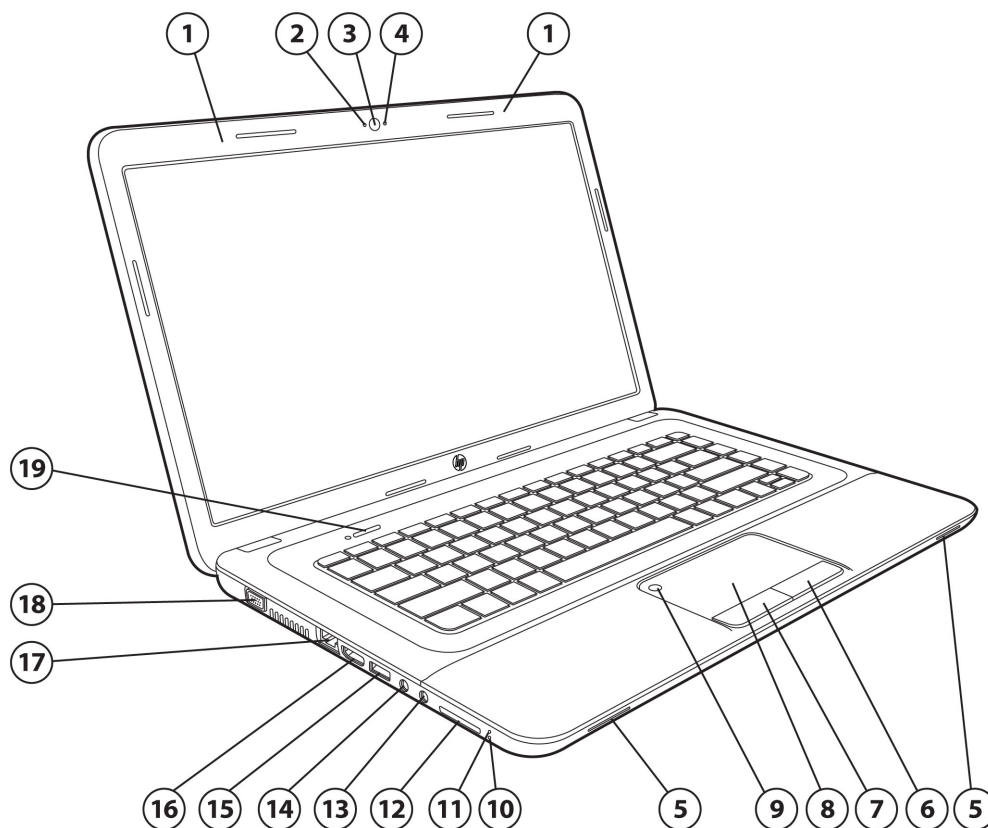
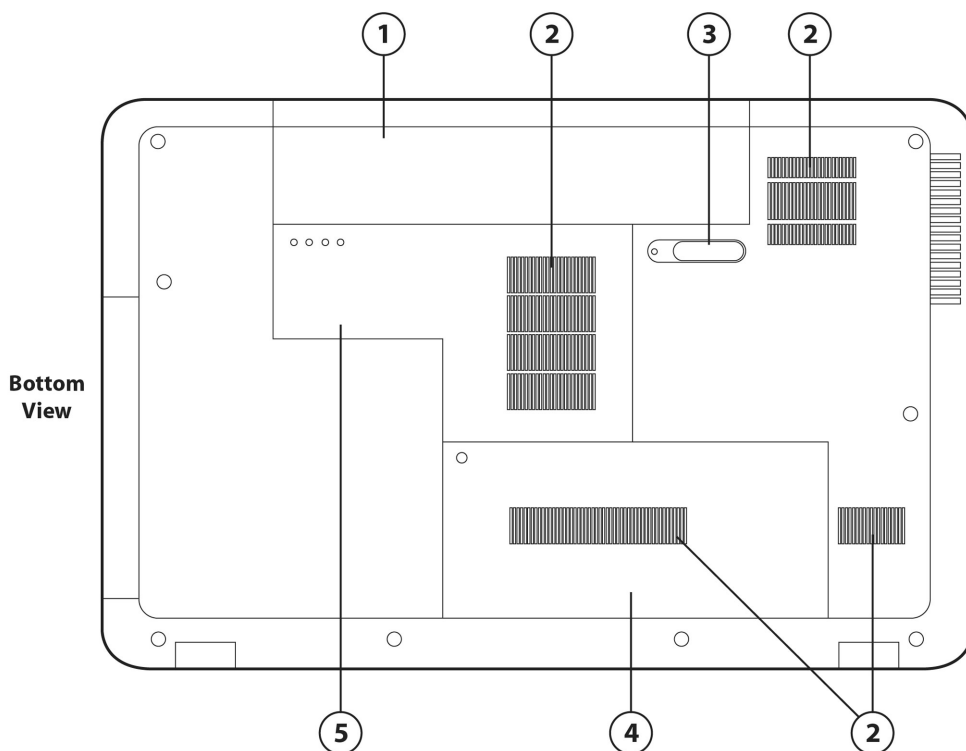
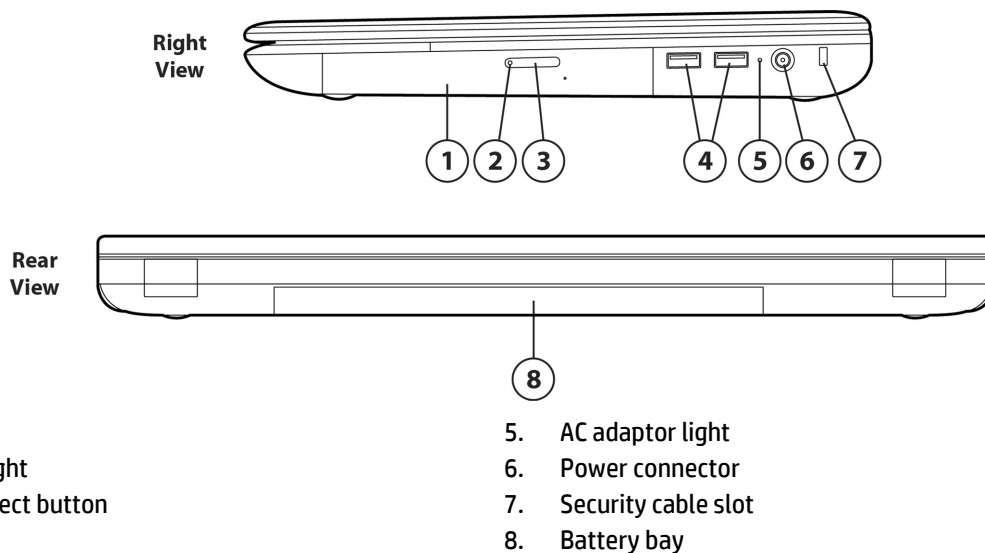


### Overview



- |                                       |                                 |
|---------------------------------------|---------------------------------|
| 1. WLAN antennas (select models only) | 11. Power light                 |
| 2. Webcam light                       | 12. Digital media slot          |
| 3. Webcam                             | 13. Audio-out (headphone) jacks |
| 4. Internal microphone                | 14. Audio-in (microphone) jack  |
| 5. Internal microphone                | 15. USB port                    |
| 6. Right TouchPad button              | 16. HDMI port                   |
| 7. Left TouchPad button               | 17. RJ-45 (Ethernet)            |
| 8. Touchpad with scroll zone          | 18. External monitor port       |
| 9. TouchPad on/off button             | 19. Power button                |
| 10. Hard drive light                  |                                 |

### Overview



### Overview

#### At A Glance

- Genuine Windows® 7 versions, SUSE Linux, FreeDOS\*
- VISION Technology with AMD Mobility Radeon™ HD
- Durable, sophisticated design with smooth surfaced charcoal color.
- Full-sized keyboard with action keys enabling functions directly
- HDMI port for connecting to high-resolution displays
- Integrated VGA webcam, integrated microphone
- Integrated 802.11 b/g/n wireless LAN module\*\*
- Bluetooth™ 2.1 or Bluetooth™ 4.0 + High Speed (HS)\*\*
- 15.6" diagonal LED-backlit HD anti-glare display

\* Operating system options vary by country.

\*\* Select models only (BT4.0 HS supports under Windows 7 OS only; BT2.1 supports under Linux)

### Features

#### OPERATING SYSTEM

<b>Preinstalled</b>	Genuine Windows® 7 Professional Edition 64*
	Genuine Windows® 7 Home Premium Edition 64*
<b>Certified</b>	SUSE Linux Enterprise Desktop 11
	SUSE Linux Enterprise Desktop 11

\* Not all features are available in all editions of Windows 7. This system may require upgraded and/or separately purchased hardware to take full advantage of Windows 7 functionality.  
See <http://www.microsoft.com/windows/windows-7/> for details.

#### PROCESSOR

##### AMD

AMD Dual Core E2-1800 APU with Radeon™ HD 7340 Graphics (1.7 GHz, 1 MB L2 cache, 2 cores)\*  
AMD Dual Core E1-1200 APU with Radeon™ HD 7310 Graphics (1.4 GHz, 1 MB L2 cache, 2 cores)\*  
AMD Dual Core E-300 (1.3 GHz, 1 MB L2 cache, 2 cores)\* APU with Radeon™ HD 6310 Graphics

\* This system requires a separately purchased 64-bit operating system and 64-bit software products to take advantage of the 64-bit processing capabilities of AMD technology. Multi-core processing with AMD technology is designed to improve performance of this system. Given the wide range of SW applications available, performance will vary. AMD's numbering is not a measurement of clock speed.

#### CHIPSET

AMD A68M

#### GRAPHICS

AMD Radeon™ HD 7310M Graphics (AMD Dual Core E1-1200 APU)  
AMD Radeon™ HD 7340M Graphics (AMD Dual Core E2-1800 APU)  
AMD Radeon™ HD 6310 Graphics (AMD Dual Core E-300 APU)

#### DISPLAY

##### Internal

15.6" diagonal LED-backlit HD anti-glare (1366 x 768)

##### External

Up to 32-bit per pixel color depth

##### VGA

Port supports resolutions up to 2048 x 1536 external resolution @ 60 Hz

##### HDMI

1.3 port supports up to 1080p, 1920 x 1080 at 60Hz and 1920 x 1200 @ 60Hz DVI Mode

**NOTE:** Resolutions are dependent upon monitor capability, and resolution and color depth settings.

### Features

#### STORAGE AND DRIVES

##### Primary Storage Bay

##### Hard Drives

320/500 GB 5400 rpm SMART SATA II

##### DriveGuard

The hard drive is mounted directly to the notebook frame, reducing the transmission of shock to the hard drive.

**NOTE:** For hard drives, GB = 1 billion bytes. Actual formatted capacity is less. Up to 19 GB (for Windows 7) of system disk is reserved for the system recovery software.

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#### OPTICAL DRIVES

##### Fixed Optical Drive

DVD+/-RW SuperMulti DL Drive

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#### MEMORY

##### Standard

DDR3 SDRAM (1600 MHz)\*Two SODIMM slots supporting single channel 2048 MB and 4096 MB SODIMMs

\* Maximum memory speed supported by the system may be 1333 MHz or 1066 MHz.

**NOTE:** Due to the non-industry standard nature of some third-party memory modules, we recommend HP branded memory to ensure compatibility. If you mix memory speeds, the system will perform at the lower memory speed. With Windows Starter 32-bit operating systems, the amount of usable memory is dependent upon your configuration, so that above 3 GB all memory may not be available due to system resource requirements.

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#### NETWORKING/COMMUNICATIONS

##### Wireless

Integrated 802.11b/g/n 1x1 wireless LAN module

Bluetooth™ 2.1 or Bluetooth™ 4.0 + High Speed (HS)\*

##### Communications

Realtek Ethernet (10/100/1000 NIC)

\* Bluetooth 4.0 is supported in Windows 7 OS only, BT2.1 is supported in Linux

**NOTE:** In countries where 802.11n is not allowed, this capability is not enabled.

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## Features

### AUDIO/MULTIMEDIA

**Audio**

Integrated Altec Lansing Stereo Speakers  
Integrated microphone  
High Definition Audio support

**Webcam**

Integrated VGA webcam

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### KEYBOARDS/POINTING DEVICES/BUTTONS & FUNCTION KEYS

**Keyboard**

The 100% compatible keyboard features a, industry standard, full-pitch key layout with features such as the isolated inverted-T cursor control keys, editing keys, both left and right control and alt keys, and 12 function keys. International key layouts are available. Other features include hotkeys for instant access to, brightness, etc. 19-mm x 19-mm key pitch (center-to-center spacing), 2.2-mm stroke, comfort-dished keycaps, and bright key legends for improved visibility in low light conditions.

**Pointing Devices**

Touchpad with 2-piece pick button with left and right click functions

**Buttons and Function Keys**

Multi-touch gestures supported  
On/off button

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### SOFTWARE AND SECURITY

**Preinstalled Software with Windows Operating System**

HP Recovery Manager  
HP Support Assistant\*  
HP Connection Manager\*  
Cyberlink Power DVD \*\*\*  
Cyberlink YouCam DE\*\*\*\*  
Symantec Norton™ Internet Security 2012 (60-day trial)

**Additional Software**

Microsoft® Office Starter: reduced-functionality Word and Excel® only, with advertising. No PowerPoint® or Outlook®. Buy Office 2010 to use the full-featured software.\*\*  
CompuTrace® Anti-Theft Absolute® Software\* (must be purchased separately)

**Security**

Security Lock slot (lock must be purchased separately)

**NOTE:** Computrace® agent is shipped turned off, and must be activated by customers when they purchase a subscription. Subscriptions can be purchased for terms ranging from one to five years. Service is limited, check with Absolute for availability outside the U.S.

For more information on HP security solutions refer to: <http://www.hp.com/go/security>.

Custom Integration Services provides tailor-made, turnkey solutions for Business Ready PCs.

### Features

- \* Not available in all regions.
  - \*\* Microsoft Office 2010 Preloaded includes reduced functionality versions of Word and Excel. Purchase of Product Key required to activate full Office 2010 suite available at participating resellers/retailers and <http://www.office.com>.
  - \*\*\* Available on select models and not available in all regions.
  - \*\*\*\* Available on select models.
- 

## POWER

### Power Supply\*

External 65W AC adapter

### Primary Battery

HP 6-cell (47 WHr) Li-Ion battery

Battery life up to 6 hours\*

### System Standby Time

Up to 1 week

\*Battery life will vary depending on the product model, configuration, loaded applications, features, use, wireless functionality and power management settings. The maximum capacity of the battery will naturally decrease with time and usage. See MobileMark07 battery benchmark <http://www.bapco.com/products/mobilemark2007> for additional details.

**NOTE:** Fast Charge recharges your battery up to 90% within 90 minutes when the system is off. The HP Fast Charge is only for 6 cell/47 WHr battery pack.

### Power Conservation

Hibernation\*

Standby\*

ACPI compliance\*

\* Only Windows 7 and Linux will feature power conservation.

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## ENVIRONMENTAL

US Energy Star

IT ECO Declaration

EPEAT – Silver where HP registers commercial notebook products. See <http://www.epeat.net> for registration status in your country.

**NOTE:** This product has received or is in the process of being certified to the following approvals and may be labeled with one or more of these marks.

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### Features

#### WEIGHTS & DIMENSIONS

**Weight**

Starting at 5.39 lb (2.45 kg)

**Dimensions** (w x d x h)

14.8 x 9.72 x 1.41 in

37.6 x 24.7 x 3.58 cm

**NOTE:** Height varies depending upon where on the notebook the measurement is made. Weight varies by configuration and components. Weight includes 6-cell battery, hard drive, 1 GB memory, and optical drive. Weight varies by configuration and components.

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#### PORTS/SLOTS

**Ports**

VGA – One

HDMI – One

Stereo microphone in – One

Stereo headphone/line out – One

Power Connector – One

RJ-45 (Ethernet) – One

USB 2.0 – Three

**Digital Media Slots**

Supports SD (Secure Digital), and MMC (MultiMedia Card)

Supports mini versions with adapter

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#### SERVICE AND SUPPORT

HP Services offers limited 1 year warranty options depending on country;

1 year limited warranty on primary battery. On-site service and warranty upgrades are also available. HP Care Pack Services extend service contracts beyond the standard warranties. To choose the right level of service for your HP product, use the HP Care Pack Services Lookup Tool at: <http://www.hp.com/go/lookuptool>. Additional HP Care Pack Services information by product is available at: <http://www.hp.com/hps/carepack>.

**NOTE:** Certain restrictions and exclusions apply. Consult the HP Customer Support Center for details.  
<http://h20000.www2.hp.com/bizsupport/TechSupport/ProductRoot.jsp>



## Technical Specifications

### SYSTEM UNIT

<b>Dimensions</b> (w x d x h)	14.8 x 9.72 x 1.41 in 37.6 x 24.7 x 3.58 cm
<b>Weight</b>	Starting at 5.39 lb (2.45 kg)

**NOTE:** Height varies depending upon where on the notebook the measurement is made. Weight varies by configuration and components. Weight includes 6-cell battery, hard drive, 1 GB memory, and optical drive. Weight varies by configuration and components.

<b>Stand-Alone Power Requirements</b> (AC Power)	<b>Nominal Operating Voltage</b>	18.5/19.5V
	<b>Average Operating Power</b>	Integrated graphics: 12.55 W**AMD E-series platform
	<b>Max Operating Power</b>	< 65 W
<b>Temperature</b>	<b>Operating</b>	32° to 95° F (0° to 35° C) (not writing optical) 41° to 95° F (5° to 35° C) (writing optical)
	<b>Non-operating</b>	-4° to 140° F (-20° to 60° C)
<b>Relative Humidity</b>	<b>Operating</b>	10% to 90%, non-condensing
	<b>Non-operating</b>	5% to 95%, 101.6° F (38.7° C) maximum wet bulb temperature
<b>Shock</b>	<b>Operating</b>	40 G, 2 ms, half-sine
	<b>Non-operating</b>	200 G, 2 ms, half-sine
<b>Random Vibration</b>	<b>Operating</b>	0.75 grms
	<b>Non-operating</b>	1.50 grms
<b>Altitude</b> (unpressurized)	<b>Operating</b>	-50 to 10,000 ft (-15.24 to 3,048 m)
	<b>Non-operating</b>	-50 to 40,000 ft (-15.24 to 12,192 m)
<b>Planned Industry Standard Certifications</b>	<b>UL</b>	Yes
	<b>CSA</b>	Yes
	<b>FCC Compliance</b>	Yes
	<b>ENERGY STAR®</b>	Select models*
	<b>EPEAT</b>	Registered Silver in United States**
	<b>ICES</b>	Yes
	<b>Australia / NZ A-Tick Compliance</b>	Yes
	<b>CCC</b>	Yes
	<b>Japan VCCI Compliance</b>	Yes
	<b>KC</b>	Yes
	<b>BSMI</b>	Yes
	<b>CE Marking Compliance</b>	Yes
	<b>BNCI or BELUS</b>	Yes
	<b>CIT</b>	Yes
	<b>GOST</b>	Yes

### Technical Specifications

**Saudi Arabian Compliance (ICCP)** Yes

**SABS** Yes

**UKRSERTCOMPUTER** Yes

\* Configurations of the HP 655 that are ENERGY STAR qualified are identified as HP 655 ENERGY STAR on HP websites and on [www.energystar.gov](http://www.energystar.gov).

\*\* EPEAT registration varies by country. See [www.epeat.net](http://www.epeat.net) for registration status by country. EPEAT status listed above applies to U.S.

For accessibility information on HP products, please visit: <http://www.hp.com/accessibility>.

### DISPLAY

**15.6" LED HD anti-glare (1366 x 768)**

**Active Area (w x h)** 13.54 x 7.59 in (34.4 x 19.4 cm)

**Diagonal Size** 15.6 in (39.6cm)

**Surface Treatment** Anti-glare

**Contrast Ratio** 300:1 (min)

**Refresh Rate** 60 Hz

**Brightness** 200 nit (typical)

**Pixel Resolution** **Pitch** 0.252 mm

**Format** 1366 x 768

**Configuration** RGB Stripe

**Backlight** LED

**PPI** 101 ppi

**Viewing Angle** ±40° Horizontal, +10°/-30° Vertical (minimum)  
40/40/30/10 (Left/Right/Down/Up) (minimum)

### STORAGE AND DRIVES

#### Internal Storage

### Technical Specifications

#### 500 GB 5400 rpm SATA Hard Drive

Drive Weight	0.22 lb (101 g)	
Capacity	500 GB	
Height	0.37 in (9.5 mm)	
Width	2.75 in (70 mm)	
Interface	ATA-8, SATA 2.6, 3.0 Gb/s, NCQ	
Transfer Rate	Synchronous (maximum)	150 MB/s (Drive Capability)
Seek Time (typical reads, including settling)	Single Track	3 ms
	Average	13 ms
	Maximum	24 ms
Rotational Speed	5400 rpm	
Logical Blocks	976,773,168	
Operating Temperature	32° to 140° F (0° to 60° C) [case temp]	
Features	ATA Security	

#### 320 GB 5400 rpm SATA Hard Drive

<b>Drive Weight</b>	0.22 lb (101 g)	
<b>Capacity</b>	320 GB	
<b>Height</b>	0.37 in (9.5 mm)	
<b>Width</b>	2.75 in (70 mm)	
<b>Interface</b>	ATA-8, SATA 2.6, 3.0 Gb/s, NCQ	
<b>Transfer Rate</b>	<b>Synchronous</b> (maximum)	150 MB/s (Drive Capability)
<b>Seek Time</b> (typical reads, including settling)	<b>Single Track</b>	3 ms
	<b>Average</b>	13 ms
	<b>Maximum</b>	24 ms
<b>Rotational Speed</b>	5400 rpm	
<b>Logical Blocks</b>	625,142,448	
<b>Operating Temperature</b>	32° to 140° F (0° to 60° C) [case temp]	
<b>Features</b>	ATA Security	

### Optical Drives

### Technical Specifications

<b>DVD+/-RW SuperMulti DL Drive</b>	<b>Access Times</b>	Random	<140ms CD (typical) < 160 ms DVD (typical)
	<b>Max Data Transfer Rate</b>	24X CD-ROM 8X DVD 24X CD-R 24X CD-RW 8X DVD+R 8X DVD+RW 8X DVD-R 6X DVD-RW 5X DVD-RAM	
	<b>Transfer Mode</b>	UDMA Mode 5	
	<b>Interface</b>	Gen 1 SATA	
	<b>Supported Media (read)</b>	CD-DA, CD-TEXT, CD-ROM, CD-ROM XA, MIXED MODE CD, CD-I, CD-I Bridge (Photo-CD, Video CD), Multisession CD (Photo-CD, CD-EXTRA, Portfolio, CD-R, CD-RW), CD-R, CD-RW, DVD-ROM (DVD-5, DVD-9, DVD-10, DVD-18), DVD-R, DVD-RW, DVD+R, DVD+RW, DVD-RAM	
	<b>Supported Media (write)</b>	CD-R, CD-RW, DVD+R, DVD+RW, DVD-R, DVD-RW, DVD-RAM, DVD+R DL, DVD-R DL	
	<b>Max Media Capacity (read)</b>	8.5 GB	
	<b>Max Media Capacity (write)</b>	8.5 GB	
	<b>Transport</b>	Tray Loading	

### NETWORKING/COMMUNICATIONS

#### Networking

<b>Integrated Realtek RTL8161FH-CG 10/100/1000 NIC</b>	<b>Ethernet Features</b>	10 Mbit/s operation (10BASE-T; IEEE 802.3i; IEEE 802.3 clauses 13-14) 100 Mbit/s operation (100BASE-TX; IEEE 802.3u; IEEE 802.3 clauses 21-30) 1000 Mbit/s operation (100BASE-T; IEEE 802.3ab; IEEE 802.3 clauses 21-30) (Support in RTL8161FH-CG only) Auto-Negotiation (Automatic Speed Selection) Full Duplex Operation at all Speeds, Half Duplex operation at 10 and 100 Mbit/s IEEE 802.1p QoS (Quality of Service) Support IEEE 802.1q VLAN support IEEE 802.3x Flow Control (IEEE 802.3 clauses 31-32; configurable)
	<b>Power Management</b>	ACPI compliant - multiple power modes Situation-sensitive features reduce power consumption Advanced link down power saving for reducing link down power consumption
	<b>Performance Features</b>	TCP/IP/UDP Checksum Offload (configurable) Large send offload and Giant send offload Receiving Side Scaling

### Technical Specifications

<b>Manageability</b>	Wake-on-LAN from standby and hibernation (Magic Packet and Microsoft Wake-Up Frame); Wake-on-LAN from off (Magic Packet only) PXE 2.1 Remote Boot Statistics Gathering (SNMP MIB II, Ethernet-like MIB, Ethernet MIB (802.3x, clause 30)) Comprehensive diagnostic and configuration software suite Virtual Cable Doctor for Ethernet cable status
<b>Interface</b>	PCI Express 1.1 x1 to fully support ASPM L0s/L1 and CLKREQ
<b>NIC Device Driver Name</b>	Realtek PCIe FE Ethernet Family Controller

### Communications

#### Atheros 802.11b/g/n WiFi Adapter

<b>Wireless LAN Standards</b>	IEEE 802.11b IEEE 802.11g IEEE 802.11n
<b>Interoperability</b>	Wi-Fi certified Cisco Compatible Extensions Program compliant with Microsoft Win7, (details at: <a href="http://www.hp.com/go/notebooks/WLAN">http://www.hp.com/go/notebooks/WLAN</a> )
<b>Frequency Band</b>	2.402 - 2.482 GHz
<b>Data Rates</b>	802.11b: 1, 2, 5.5, 11 Mbps 802.11g: 6, 9, 12, 18, 24, 36, 48, 54 Mbps 802.11n: card will support rates for NSS=1 for RX and TX for 20 MHz channels. Short and long guard intervals shall be supported
<b>Frequency Support</b>	20 MHz: 2.4 GHz bands
<b>Modulation</b>	Direct Sequence Spread Spectrum DBPSK, DQPSK, CCK, OFDM, BPSK, QPSK, 16-QAM, 64-QAM
<b>Security<sup>1</sup></b>	Supports 64- and 128-bit WEP, WPA, WPA2, hardware-accelerated AES, 802.1x authentication types EAP-TLS, EAP-TTLS, PEAP-GTC, PEAP-MSCHAPv2, LEAP, EAP-FAST.  Support for Cisco Security Features (proven compatibility with Cisco Aironet infrastructure products through the Cisco Compatible Extensions Program Version 5) with Microsoft Windows7 only.
<b>Sub-channels</b>	Multinational support with frequency bands and channels compliant to local regulations.
<b>Media Access Protocol</b>	CSMA/CA (Collision Avoidance) with ACK
<b>Network Architecture Models</b>	Ad-hoc (Peer to Peer) Infrastructure (Access Point Required)
<b>Roaming</b>	IEEE 802.11 compliant roaming between access points
<b>Output Power<sup>2</sup></b>	13.5 dBm, minimum
<b>Power Consumption</b>	Idle associated: 250 mW avg (CLKREQ enabled) Idle unassociated: 100 mW avg Transmit/Receive channel: 2.0 /1.6 W
<b>Power Management</b>	ACPI compliant power management 802.11 compliant power saving mode
<b>Receiver Sensitivity<sup>3</sup></b>	72.2 Mbps: -71dBm

### Technical Specifications

<b>Antenna type</b>	High efficiency dual antenna with spatial diversity, usually mounted in the display enclosure	
<b>Form Factor</b>	PCI-Express Half-MiniCard	
<b>Weight</b>	4 g	
<b>Dimensions</b>	3.3 x 26.65 x 29.85 mm	
<b>Operating Voltage</b>	3.3v +/- 9%	
<b>Temperature</b>	Operating	-10° to 70° C
	Non-operating	-40° to 80° C
<b>Humidity</b>	Operating	10% to 90% (non-condensing)
	Non-operating	5% to 95% (non-condensing)
<b>Altitude</b>	Operating	0 to 10,000 ft (3,048 m)
	Non-operating	0 to 50,000 ft (15,240 m)
<b>LED Activity</b>	Amber LED on-Radio OFF; White LED on-Radio ON	

<b>Atheros 802.11b/g/n Bluetooth 4.0 Combo Card</b>	<b>Wireless LAN Standards</b>	IEEE 802.11b IEEE 802.11g IEEE 802.11n
	<b>Interoperability</b>	Wi-Fi certified Cisco Compatible Extensions Program compliant with Microsoft Windows7 (details at: <a href="http://www.hp.com/go/notebooks/WLAN">http://www.hp.com/go/notebooks/WLAN</a> )
	<b>Frequency Band</b>	2.402 - 2.482 GHz
	<b>Data Rates</b>	802.11b: 1, 2, 5.5, 11 Mbps
		802.11g: 6, 9, 12, 18, 24, 36, 48, 54 Mbps
		802.11n: card will support rates for NSS=1 for RX and TX for 20 MHz channels. Short and long guard intervals shall be supported
	<b>Modulation</b>	Direct Sequence Spread Spectrum DBPSK, DQPSK, CCK, OFDM, BPSK, QPSK, 16-QAM, 64-QAM
	<b>Security<sup>1</sup></b>	Supports 64- and 128-bit WEP, WPA, WPA2, hardware-accelerated AES, 802.1x authentication types EAP-TLS, EAP-TTLS, PEAP-GTC, PEAP-MSCHAPv2, LEAP, EAP-FAST. WAPI
		Support for Cisco Security Features (proven compatibility with Cisco Aironet infrastructure products through the Cisco Compatible Extensions Program Version 5) with Microsoft Windows Vista and XP only.
		Multinational support with frequency bands and channels compliant to local regulations.
	<b>Sub-channels</b>	
	<b>Media Access Protocol</b>	CSMA/CA (Collision Avoidance) with ACK
	<b>Network Architecture Models</b>	Ad-hoc (Peer to Peer)
		Infrastructure (Access Point Required)
	<b>Roaming</b>	IEEE 802.11 compliant roaming between access points
	<b>Output Power (for CCK)<sup>2</sup></b>	13.5dBm , minimum

### Technical Specifications

<b>Power Consumption</b>	Idle associated: 250 mW Idle unassociated: 150 mW Transmit: 2.0 W (max) Receive: 2.0 W (max)
<b>Power Management</b>	ACPI compliant power management 802.11 compliant power saving mode
<b>Receiver Sensitivity<sup>3</sup></b>	54 Mbps: -62 dBm, 11 Mbps: -82 dBm, 1 Mbps: -89 dBm
<b>Antenna type</b>	High efficiency dual antenna with spatial diversity, mounted in the display enclosure
<b>Form Factor</b>	PCI-Express Half-MiniCard
<b>Weight</b>	6 g
<b>Dimensions</b>	3.3 x 26.65 x 29.85 mm
<b>Operating Voltage</b>	3.3v +/- 10%
<b>Temperature</b>	Operating 14° to 149° F (-10° to 65° C) Non-operating -40° to 176° F (-40° to 80° C)
<b>Humidity</b>	Operating 10% to 90% (non-condensing) Non-operating 5% to 95% (non-condensing)
<b>Altitude</b>	Operating 0 to 10,000 ft (3,048 m) Non-operating 0 to 50,000 ft (15,240 m)
<b>LED Activity</b>	LED Off - Radio OFF; Solid LED On - RadioON

1. [Check latest software/driver release for updates on supported security features.](#)
2. [Maximum output power may vary by country according to local regulations.](#)
3. [Receiver sensitivity is measured at a packet error rate of 8% for 802.11b \(CCK modulation\) and a packet error rate of 10% for 802.11a/g \(OFDM modulation\).](#)

**NOTE:** WLAN supplier's client utility is required for Cisco Compatible Extensions support with Microsoft Windows XP. WLAN may also be compatible with certain third-party software supplicants. WLAN supplier IHV extensions required for Cisco Compatible Extensions support for Microsoft Windows Vista and Win 7.

<b>Bluetooth Specification</b>	V4.0 High Speed, V2.1+EDR, backwards compatible with V1.1, 1.2 and 2.0
<b>Number of Available Channels</b>	79 (1 MHz) available channels
<b>Data Rates and Throughput</b>	3 Mbps data rate; throughput up to 2.17 Mbps Synchronous Connection Oriented links up to 3, 64 kbps, voice channels Asynchronous Connection Less links 2178.1 kbps/177.1 kbps asymmetric or 1306.9 kbps symmetric
<b>Transmit Power</b>	-6 dBm to 4 dBm (Bluetooth Class II)
<b>Receiver Sensitivity</b>	Better than -80 dBm at 0.1 % raw bit error rate
<b>Power Consumption</b>	Peak (Tx) 330 mW Peak (Rx) 230 mW Sleep <17 mW
<b>Antenna</b>	Internally integrated within module
<b>Range</b>	Up to 33 ft (10 m)

## Technical Specifications

<b>Electrical Interface</b>	USB 2.0 compliant Microsoft Windows Plug and Play compliant
<b>Bluetooth Software Supported</b>	Broadcom Bluetooth for Windows Microsoft Windows Bluetooth Software
<b>Link Topology</b>	Point to Point, Multipoint Pico Nets up to 7 slaves
<b>Security</b>	Full support of Bluetooth Security Provisions
<b>Power Management</b>	Microsoft Windows ACPI, and USB Bus Support Self configurable to optimize power conservation in all operating modes, including Standby, Hold, Park, and Sniff
<b>Certifications</b>	All necessary regulatory approvals for supported countries, including: FCC (47 CFR) Part 15C, Section 15.247 & 15.249 ETS 300 328, ETS 300 826 Low Voltage Directive IEC950 UL, CSA, and CE Mark
<b>Bluetooth Profiles Supported</b>	Generic Access Profile (GAP) Service Discovery Application Profile (SDAP) Serial Port Profile (SPP) Dial_Up Networking Profile (DUN) Generic Object Exchange Profile (GOEP) Object Push Profile (OPP) File Transfer Profile (FTP) Synchronization Profile (SYNC) Hard Copy Cable Replacement (HCRP) Personal Area Networking Profile (PAN) Human Interface Device Profile (HID) Generic Audio/Video Distribution Profile (GAVDP) Advanced Audio/Video Distribution Profile (A2DP) FAX Profile (FAX) Basic Imaging Profile (BIP) Headset Profile (HSP) Hands Free Profile (HFP) Basic Printing Profile (BPP) VDP (Video Distribution Profile) AVRCP (Audio Video Remote Control Profile)

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## AUDIO/MULTIMEDIA

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### Audio



## Technical Specifications

<b>Hardware</b>	<b>Implementation</b>	Realtek ALC3201-GR High Definition audio
	<b>Volume Controls</b>	Up, down, and mute function keys
	<b>Full Duplex</b>	Yes
	<b>Microphone In</b>	Stereo
	<b>Headphone/Line Out</b>	Stereo
	<b>Integrated Microphone</b>	Yes

<b>Audio Output Quality</b>	<b>Frequency Response</b>	10 Hz ~ 22 KHz
	<b>Signal to Noise Ratio</b>	Typical 95 dB FSA (DAC)
	<b>Total Harmonic Distortion</b>	Typical -88 dB FS (DAC)
	<b>Noise Floor</b>	-110 dB
	<b>Play/Record Sampling Rate(s)</b>	Up to 192 KHz
	<b>DAC</b>	24 bits
	<b>ADC</b>	24 bits

<b>Integrated Stereo Speakers</b>	<b>Power Rating</b>	1.5 W
	<b>Impedance</b>	4 ohms

## Multimedia

<b>Integrated VGA Webcam</b>	Supports videoconferencing and still image capture Improved quality for video streaming and still image capture (640x480 resolution) Up to 24 frames/sec Fixed focus lens
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## POWER

### Technical Specifications

<b>HP 65W AC Adapter</b>	<b>Dimensions</b>	4.21 x 1.85 x 1.18 in (10.7 x 4.7 x 3.0 cm)
	<b>Weight</b>	0.62 lb (280 g)
	<b>Input</b>	100 to 240 VAC
		<b>Input Efficiency</b> 87% min at 115 VAC
		<b>Input frequency range</b> 47 to 63 Hz
	<b>Output</b>	<b>Input AC current</b> 1.7 A at 90 VAC
		<b>Output power</b> 65W
		<b>DC output</b> 18.5/19.5V
		<b>Hold-up time</b> 5 msec at 115 VAC input
		<b>Output current limit</b> <11A, Over voltage protection- 29V max automatic shutdown
	<b>Connector</b>	3 pin/grounded, mates with interchangeable cords
	<b>Environmental Design</b>	<b>Operating temperature</b> 41° to 95° F (5° to 35° C)
		<b>Non-operating (storage) temperature</b> -4° to 185° F (-20° to 85° C)
		<b>Altitude</b> 0 to 5,000 ft (0 to 1,524 m)
		<b>Humidity</b> 20% to 95%
		<b>Storage Humidity</b> 10% to 95%
	<b>EMI and Safety Certifications</b>	CE Mark - full compliance with LVD and EMC directives; Worldwide safety standards - IEC60950, EN60950, UL60950, Class1, SELV; Agency approvals - C-UL-US, NORDICS, DENAN, EN55022 Class B, FCC Class B, CISPR22 Class B, CCC, NOM-1 NYCE; MTBF - over 200,000 hours at 25°C ambient condition.

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<b>6-Cell (47 WHr) Lithium-Ion battery</b>	<b>Dimensions (h x w x l)</b>	0.85 x 2.06 x 8.07 in (2.17 x 5.23 x 20.5 cm)
	<b>Weight</b>	0.7 lb (0.327 kg)
	<b>Cells/Type</b>	6-cell Lithium-Ion
	<b>Energy Temperature</b>	<b>Watt-hour capacity</b> 47 WHr
		<b>Operating (Charging)</b> 32° to 113° F (0° to 45° C)
		<b>Operating (Discharging)</b> 14° to 140° F (-10° to 60° C)
		<b>Non-operating</b> -4° to 140° F (-20° to 60° C)
	<b>Battery Re-Charge Time</b>	<b>System in OFF or Standby Mode</b> 2.5 hours
		<b>System ON</b> 3 to 5 hours (depending on system power consumption)
		<b>HP Fast Charge Technology</b> Charges the battery up to 90% within 90 minutes when system is OFF

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### Technical Specifications

#### ENVIRONMENTAL

**Eco-Label Certifications** This product has received or is in the process of being certified to the following approvals and may be labeled with one or more of these marks:

US Energy Star  
 IT ECO declaration  
 EPEAT – Silver where HP registers commercial notebook products. See <http://www.epeat.net> for registration status in your country. US Federal Energy Management Program (FEMP)

**System Configuration** The configuration used for the Energy Consumption and Declared Noise Emissions data for these models are based on a "Typically Configured Notebook"

Energy Consumption	115 VAC	230 VAC	100 VAC
Normal Operation	8.87 W	8.90 W	8.80 W
Sleep (Energy Star low power mode)	0.815 W	0.851 W	0.813 W
Off	0.647 W	0.681 W	0.646 W

Heat Dissipation*	115 VAC	230 VAC	100 VAC
Normal Operation	30.3 BTU/hr	30.4 BTU/hr	30 BTU/hr
Sleep	2.7 BTU/hr	3 BTU/hr	2.7 BTU/hr
Off	2.2 BTU/hr	2.3 BTU/hr	2.2 BTU/hr

\* Heat dissipation is calculated based on the measured watts, assuming the service level is attained for one hour.

#### Declared Noise Emissions (in accordance with ISO 7779 and ISO 9296)

System Fan Off	Sound Power (LWAd, bels)	Sound Pressure (LpAm, decibels)
Idle	2.8	22
Fixed Disk (random writes)	3.3	26

System fan is usually off except when charging the battery

**Batteries** This battery(s) in this product comply with EU Directive 2006/66/EC

Batteries used in the product do not contain:

- Mercury greater the 5ppm by weight
- Cadmium greater than 10ppm by weight

The battery type and chemistry used in the product is:  
 CR2032 (coin cell), Li-ion  
 6-cell high capacity Lithium-Ion battery (optional 8 cell available)

**Additional information** This product is in compliance with the Restrictions of Hazardous Substances (RoHS) directive – 2002/95/EC.

## Technical Specifications

This HP product is designed to comply with the Waste Electrical and Electronic Equipment (WEEE) Directive – 2002/96/EC.

This product is in compliance with California Proposition 65 (State of California; Safe Drinking Water and Toxic Enforcement Act of 1986).

This product is in compliance with the IEEE 1680 (EPEAT) standard at the Silver level, see: [www.epeat.net](http://www.epeat.net)

Plastics parts weighing over 25 grams used in the product are marked per ISO 11469 and ISO1043.

This product contains 0% post consumer recycled plastic (by wt.)

This product is greater than 95.5% recycle-able when properly disposed of at end of life.

### Packaging Materials

- External:
  - PAPER/Corrugated – 361 g
- Internal:
  - PLASTIC/Polyethylene low density 36 g
  - PLASTIC/EPE-Expanded Polyethylene 28 g
  - PLASTIC/Polypropylene 15 g
  - OTHER/OTHER 20 g
- The PAPER/Corrugated packaging material is made from 74% recycled content.
- The PLASTIC/Polyethylene low density packaging material is made from 21.9% recycled content.
- The PLASTIC/EPE-Expanded Polyethylene packaging material is made from 21.9% recycled content.
- The PLASTIC/Polypropylene packaging material is made from 21.9% recycled content.
- The OTHER/OTHER packaging material is made from 21.9% recycled content.

HP follows these guidelines to decrease the environmental impact of product packaging:

- Eliminate the use of heavy metals such as lead, chromium, mercury and cadmium in packaging materials.
- Eliminate the use of ozone-depleting substances (ODS) in packaging materials.
- Design packaging materials for ease of disassembly.
- Maximize the use of post-consumer recycled content materials in packaging materials.
- Use readily recyclable packaging materials such as paper and corrugated materials.
- Reduce size and weight of packages to improve transportation fuel efficiency.
- Plastic packaging materials are marked according to ISO 11469 and DIN 6120 standards.

## MATERIAL USAGE

This product does not contain any of the following substances in excess of regulatory limits (for reference of these limits please refer to the HP General Specification of the Environment

([http://www.hp.com/hpinfo/globalcitizenship/environment/supplychain/gen\\_specifications.html](http://www.hp.com/hpinfo/globalcitizenship/environment/supplychain/gen_specifications.html)):

- Asbestos
- Certain Azo Colorants
- Certain Brominated Flame Retardants – may not be used as flame retardants in plastics
- Cadmium
- Chlorinated Hydrocarbons

## Technical Specifications

- Chlorinated Paraffins
- Formaldehyde
- Halogenated Diphenyl Methanes
- Lead carbonates and sulfates
- Lead and Lead compounds
- Mercuric Oxide Batteries
- Ozone Depleting Substances
- Polybrominated Biphenyls (PBBs)
- Polybrominated Biphenyl Ethers (PBBEs)
- Polybrominated Biphenyl Oxides (PBBOs)
- Polychlorinated Biphenyl (PCB)
- Polychlorinated Terphenyls (PCT)
- Polyvinyl Chloride (PVC) – except for wires and cables, and certain retail packaging has been voluntarily removed from most applications.
- Radioactive Substances
- Tributyl Tin (TBT), Triphenyl Tin (TPT), Tributyl Tin Oxide (TBT0)
- Nickel finishes that release greater than 0.5 µgrams/cm<sup>2</sup>/week, measured according to EN 1811:1998, are not used on any product surface designed to be frequently handled or touched by users.

## END-OF-LIFE MANAGEMENT AND RECYCLING

Hewlett-Packard offers end-of-life HP product return and recycling programs in many geographic areas. To recycle your product, please go to: <http://www.hp.com/go/reuse-recycle> or contact your nearest HP sales office. Products returned to HP will be recycled, recovered or disposed of in a responsible manner.

The EU WEEE directive (2002/95/EC) requires manufacturers to provide treatment information for each product type for use by treatment facilities. This information (product disassembly instructions) is posted on the Hewlett Packard web site at: <http://www.hp.com/go/recyclers>. These instructions may be used by recyclers and other WEEE treatment facilities as well as HP OEM customers who integrate and re-sell HP equipment.

## HEWLETT-PACKARD CORPORATE ENVIRONMENTAL INFORMATION

For more information about HP's commitment to the environment:

Global Citizenship Report

<http://www.hp.com/hpinfo/globalcitizenship/gcreport/index.html>

Environment website

<http://www.hp.com/environment>

Eco-label certifications

<http://www.hp.com/hpinfo/globalcitizenship/environment/productdesign/ecolabels.html>

ISO 14001 certificates:

<http://www.hp.com/hpinfo/globalcitizenship/environment/operations/envmanagement.html>

Options and Accessories (sold separately and availability may vary by country)

**NOTE:** Options/capabilities listed in the QuickSpecs represent those capabilities available through Base Units or Build to Order configurations. The various product features and capabilities will vary in terms of configurable vs. aftermarket options (AMOs). There may be options and capabilities available through CTO that are not available as AMOs.

Type	Description	Part #
<b>Memory</b>	HP 2 GB (DDR3 1333 MHz) SODIMM	AT912AA#xxx
	HP 4 GB (DDR3 1333 MHz) SODIMM	AT913AA#xxx
	HP 2 GB PC3-12800 (DDR3 1600 MHz) SODIMM	H2P63AA#xxx
	HP 4 GB PC3-12800 (DDR3 1600 MHz) SODIMM	H2P64AA#xxx
	<b>NOTE:</b> Full availability of 4 GB or more of memory requires Windows Vista Business 64-bit or Linux. With Windows 32-bit operating systems, the amount of usable memory is dependent upon your configuration, so that above 3 GB all memory may not be available due to system resource requirements. Due to system limitations, DDR3-1600 MHz memory will only be supported at DDR3-1333 MHz.	
<b>Expansion Solutions</b>	HP Dual Hinge Notebook Stand	AW661AA
	HP Display and Notebook Stand	AW662AA
	HP 2005pr USB 2.0 Port Replicator	H1L07AA
<b>Carrying Cases</b>	HP Essential Top Load Case	H2W17AA
	HP Essential Backpack	H1D24AA
	HP Essential Messenger Case	H1D25AA
<b>Input/Output</b>	HP 2.4 GHz Wireless Optical Mobile Mouse	LX732AA
	HP Wireless Mobile Mouse	H2L63AA
	HP USB Essential Keyboard/Mouse	H2S75AA
<b>Adapters</b>	HP 90W Slim Adapter	BT796AA
	HP 90W Smart AC/Auto/Air Combo Adapter	ED493AA
<b>Storage - External Storage</b>	HP Mobile USB DVDRW	A2U57AA
<b>Battery</b>	HP MU06 Battery	H0F74AA
	HP MU06XL Long Life Notebook Battery	WD548AA

## Options and Accessories (sold separately and availability may vary by country)

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