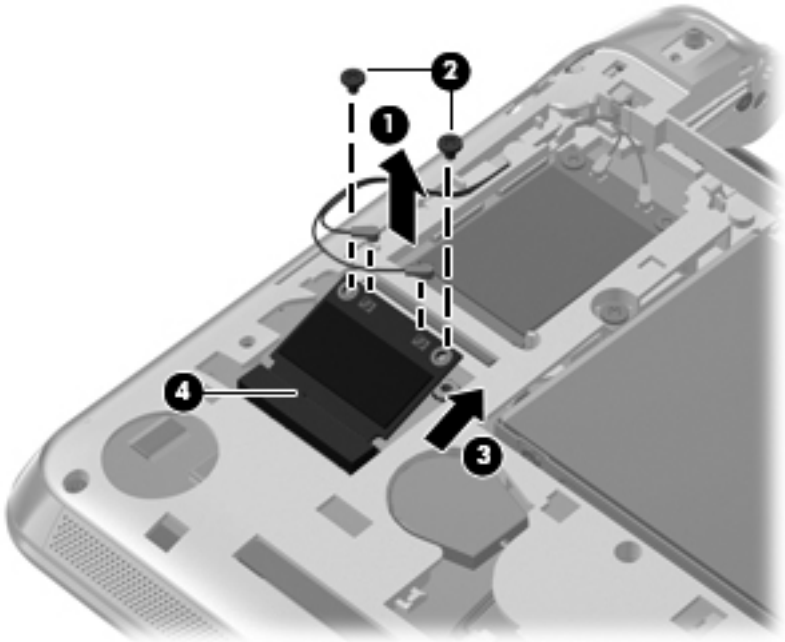
1. Disconnect the WLAN antenna cables **(1)** from the terminals on the WLAN module.

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

2. Remove the 2 Phillips 2.0×3.0 screws **(2)** that secure the WLAN module to the system board. (The WLAN module tilts up.)

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

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



Reverse this procedure to install the WLAN module.

Memory module

Description	Spare part number
1-GB memory module (667-MHz, DDR3)	615862-001
2-GB memory module (667-MHz, DDR3)	615863-001

Before removing the memory module, follow these steps:

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 unplugging the power cord from the AC outlet and then unplugging the AC adapter from the computer.
4. Remove the following components:
   a. Battery (see Battery on page 33).
   b. Service access cover (see Service access cover on page 36).

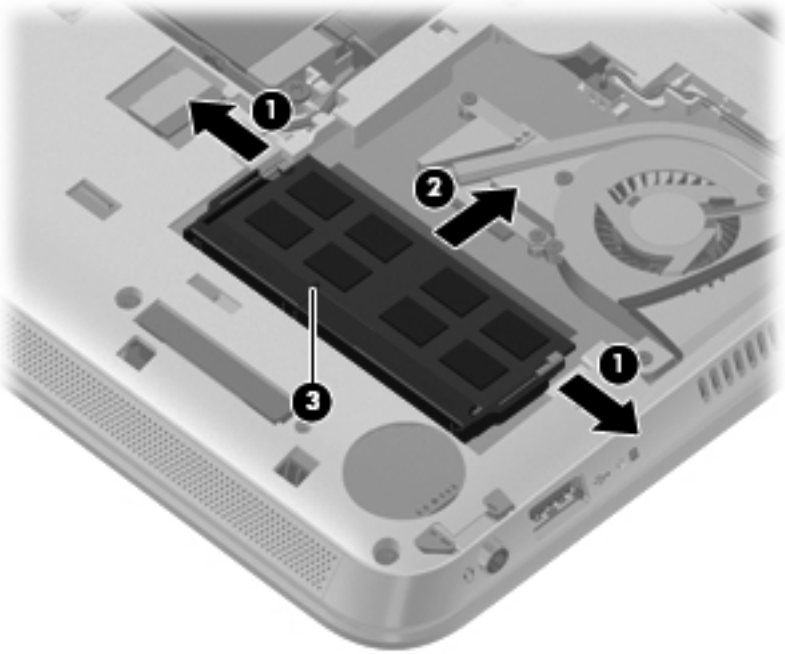
Remove the memory module:

1. Pull away the retention clips **(1)** on each side of the memory module to release the memory module. (The memory module tilts up.)

△ **CAUTION:** To prevent damage to the memory module, hold it by the edges only. Do not touch the components on the memory module.

2. Grasp the edge of the memory module **(2)**, and then pull it out of the memory module slot.

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



Reverse this procedure to install the memory module.

RTC battery

Description	Spare part number
RTC battery	622351-001

Before removing the real-time clock (RTC) battery, follow these steps:

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 unplugging the power cord from the AC outlet and then unplugging the AC adapter from the computer.
4. Remove the following components:
   a. Battery (see Battery on page 33).
   b. Service access cover (see Service access cover on page 36).

Remove the RTC battery:

1. Disconnect the RTC battery cable **(1)** from the system board.

2. Remove the RTC battery **(2)** from the computer.

NOTE: The RTC battery is attached with double-sided tape.

Reverse this procedure to install the RTC battery. When installing the RTC battery, be sure the plus sign (+) faces up.

Keyboard

NOTE: The keyboard spare part kit includes a keyboard cable.

For use in:	Spare part number	For use in:	Spare part number
Belgium	622344-A41	The Netherlands	622344-B31
Brazil	622344-201	Portugal	622344-131
The Czech Republic	622344-221	Russia	622344-251
Denmark, Finland, and Norway	622344-DH1	Saudi Arabia	622344-171
France	622344-051	Slovenia	622344-BA1
French Canada	622344-121	South Korea	622344-AD1
Germany	622344-041	Spain	622344-071
Greece	622344-DJ1	Switzerland	622344-BG1
Hungary	622344-211	Taiwan	622344-AB1
Israel	622344-BB1	Thailand	622344-281

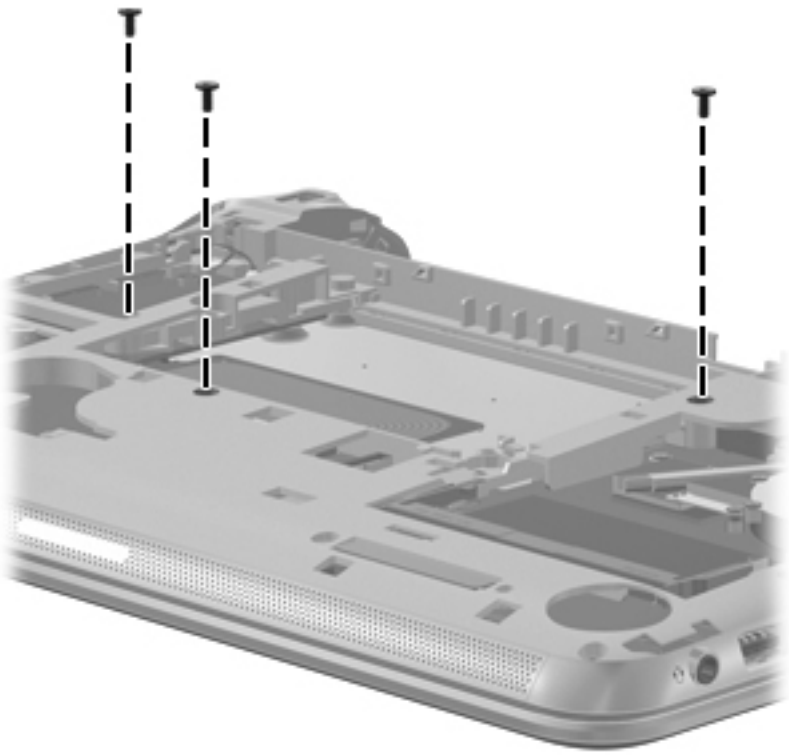
For use in:	Spare part number	For use in:	Spare part number
Italy	622344-061	Turkey	622344-141
Japan	622344-291	For use in the United Kingdom and Singapore	622344-031
Latin America	622344-161	The United States	622344-001

Before removing the keyboard, follow these steps:

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 unplugging the power cord from the AC outlet and then unplugging the AC adapter from the computer.
4. Remove the following components:
   a. Battery (see Battery on page 33).
   b. Service access cover (see Service access cover on page 36).

Remove the keyboard:

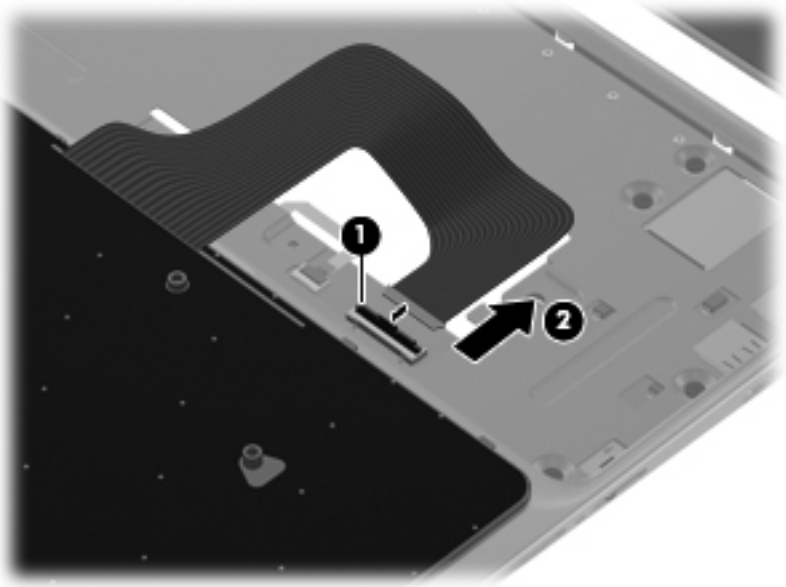
1. Remove the 3 Phillips 2.0×5.0 screws that secure the keyboard to the computer.



2. Turn the computer right-side up, with the front toward you.

3. Open the computer as far as possible.
4. Lift the rear edge of the keyboard until it rests at an angle.

5. Release the zero insertion force (ZIF) connector **(1)** to which the keyboard cable is attached, and then disconnect the keyboard cable **(2)**



6. Remove the keyboard.

Reverse this procedure to install the keyboard.

Top cover

NOTE: The top cover includes the TouchPad and TouchPad cable.

Description	Spare part number
Top cover	635012-001

Before removing the top cover, follow these steps:

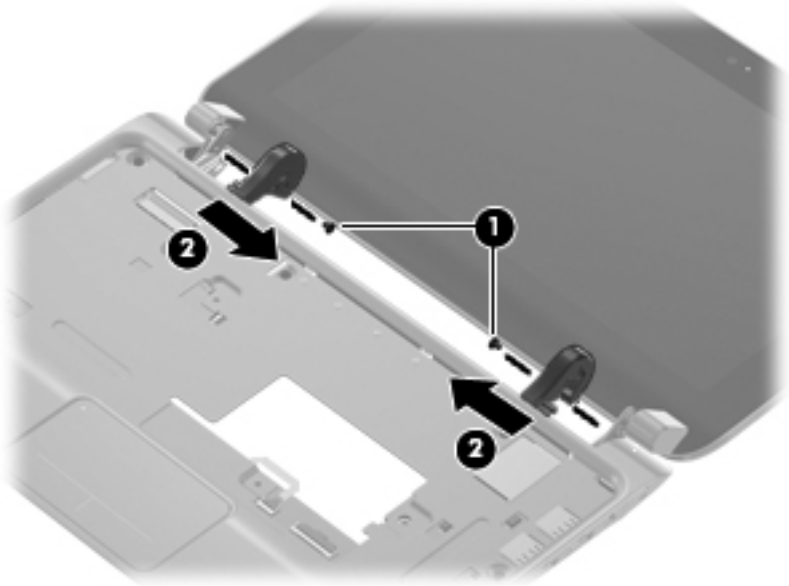
1. Shut down the computer. If you are unsure whether the computer is off or in Hibernation, turn the computer on, and then shut it down through the operating system.
2. Disconnect all external devices connected to the computer.
3. Disconnect the power from the computer by first unplugging the power cord from the AC outlet and then unplugging the AC adapter from the computer.
4. Remove the following components:
   a. Battery (see Battery on page 33).
   b. Service access cover (see Service access cover on page 36).
   c. Keyboard (see Keyboard on page 48).

Remove the top cover.

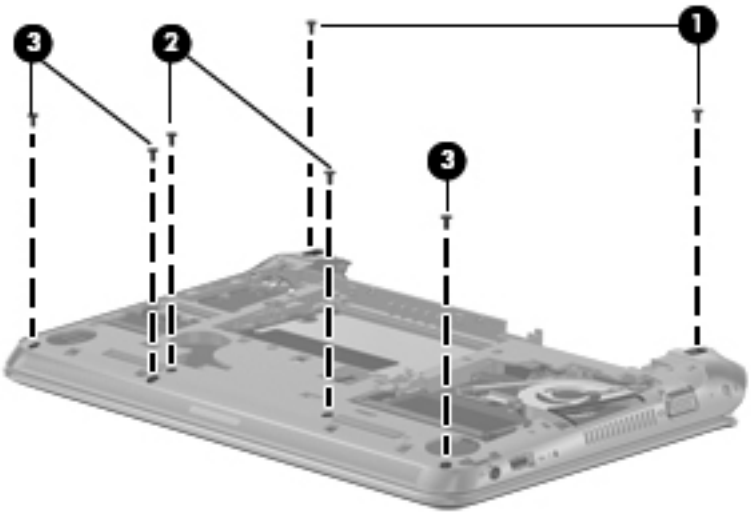
1. Open the computer as far as possible.
2. Remove the 2 Phillips 2.0×2.5 screws **(1)** that secure the interior hinge covers to the display hinges.

NOTE: The screws used for these hinge covers require a Phillips 00 screwdriver.

3. Remove the interior hinge covers **(2)**.

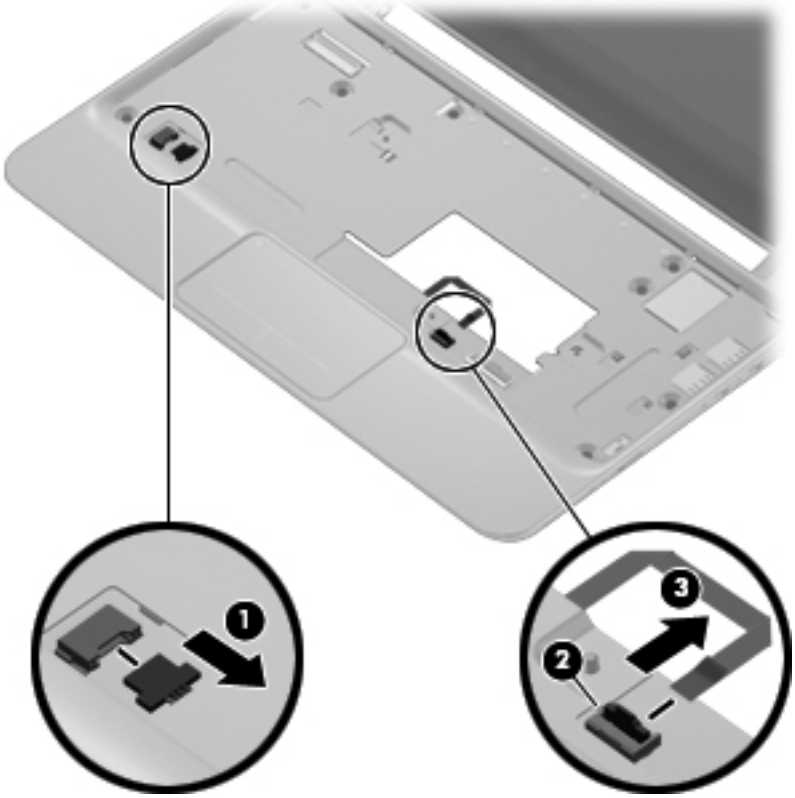


4. Turn the computer upside down, with the front toward you.
5. Remove the rear rubber feet, and then the 2 Phillips 2.5x5.0 screws **(1)** under the feet.
6. Remove the 2 Phillips 2.0x5.0 screws **(2)** and the 3 Phillips 2.0x4.0 screws **(3)** that secure the top cover to the base enclosure.

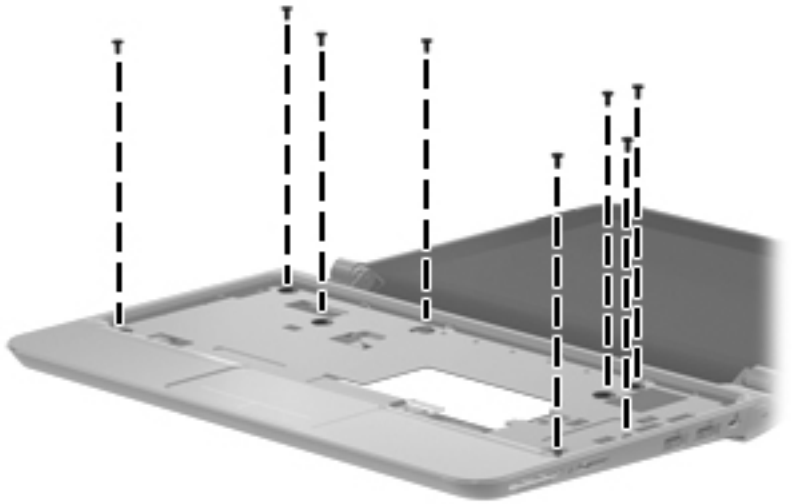


7. Turn the computer right-side up, with the front toward you.
8. Open the computer as far as possible.
9. Disconnect the speaker cable **(1)** from the system board.

10. Release the ZIF connector **(2)** to which the TouchPad cable is connected, and then disconnect the TouchPad cable **(3)** from the system board.



11. Remove the 8 Phillips 2.0x4.0 screws that secure the top cover to the base enclosure.



12. Release the top cover by lifting the front edge until it disengages from the base enclosure.

Reverse this procedure to install the top cover.

Speakers

Description	Spare part number
Speakers (include cables)	622354-001

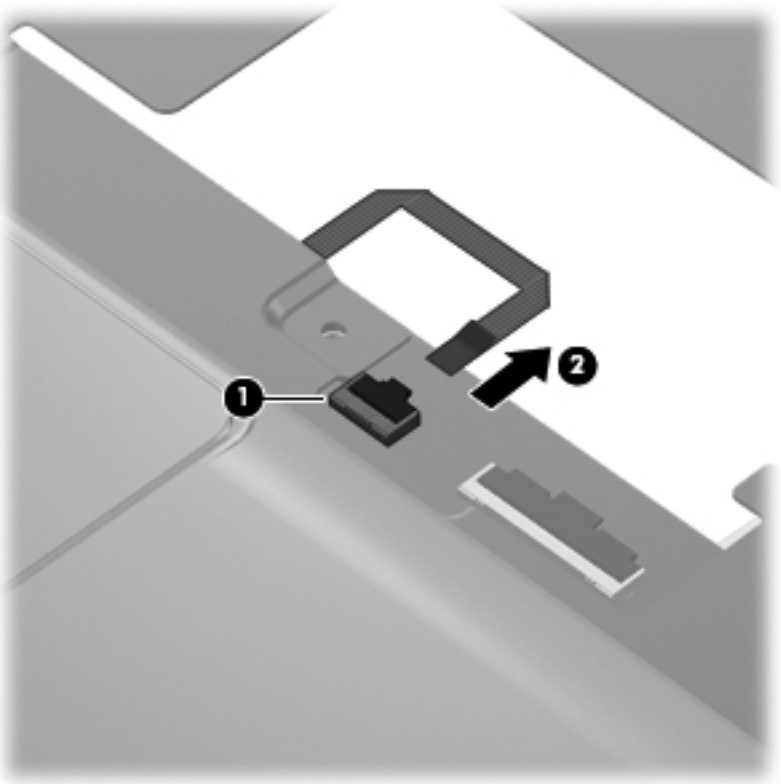
Before removing the speakers, follow these steps:

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 unplugging the power cord from the AC outlet and then unplugging the AC adapter from the computer.
4. Remove the following components:
   a. Battery (see Battery on page 33).
   b. Service access cover (see Service access cover on page 36).
   c. Keyboard (see Keyboard on page 48).
   d. Top cover (see Top cover on page 51).

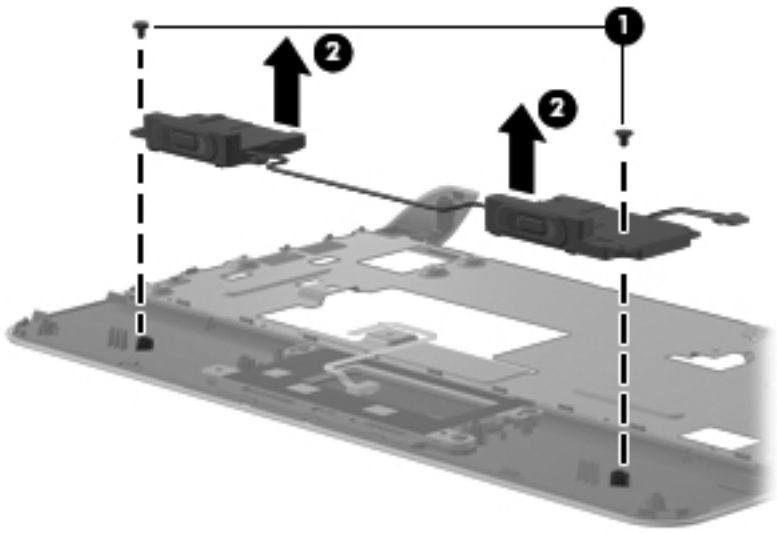
Remove the speakers:

1. Turn the top cover upside down, with the front toward you.

2. Release the ZIF connector **(1)** for the TouchPad cable and remove the cable **(2)** from the top cover. (The TouchPad cable is attached to the top cover with double-sided tape).



3. Remove the 2 Phillips 2.0×3.0 screws **(1)** that secure the speakers to the top cover.
4. Remove the speakers **(2)**.



Reverse this procedure to install the speakers.

Display assembly

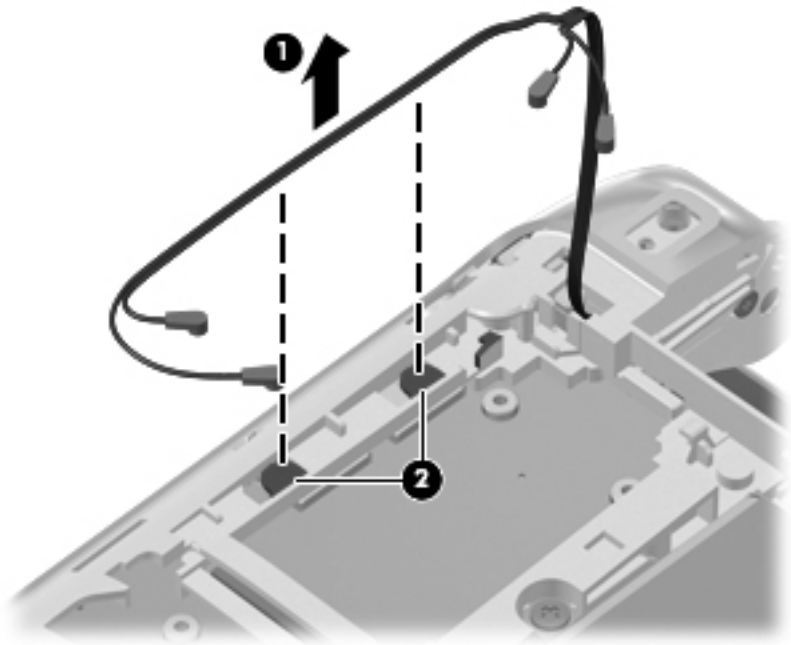
Description	Spare part number
25.7-cm (10.1-in) display assembly (includes display panel cable, 2 WLAN transceivers and cables, 2 WWAN transceivers and cables (select models only), and webcam/microphone module and cable):	
• HD, flush glass display assembly in charcoal	622339-001
• HD, flush glass display assembly in leaf green	622333-001
• HD, flush glass display assembly in crimson red	622340-001
• HD, flush glass display assembly in luminous rose	622341-001
• HD, flush glass display assembly in ocean drive blue	622342-001
• HD, flush glass display assembly in lavender frost	622343-001
• HD, flush glass display assembly in icy berry	635286-001
• HD, flush glass display assembly in raspberry	635288-001
• WSVGA, flush glass display assembly in leaf green	622332-001
• WSVGA, flush glass display assembly in charcoal	622334-001
• WSVGA, flush glass display assembly in crimson red	622335-001
• WSVGA, flush glass display assembly in luminous rose	622336-001
• WSVGA, flush glass display assembly in ocean drive blue	622337-001
• WSVGA, flush glass display assembly in lavender frost	622338-001
• WSVGA, flush glass display assembly in icy berry	635289-001
• WSVGA, flush glass display assembly in raspberry	635291-001

Before removing the display assembly, follow these steps:

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 unplugging the power cord from the AC outlet and then unplugging the AC adapter from the computer.
4. Remove the following components:
   a. Battery (see Battery on page 33).
   b. Service access cover (see Service access cover on page 36).
   c. Keyboard (see Keyboard on page 48).
   d. Top cover (see Top cover on page 51).
5. Disconnect the WWAN antenna cables from the WWAN module (see WWAN and GPS modules (select models only) on page 42).
6. Disconnect the WLAN antenna cables from the WLAN module (see WLAN module on page 44).

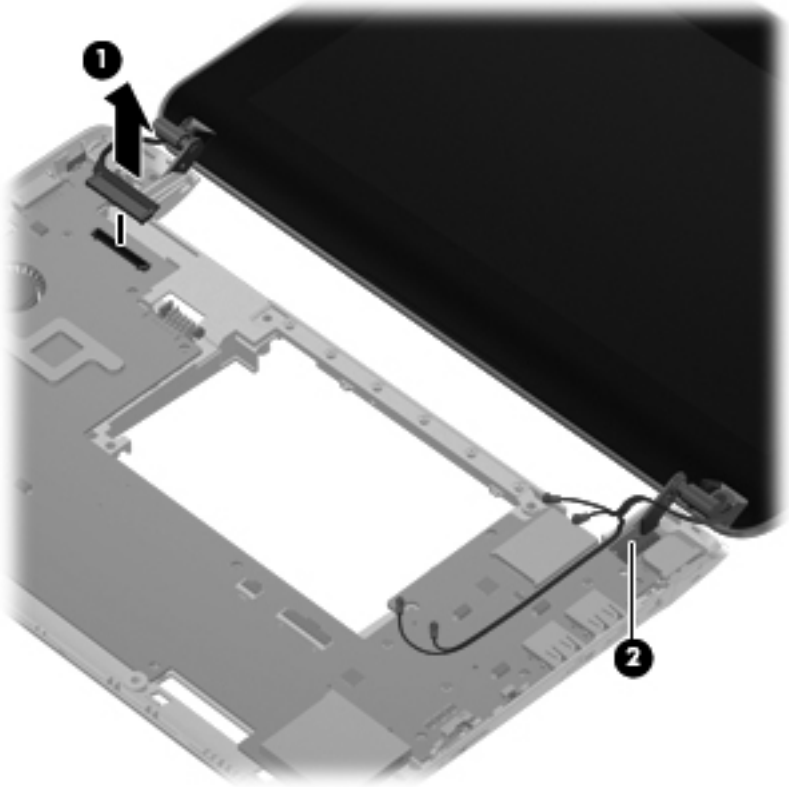
Remove the display assembly:

1. Close the computer.
2. Turn the computer upside down, with the front toward you.
3. Release the WLAN antenna cables **(1)** from the clips **(2)** built into the base enclosure.



4. Turn the computer right-side up, with the front toward you.
5. Open the computer as far as possible.
6. Disconnect the display panel cable **(1)** from the system board.

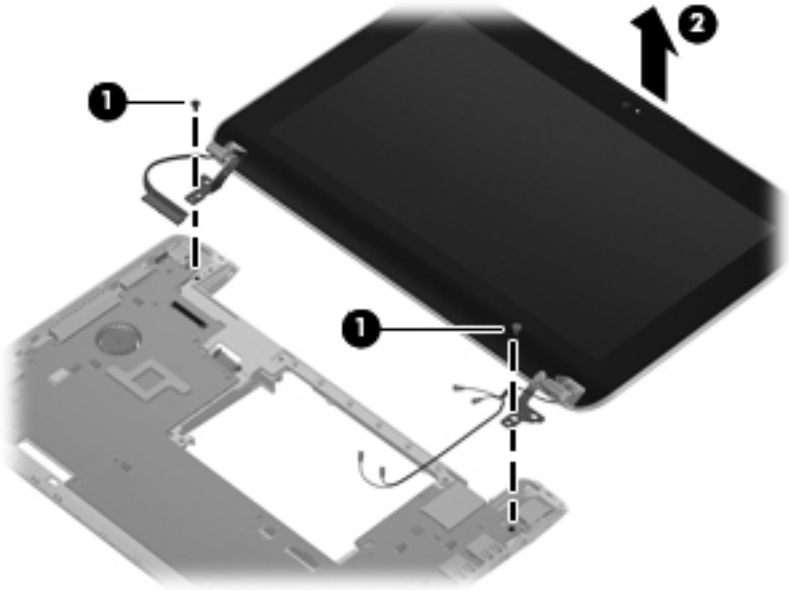
7. Release the wireless antenna cables **(2)** from the clip built into the base enclosure.



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

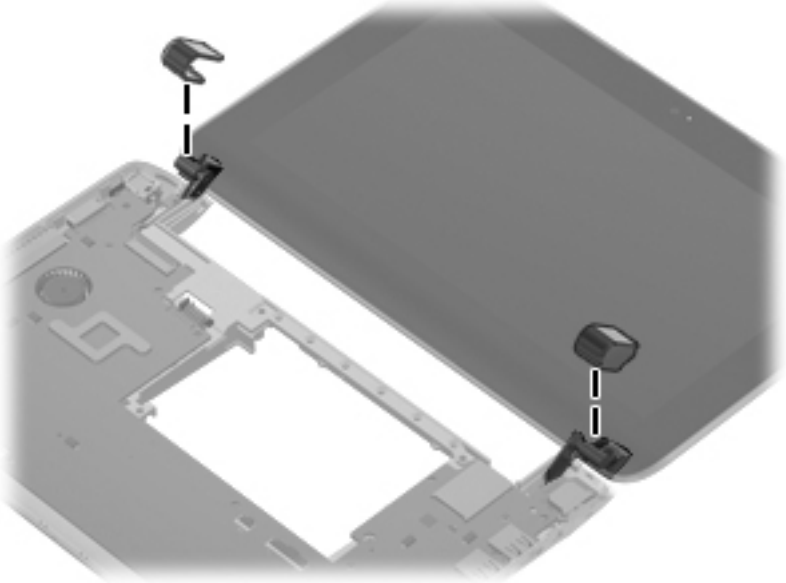
8. Remove the 2 Phillips 2.5×5.0 screws **(1)** that secure the display assembly to the base enclosure.

9. Remove the display assembly **(2)**.

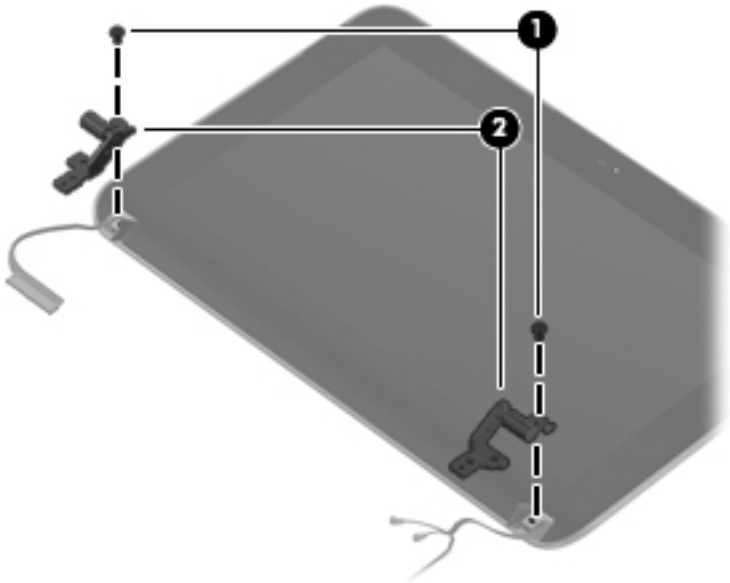


Remove the display assembly hinges:

1. Remove the hinge covers from the hinges.



2. Remove the 2 Phillips 2.0x5.0 screws **(1)** that secure the hinges to the display assembly.
3. Remove the display hinges **(2)**.



Reverse this procedure to reassemble and install the display assembly.

Fan/heat sink assembly

Description	Spare part number
Fan/heat sink assembly (includes replacement thermal material)	622330-001

NOTE: To properly ventilate the computer, allow at least a 7.6-cm (3-in) clearance on the left side 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, follow these steps:

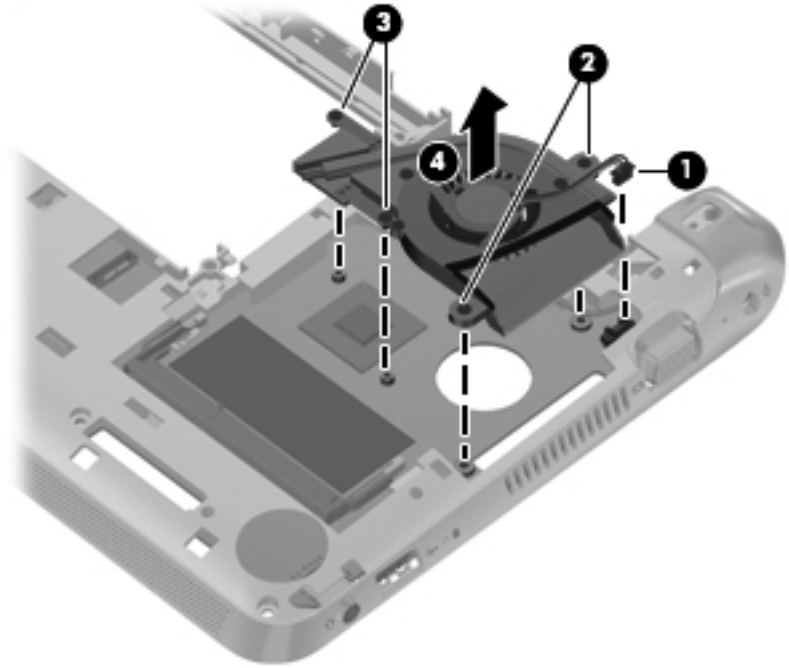
1. Shut down the computer. If you are unsure whether the computer is off or in Hibernation, turn the computer on, and then shut it down through the operating system.
2. Disconnect all external devices connected to the computer.
3. Disconnect the power from the computer by first unplugging the power cord from the AC outlet and then unplugging the AC adapter from the computer.
4. Remove the following components:
   a. Battery (see Battery on page 33).
   b. Service access cover (see Service access cover on page 36).

Remove the fan/heat sink assembly:

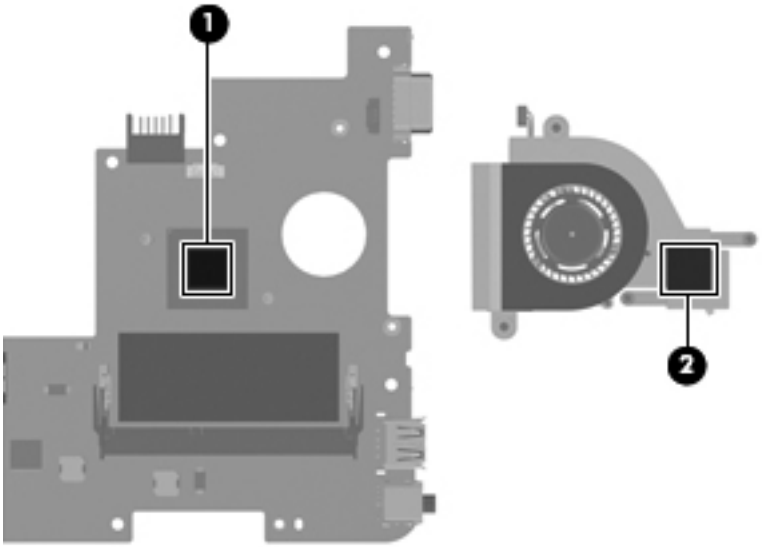
1. Turn the system board upside down.
2. Disconnect the fan cable **(1)** from the system board.
3. Remove the 2 Phillips 2.0x3.0 screws **(2)** and loosen the 2 Phillips 2.0x4.0 captive screws **(3)** that secure the fan/heat sink assembly to the system board.

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

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



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 used on the processor **(1)** and the fan/heat sink assembly section **(2)** that services it.



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

System board

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

Description	Spare part number
Intel Atom N455 1.66-GHz processor, 512-KB level 2 cache, 667-MHz FSB, 6.5 W, SC, UMA, XSLOT	622355-001
Intel Atom N455 1.66-GHz processor, 512-KB level 2 cache, 667-MHz FSB, 6.5 W, SC, HD discrete, XSLOT	622358-001
Intel Atom N455 1.66-GHz processor, 512-KB level 2 cache, 667-MHz FSB, 6.5 W, SC, UMA	627756-001
Intel Atom N455 1.66-GHz processor, 512-KB level 2 cache, 667-MHz FSB, 6.5 W, SC, HD discrete	627759-001
Intel Atom N475 1.83-GHz processor, 512-KB level 2 cache, 667-MHz FSB, 6.5 W, SC, UMA, XSLOT	622356-001
Intel Atom N475 1.83-GHz processor, 512-KB level 2 cache, 667-MHz FSB, 6.5W, SC, XSLOT, HD discrete	622359-001
Intel Atom N475 1.83-GHz processor, 512-KB level 2 cache, 667-MHz FSB, 6.5 W, SC, UMA	627757-001
Intel Atom N475 1.83-GHz processor, 512-KB level 2 cache, 667-MHz FSB, 6.5 W, SC, HD discrete	627760-001
Intel Atom N550 1.5-GHz processor, 1-MB level 2 cache, 667-MHz FSB, 8.5 W, DC UMA, XSLOT	622357-001
Intel Atom N550 1.5-GHz processor, 1-MB level 2 cache, 667-MHz FSB, 8.5 W, DC, XSLOT, HD discrete	622360-001
Intel Atom N550 1.5-GHz processor, 1-MB level 2 cache, 667-MHz FSB, 8.5 W, DC, UMA	627758-001
Intel Atom N550 1.5-GHz processor, 1-MB level 2 cache, 667-MHz FSB, 8.5 W, DC, HD discrete	627761-001
Intel Atom N455 1.66-GHz processor, 512-KB level 2 cache, 667-MHz FSB, 6.5 W, SC,UMA	630966-001
Intel Atom N455 1.66-GHz processor, 512-KB level 2 cache, 667-MHz FSB, 6.5 W, SC, UMA	630967-001
Intel Atom N550 1.5-GHz processor, 1-MB level 2 cache, 667-MHz FSB, 8.5 W, DC, UMA, XSLOT	630968-001
Intel Atom N455 1.66-GHz processor, 512-KB level 2 cache, 667-MHz FSB, 6.5 W, SC, UMA, XSLOT	630969-001
Intel Atom N475 1.83-GHz processor, 512-KB level 2 cache, 667-MHz FSB, 6.5 W, DC, UMA, XSLOT	630970-001
Intel Atom N550 1.5-GHz processor, 1-MB level 2 cache, 667-MHz FSB, 8.5 W, DC, UMA, XSLOT	630971-001
Intel Atom N455 1.66-GHz processor, 512-KB level 2 cache, 667-MHz FSB, 6.5 W, DC, UMA, HD discrete	630972–001
Intel Atom N475 1.83-GHz processor, 512-KB level 2 cache, 667-MHz FSB, 6.5 W, SC, UMA, HD discrete	630973-001
Intel Atom N550 1.5-GHz processor, 1-MB level 2 cache, 667-MHz FSB, 8.5 W, DC, UMA, HD discrete	630974-001
Intel Atom N455 1.66-GHz processor, 512-KB level 2 cache, 667-MHz FSB, 6.5 W,SC, UMA, XSLOT, HD discrete	630975-001
Intel Atom N475 1.83-GHz processor, 512-KB level 2 cache, 667-MHz FSB, 6.5 W, SC, UMA, XSLOT, HD discrete	630976-001
Intel Atom N550 1.5-GHz processor, 1-MB level 2 cache, 667-MHz FSB, 8.5 W, DC, UMA, XSLOT	630977-001

Before removing the system board, follow these steps:

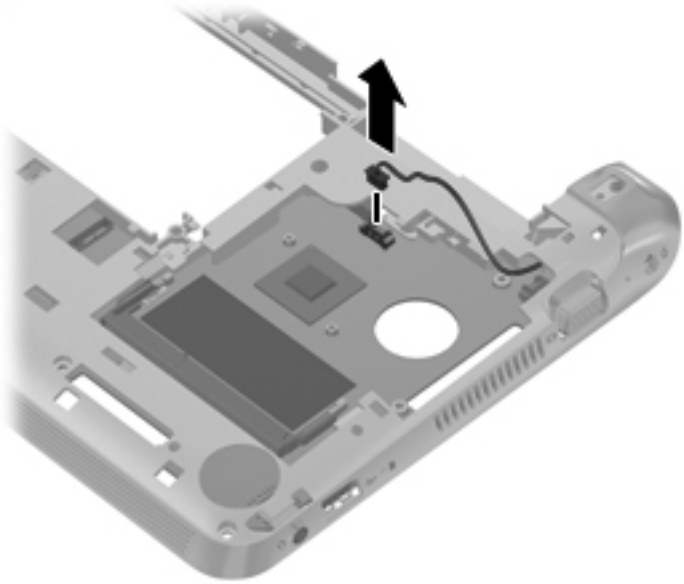
1. Shut down the computer. If you are unsure whether the computer is off or in Hibernation, turn the computer on, and then shut it down through the operating system.
2. Disconnect all external devices connected to the computer.
3. Disconnect the power from the computer by first unplugging the power cord from the AC outlet and then unplugging the AC adapter from the computer.
4. Remove the following components:
   a. Battery (see Battery on page 33).
   b. Service access cover (see Service access cover on page 36).
   c. Hard drive (see Hard drive on page 39).
   d. Keyboard (see Keyboard on page 48).
   e. Display assembly (see Display assembly on page 57).
5. Disconnect the WWAN antenna cables from the WWAN module (see WWAN and GPS modules (select models only) on page 42).
6. Disconnect the WLAN antenna cables from the WLAN module (see WLAN module on page 44).

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:

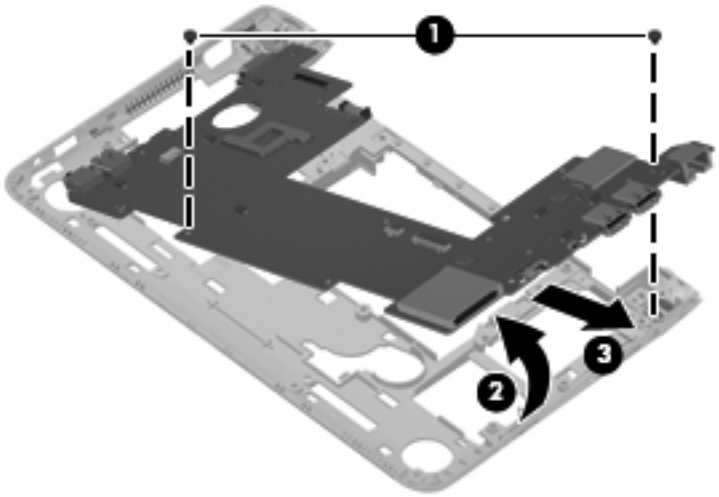
- SIM (see SIM on page 35)
- WWAN module (see WWAN and GPS modules (select models only) on page 42)
- WLAN module (see WLAN module on page 44)
- Memory module (see Memory module on page 46)
- RTC battery (see RTC battery on page 47)
- Fan/heat sink assembly (see Fan/heat sink assembly on page 61)

Remove the system board:

1. Disconnect the power connector cable from the system board.



2. Remove the 2 Phillips 2.0×4.0 screws **(1)** that secure the system board to the base enclosure.
3. Lift the right side of the system board **(2)** until it rests at an angle.
4. Remove the system board **(3)** by sliding it up and away from the base enclosure.



Reverse the procedure to install the system board.

Power connector cable and DC bracket

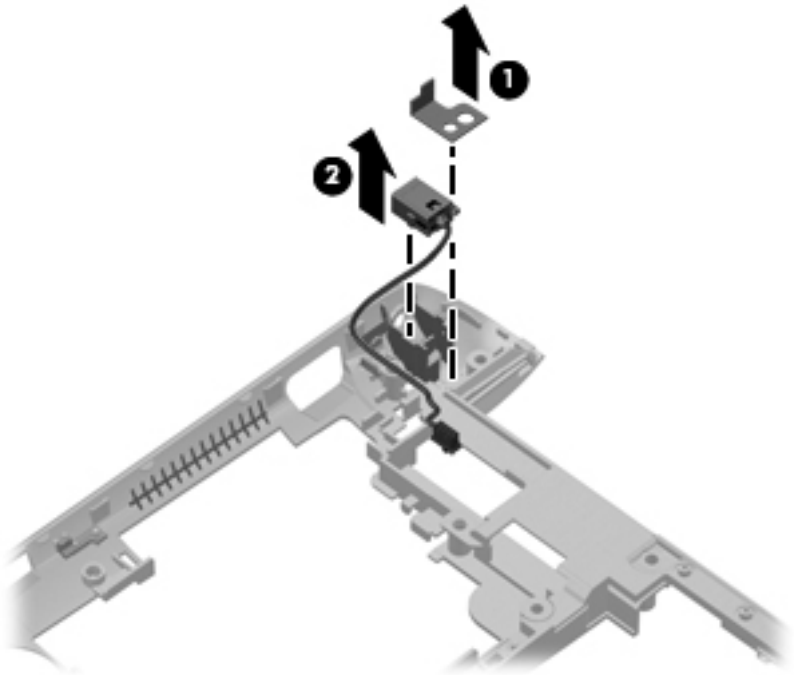
Description	Spare part number
Power connector cable	622329-001
DC bracket	634873-001

Before removing the power connector cable, follow these steps:

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 unplugging the power cord from the AC outlet and then unplugging the AC adapter from the computer.
4. Remove the following components:
   a. Battery (see Battery on page 33).
   b. Service access cover (see Service access cover on page 36).
   c. Hard drive (see Hard drive on page 39).
   d. Keyboard (see Keyboard on page 48).
   e. Top cover (see Top cover on page 51).
   f. Display assembly (see Display assembly on page 57).
   g. System board (see System board on page 63).

Remove the DC bracket and power connector cable:

1. Grasp the DC bracket **(1)**, and then pull it up off the base enclosure.
2. Grasp the power connector **(2)**, and then pull it up off the base enclosure.



Reverse this procedure to install the power connector cable and DC bracket.

RJ-45 cover

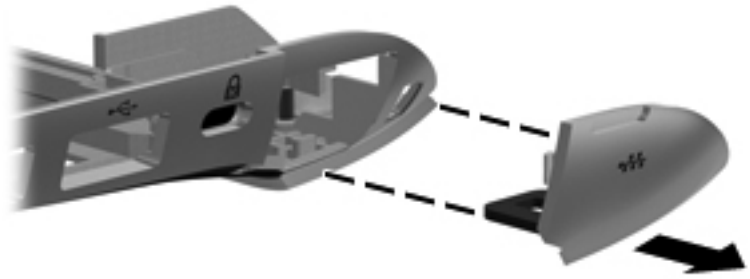
Description	Spare part number
RJ-45 cover	626580-001

Before removing the RJ45 cover, follow these steps:

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 unplugging the power cord from the AC outlet and then unplugging the AC adapter from the computer.
4. Remove the following components:
   a. Battery (see Battery on page 33).
   b. Service access cover (see Service access cover on page 36).
   c. Hard drive (see Hard drive on page 39).
   d. Keyboard (see Keyboard on page 48).
   e. Top cover (see Top cover on page 51).
   f. Display assembly (see Display assembly on page 57).
   g. System board (see System board on page 63).

Remove the RJ-45 cover:

- ☐ Remove the RJ-45 cover by grasping the cover and pulling it away from the base enclosure.



Reverse this procedure to install the RJ-45 cover.

5 Setup Utility

Starting Setup Utility

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

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

To start Setup Utility:

- Open Setup Utility by turning on or restarting the computer and then pressing f10 while the “Press ESC key for startup menu” message is displayed in the lower-left corner of the screen.

Using Setup Utility

Changing the language of Setup Utility

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

1. Open Setup Utility by turning on or restarting the computer and then pressing f10 while the “Press ESC key for startup menu” message is displayed in the lower-left corner of the screen.
2. Use the arrow keys to select **System Configuration > Language**, and then press enter.
3. Use the arrow keys to select a language, and then press enter.
4. When a confirmation prompt with your language selected is displayed, press enter.
5. To save your change and exit Setup Utility, use the arrow keys to select **Exit > Exit Saving Changes**, and then press enter. Your change goes into effect immediately.

Your change goes into effect immediately.

Navigating and selecting in Setup Utility

Setup Utility does not support the TouchPad. Navigation and selection are by keystroke.

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

Displaying system information

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

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

Restoring default settings in Setup Utility

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

1. Open Setup Utility by turning on or restarting the computer and then pressing f10 while the “Press ESC key for startup menu” message is displayed in the lower-left corner of the screen.
2. Use the arrow keys to select **Exit > Load Setup Defaults**, and then press enter.
3. When the Setup Confirmation is displayed, press enter.
4. To save your change and exit Setup Utility, use the arrow keys to select **Exit > Exit Saving Changes**, and then press enter.

The 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

You can 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 esc to return to the menu display. Then use the arrow keys to select **Exit > Exit Saving Changes**, and then press enter.

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

  If the Setup Utility menus are not visible, press esc to return to the menu display. Then use the arrow keys to select **Exit > Exit Discarding Changes**, and then press enter. After either choice, the computer restarts.

Setup Utility Menus

Main Menu

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

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

Select	To do this
System information	• View and change the system time and date. • View identification information about the computer. • View specification information about the processor, memory size, and system BIOS.

Security Menu

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

System Configuration Menu

Select	To do this
Language Support	Select the display language for the Setup Utility.
Fan always on	Enable/disable fan always on.
Action keys mode	Enable/disable action keys.
Boot Options	Set boot order, device boot capability, and accessibility options: • POST Hotkey Delay (sec)—Set the delay for the f10 and f12 functions of Setup Utility in intervals of 5 seconds each (0, 5, 10, 15, 20). • HP QuickWeb (select models only) —Enable/disable the QuickWeb Boot menu in Setup Utility. • Delay to boot Windows—Disable, or set delay to 5, 10, 15, or 30 seconds. • Floppy boot—Enable/disable during boot time. • Internal Network Adapter boot—Enable/disable internal network adapter boot. • Boot order—Set the order in which the system searches for a boot disk: ◦ Notebook hard drive ◦ USB diskette-on-key/IUSB hard drive ◦ USB CD/DVD ROM drive ◦ USB Floppy ◦ Network adapter **NOTE:** Only devices connected to the system will appear in the boot order menu. To change the order of boot devices, press the Up or Down arrow to select a device. Then press f5 to move the device up in the list or f6 to move the device down in the list.

Diagnostics Menu

Select	To do this
Hard Disk Self Test (select models only)	Run a comprehensive self-test on the hard drive.
Memory Test	Run a diagnostic test on the system memory.

Updating the BIOS

Updated versions of the BIOS may be available on the HP Web site.

Most BIOS updates on the HP Web site are packaged in compressed files called *SoftPaqs*.

Some download packages contain a file named Readme.txt, which contains information regarding installing and troubleshooting the file.

Determining the BIOS version

To determine whether available BIOS updates contain later BIOS versions than those currently installed on the computer, you need to know the version of the system BIOS currently installed.

BIOS version information (also known as *ROM date* and *System BIOS*) can be displayed using Setup Utility.

1. Start Setup Utility.
2. If the system information is not displayed, use the arrow keys to select the **Main** menu.

   BIOS and other system information is displayed.
3. To exit Setup Utility, use the arrow keys to select **Exit > Exit Discarding Changes**, and then press enter.

Downloading a BIOS update

△ **CAUTION:** To reduce the risk of damage to the computer or an unsuccessful installation, download and install a BIOS update only when the computer is connected to reliable external power using the AC adapter. Do not download or install a BIOS update while the computer is running on battery power, docked in an optional docking device, or connected to an optional power source. During the download and installation, follow these instructions:

Do not disconnect power from the computer by unplugging the power cord from the AC outlet.

Do not shut down the computer or initiate Sleep.

Do not insert, remove, connect, or disconnect any device, cable, or cord.

1. Access the page on the HP Web site that provides software for your computer.
2. Follow the on-screen instructions to identify your computer and access the BIOS update you want to download.
3. At the download area, follow these steps:

   a. Identify the BIOS update that is later than the BIOS version currently installed on your computer. Make a note of the date, name, or other identifier. You may need this information to locate the update later, after it has been downloaded to your hard drive.

   b. Follow the on-screen instructions to download your selection to the hard drive.

   Make a note of the path to the location on your hard drive where the BIOS update is downloaded. You will need to access this path when you are ready to install the update.

NOTE: If you connect your computer to a network, consult the network administrator before installing any software updates, especially system BIOS updates.

BIOS installation procedures vary. Follow any instructions that are displayed on the screen after the download is complete.

NOTE: After a message on the screen reports a successful installation, you can delete the downloaded file from your hard drive.

6 Specifications

Device specifications

	Metric	U.S.
Dimensions		
Depth	**19 cm**	7.5 in
Width	**27 cm**	11 in
Height	**2.3-3.2 cm**	0.91-0.93 in
Weight		
25.7-cm (10.1-in) LCD, equipped with a 3-cell battery, hard drive, 1-GB memory, WLAN module, and 2 wireless antennas	**1.2 kg**	2.71 lb
25.7-cm (10.1-in). LCD, equipped with a 6-cell battery, hard drive, 1-GB memory, WLAN module, and 2 wireless antennas	**1.5 kg**	3.22 lb
Input power		
Operating voltage	19.5 V dc @ 2.05A – 40 W	
Operating current	2.05 A	
Temperature		
Operating	**5°C to 35°C**	41°F to 95°F
Nonoperating	**-20°C to 65°C**	-4°F to 149°F
Relative humidity (noncondensing)		
Operating	10% to 90%	
Nonoperating	0% to 95%	
Maximum altitude (unpressurized)		
Operating	**-15 m to 3,048 m**	-50 ft to 10,000 ft
Nonoperating	**-15 m to 12,192 m**	-50 ft to 40,000 ft

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

25.7-cm (10.1-in) high-definition AntiGlare display specifications

	Metric	U.S.
Dimensions		
Height	**23.45 cm**	9.23 in
Width	**14.3 cm**	5.62 in
Diagonal	**25.7 cm**	10.1 in
Number of colors	262,144	
Contrast ratio	400:1 (typical)	
Brightness	200 nits (typical)	
Pixel resolution		
Pitch	0.16305 × 016305 mm	
Format	High-definition: 1366 × 768	
Configuration	RGB vertical stripe	
Backlight	LED	
Character display	80 × 25	
Total power consumption	3.46 W	
Viewing angle	+/-30° horizontal, +10/-20° vertical (typical)	

25.7-cm (10.1-in) WSVGA AntiGlare display specifications

	Metric	U.S.
Dimensions		
Height	**23.5 cm**	9.3 in
Width	**14.3 cm**	5.6 in
Diagonal	**25.7 cm**	10.1 in
Number of colors	262,144	
Contrast ratio	500:1 (typical)	
Brightness	200 nits (typical)	
Pixel resolution		
Pitch	**0.2175 × 0.2088 mm**	
Format	1024 × 600	
Configuration	RGB vertical stripe	
Backlight	LED	
Character display	80 × 25	
Total power consumption (varies by display)	3.46 W	
Viewing angle	+/-45° horizontal, +15/-35° vertical (typical)	

Hard drive specifications

	320-GB*	250-GB*	160-GB*
Dimensions			
Height	**9.5 mm**	**9.5 mm**	**9.5 mm**
Length	**100.2 mm**	**100.2 mm**	**100.2 mm**
Width	**70 mm**	**70 mm**	**70 mm**
Weight	**105-115 g**	**105-115 g**	**105-115 g**
Interface type	SATA	SATA	SATA
I/O data transfer rate (maximum)	100 Gbits/sec	100 Gbits/sec	100 Gbits/sec
Security	ATA security	ATA security	ATA security
Seek times (typical read, including setting)			
Single track	1.5 ms	1.5 ms	1.5 ms
Average (read/write)	11.0/12.0 ms	11.0/12.0 ms	11.0/12.0 ms
Maximum	21.0 ms	21.0 ms	21.0 ms
Logical blocks	625,142,448	488,397,168	312,581,808
Disc rotational speed	7200 rpm	7200 rpm	7200 rpm
Operating temperature	**0°C to 60°C** (32°F to 140°F)	**0°C to 60°C** (32°F to 140°F)	**0°C to 60°C** (32°F to 140°F)

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

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

7 Backup and recovery

Recovery after a system failure is as good as your most recent backup. HP recommends that you regularly back up your files to ensure you have the latest data.

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

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

You may have HP Recovery Manager on your computer.

NOTE: For detailed information, search for HP Recovery Manager in Help and Support.

Using Windows Backup and Restore

To create a backup using Windows Backup and Restore, follow these steps:

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

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

1. Click **Start**, click **All Programs**, click **Maintenance**, and then click **Backup and Restore**.
2. Follow the on-screen instructions to set up and create a backup.

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

Using system restore points

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

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

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

When to create restore points

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

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

Creating a system restore point

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

Restoring to a previous date and time

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

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

Backing up and recovering using HP Recovery Manager

If your computer includes HP Recovery Manager, tools provided by the operating system and by 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:

- Backing up your information
- Creating a set of recovery discs
- Creating system restore points
- Recovering a program or driver
- Performing a full system recovery

Backing up your information

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

- At regularly scheduled times

NOTE: Set reminders to back up your information periodically.

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

Note the following when backing up:

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

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

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

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

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

NOTE: The external optical drive must be connected to the USB port *on the computer*, not to a USB port on another external device, such as a hub or docking station.

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

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

Creating a set of recovery discs

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

NOTE: This task will require an optional external optical drive. The external optical drive must be connected to the USB port *on the computer*, not to a USB port on another external device, such as a hub or docking station.

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

Note the following guidelines before creating recovery discs:

- You will need high-quality DVD-R, DVD+R, BD-R (writable Blu-ray), or CD-R discs. All these discs are purchased separately. DVDs have a larger storage capacity than CDs. If you use CDs, up to 20 discs may be required, whereas only a few DVDs are required.

  NOTE: Double-layer discs and read-write discs—such as CD-RW, 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 an 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 will be prompted to continue the disc creation process.

To create a set of recovery discs:

1. Click **Start**, click **All Programs**, and then click **Recovery Media Creation**.
2. Click **Yes** when prompted.

Performing a recovery

NOTE: You can recover only files that you have previously backed up. HP recommends that you use Recovery Manager to create a set of recovery discs (entire drive backup) as soon as you set up your 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 that you create or from a dedicated recovery partition (select models only) on the hard drive. However, computers that include a solid-state drive (SSD) may not have a recovery partition. If that is the case, recovery discs have been included with your computer. Use these discs to recover your operating system and software.

NOTE: Windows has its own built-in repair features, such as System Restore. If you have not already tried these features, try them before using Recovery Manager. For more information on these built-in repair features, click **Start**, and then click **Help and Support**.

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

Recovering using the recovery discs

To restore the system files from the recovery discs:

1. Back up all personal files.
2. Insert the first recovery disc into an optional optical drive, and restart the computer.

   NOTE: The external optical drive must be connected to the USB port *on the computer*, not to a USB port on another external device, such as a hub or docking station.

3. Follow the on-screen instructions.

Recovering using the partition on the hard drive (select models only)

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

NOTE: This method of recovery is also an HP Recovery Manager solution.

NOTE: Computers with an SSD may not have a recovery partition. If the computer does not have a recovery partition, you will not be able to recover using this procedure. Recovery discs have been included for computers that do not have a partition. Use these discs to recover your operating system and software.

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

1. Access Recovery Manager in either of the following ways:

   - Click **Start**, click **All Programs**, click **Recovery Manager**, and then click **Recovery Manager**.

   – or –

   a. Turn on or restart the computer.

   b. Press f11 while the “Press <F11> for recovery” message is displayed on the screen.

   NOTE: It may take several minutes for Recovery Manager to load.

2. Click **Yes** when prompted.
3. In the Recovery Manager window, click **System Recovery**.
4. Follow the on-screen instructions.

8 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 and regions must meet the requirements of the country or region where the computer is used.

Requirements for all countries

The following requirements are applicable to all countries and 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 the power system of 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 and regions

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

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

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

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

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

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

9 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.

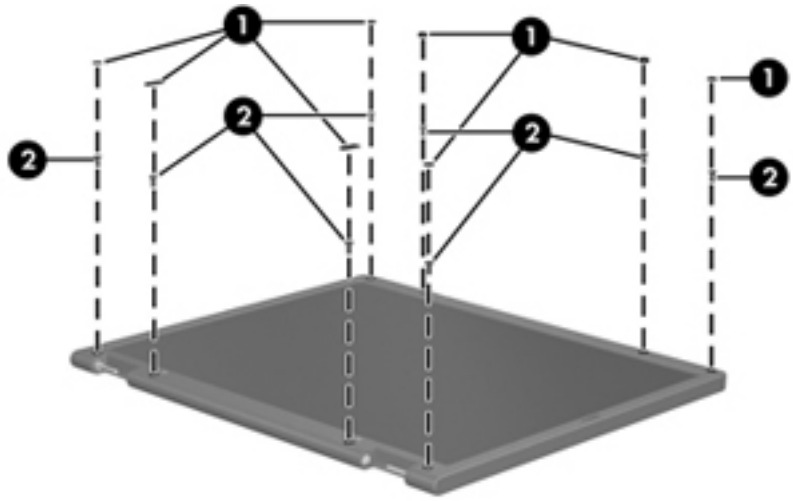
NOTE: Materials Disposal. This HP product contains mercury in the backlight in the display assembly that might require special handling at end-of-life. Disposal of mercury may be regulated because of environmental considerations. For disposal or recycling information, contact your local authorities,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

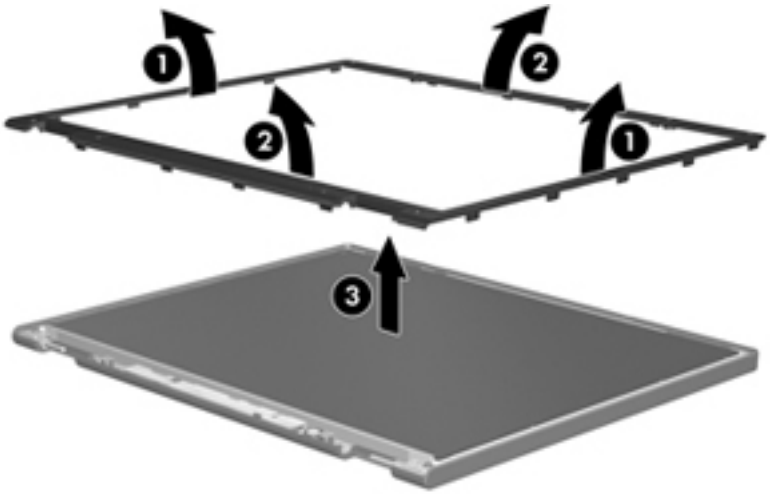
Perform the following steps:

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

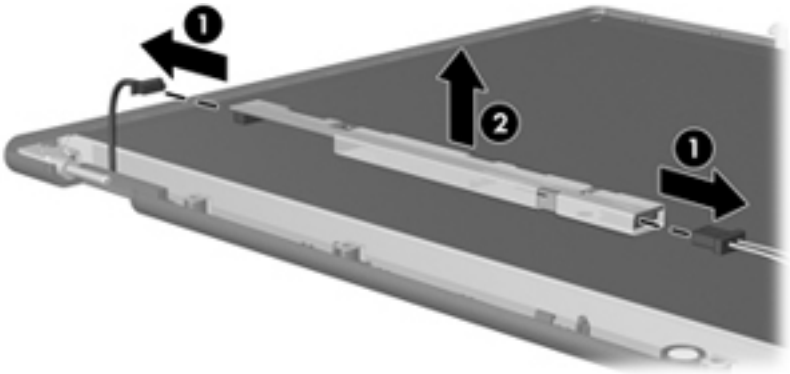


2. Lift up and out on the left and right inside edges **(1)** and the top and bottom inside edges **(2)** of the display bezel until the bezel disengages from the display assembly.

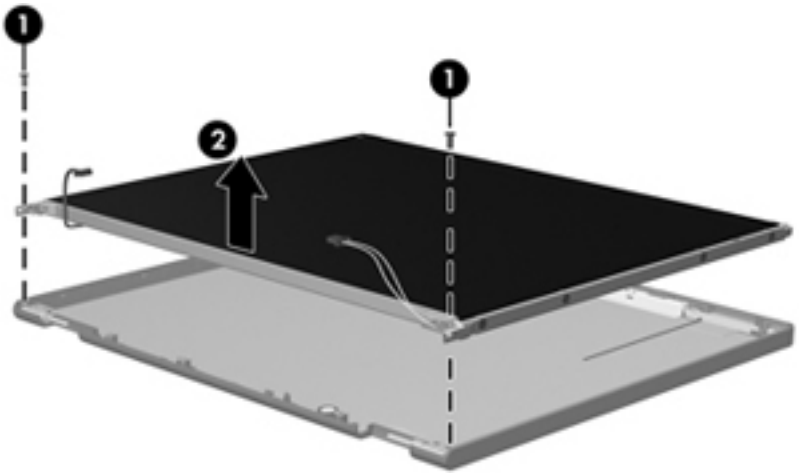
3. Remove the display bezel 3.



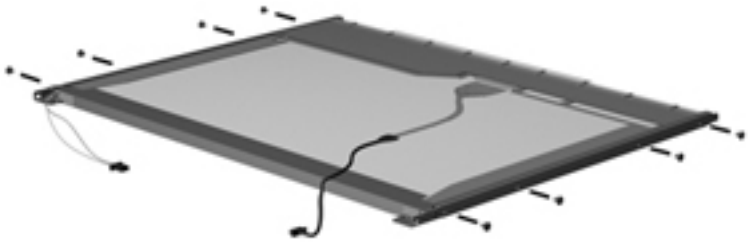
4. Disconnect all display panel cables **(1)** from the display inverter and remove the inverter 2.



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

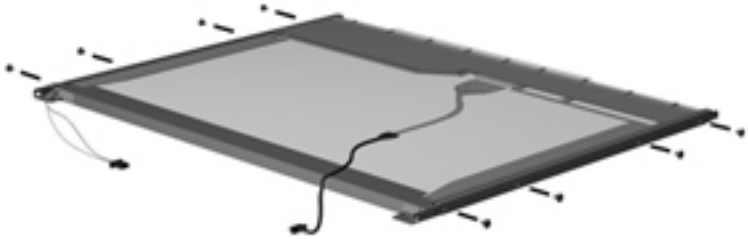


7. Turn the display panel assembly upside down.
8. Remove all screws that secure the display panel frame to the display panel.

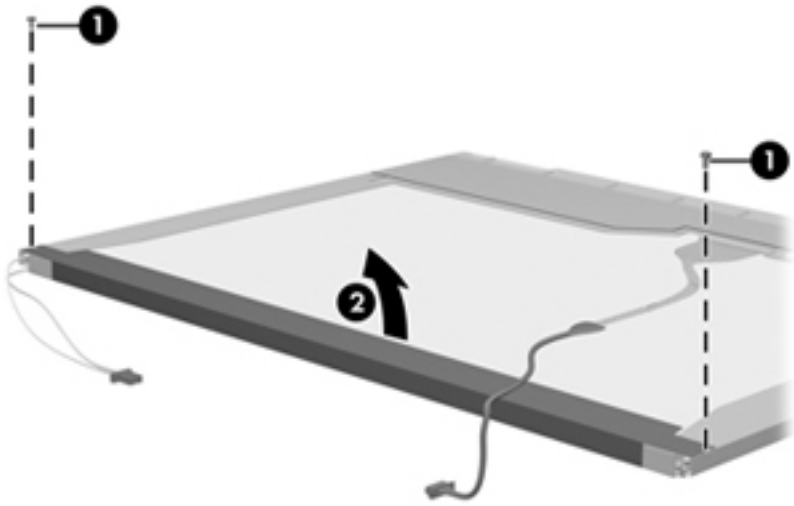


9. Use a sharp-edged tool to cut the tape **(1)** that secures the sides of the display panel to the display panel frame.

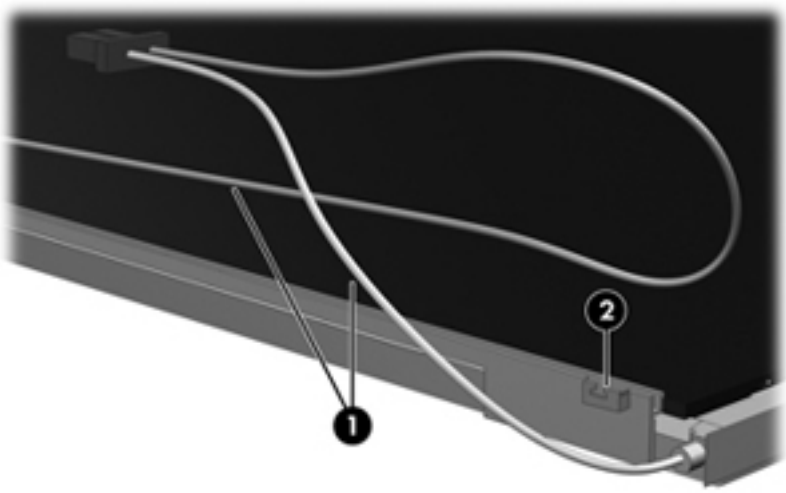
10. Remove the display panel frame **(2)** from the display panel.



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

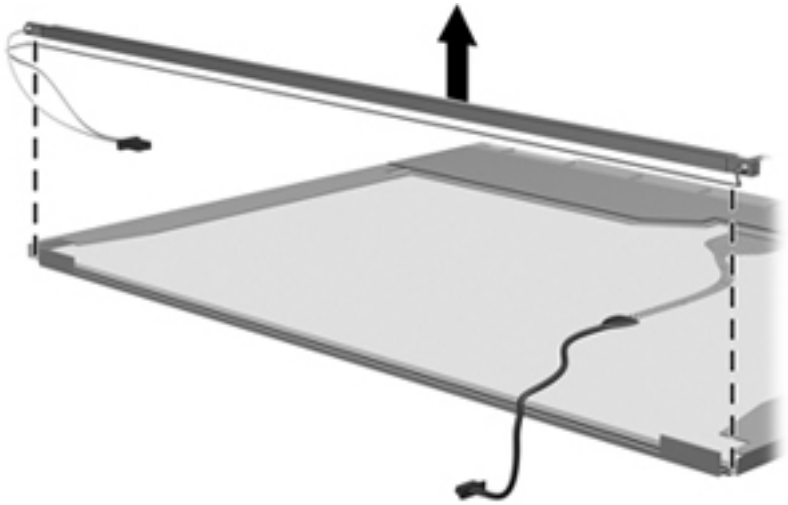


13. Remove the backlight cover.
14. Turn the display panel right-side up.
15. Remove the backlight cables **(1)** from the clip **(2)** in the display panel.



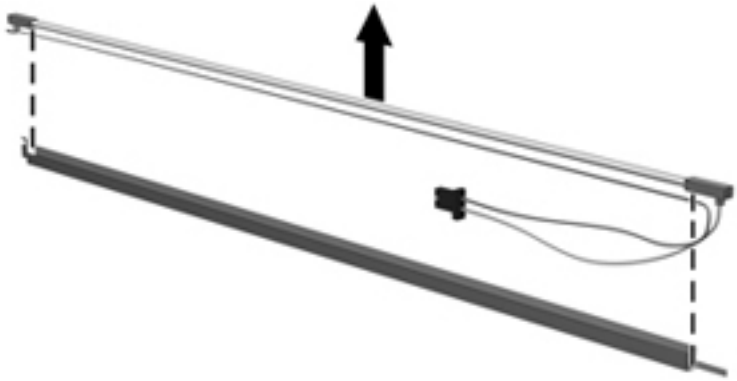
16. Turn the display panel upside down.

17. Remove the backlight frame from the display panel.



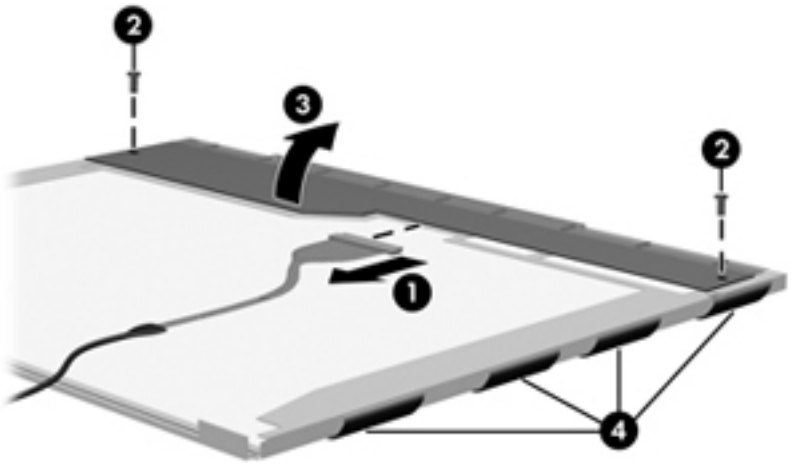
⚠ **WARNING!** The backlight contains mercury. Exercise caution when removing and handling the backlight to avoid damaging this component and causing exposure to the mercury.

18. Remove the backlight from the backlight frame.

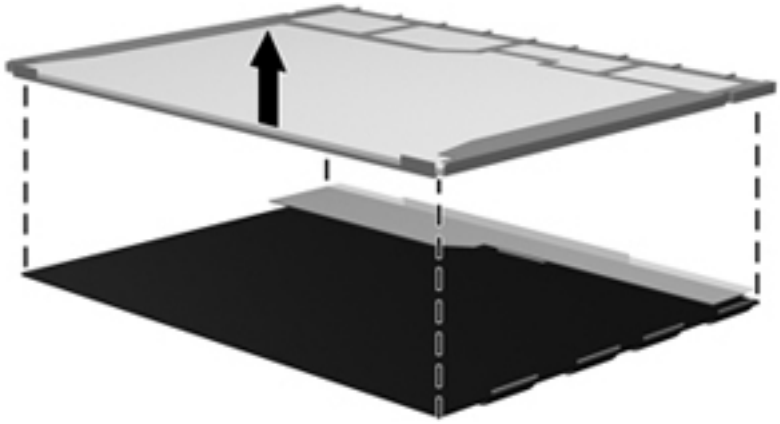


19. Disconnect the display cable **(1)** from the LCD panel.
20. Remove the screws **(2)** that secure the LCD panel to the display rear panel.
21. Release the LCD panel **(3)** from the display rear panel.

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



23. Remove the LCD panel.



24. Recycle the LCD panel and backlight.

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