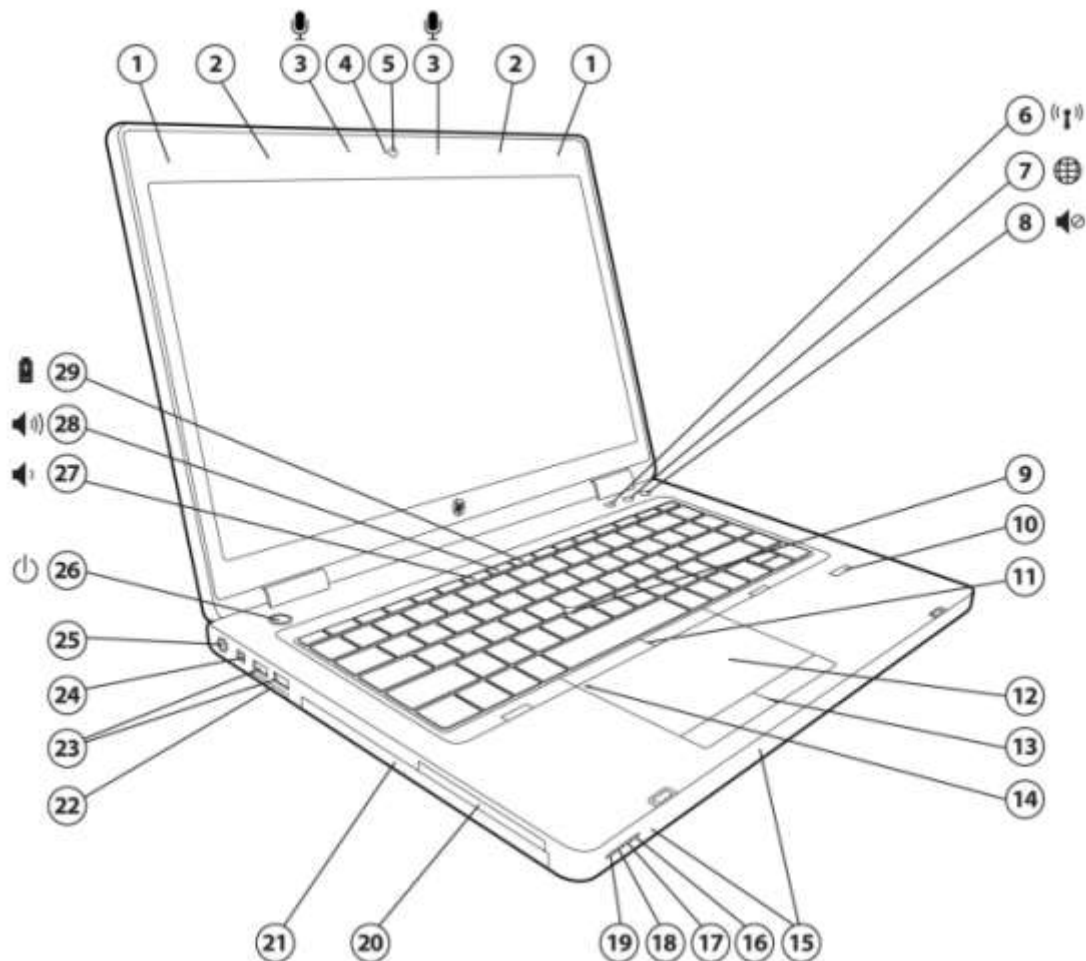


### Overview

### HP ProBook 6475b Notebook PC

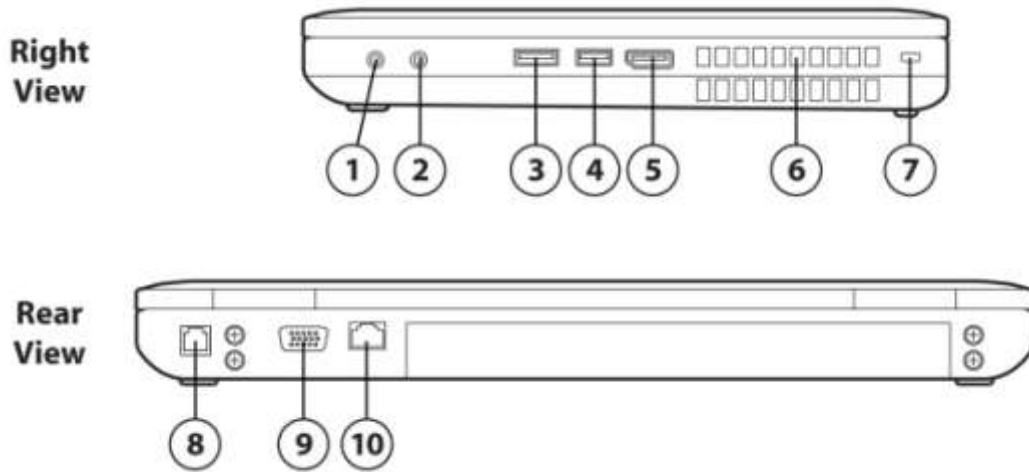


- |  |  |
|--|--|
| 1. WLAN antennas                                       | 16. Hard drive activity / HP 3D DriveGuard LED indicator           |
| 2. WWAN antennas (select models)                       | 17. Battery charging LED indicator                                 |
| 3. Dual-microphone array*                              | 18. Power/standby LED indicator                                    |
| 4. Webcam LED indicator (with optional webcam)         | 19. Wireless on/off LED indicator                                  |
| 5. Optional 720p HD webcam                             | 20. ExpressCard/54 slot or optional Smart Card Reader              |
| 6. Wireless on/off button with LED indicator           | 21. Upgrade Bay (optical drive, second hard drive or weight saver) |
| 7. Web browser button with LED indicator               | 22. Secure Digital/MMC slot  |
| 8. Volume mute button with LED indicator               | 23. (2) USB 3.0 ports  |
| 9. Optional pointstick                                 | 24. 1394a port   |
| 10. HP Fingerprint Sensor                              | 25. Power connector  |
| 11. Pointstick pick buttons (with optional pointstick) | 26. Power button with LED indicator                                |
| 12. Touchpad   | 27. Volume down function key                                       |
| 13. Touchpad pick buttons                              | 28. Volume up function key   |
| 14. Touchpad on/off button with LED indicator          | 29. HP Power Assistant function key                                |
| 15. Stereo speakers                                    |  |

\* Models without optional webcam have single integrated microphone on left side of display panel.

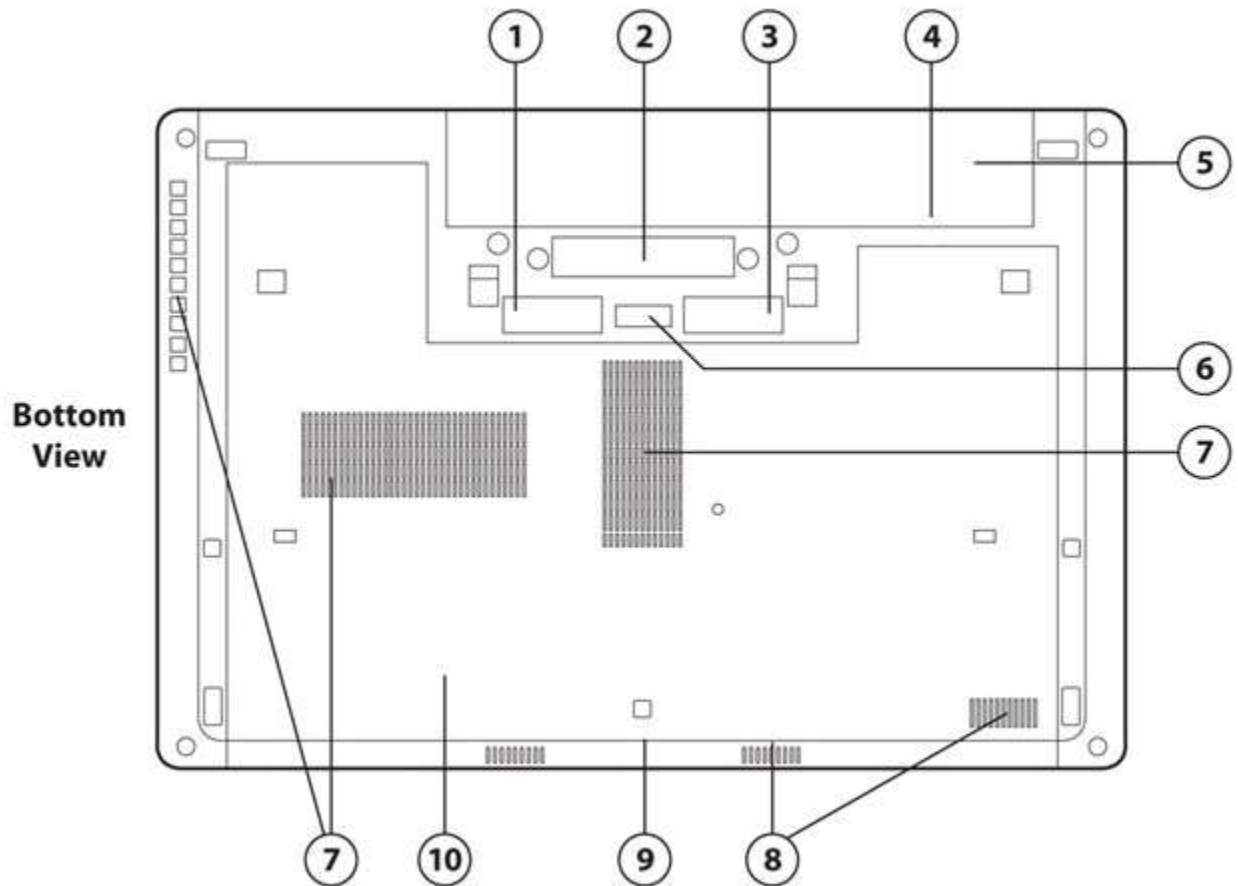


### Overview



- |                              |                                   |
|------------------------------|-----------------------------------|
| 1. Stereo headphone/line out | 6. Vents                          |
| 2. Stereo microphone/line in | 7. Security lock slot             |
| 3. eSATA/USB 2.0 combo port  | 8. RJ-11/modem port (optional)    |
| 4. USB 2.0 port              | 9. VGA/external monitor connector |
| 5. DisplayPort v1.2          | 10. RJ-45/Ethernet port           |

### Overview



- |  |   |
|--|---|
| 1. Battery release latch                             | 6. Secondary battery connector                                      |
| 2. Docking connector                                 | 7. Vents  |
| 3. Bottom cover release latch                        | 8. Speakers   |
| 4. SIM slot for WWAN (in battery bay; select models) | 9. Bluetooth module compartment                                     |
| 5. Battery bay                                       | 10. Hard drive, memory, and wireless compartment under bottom cover |

### Overview

### AT A GLANCE

- Genuine Windows 7 versions, SUSE Linux Enterprise Desktop 11, or FreeDOS
- Bead-blast aluminum display enclosure, magnesium support structure, wear-resistant tungsten-colored HP DuraFinish, HP DisplaySafe frame, precision latches, and keyboard in full aluminum deck
- A10, A8, A6, and new Accelerated Processing Units and graphics powered by VISION Pro Technology from AMD
- 14.0-inch diagonal HD or HD+ Widescreen LED-backlit display
- Easily hot dock with one of the optional HP docking stations
- DisplayPort v1.2 for external high resolution graphics support
- SRS Premium Sound optimized for high fidelity audio
- Choice of primary battery to optimize run-time or weight: 9-cell (100 WHr), 6-cell (55 WHr), 6-cell HP Long Life (55 WHr), or 3-cell (31 WHr)
- Combine primary battery with optional secondary battery options
- Touchpad with scroll zone and optional pointstick
- Choice of standard ExpressCard slot or optional integrated Smart Card Reader for strong security authentication
- HP Fingerprint Sensor for the additional security and convenience of single sign-on for Windows and websites
- Optional HD webcam comes with dual-microphone array
- Security features including HP ProtectTools, with central management across HP and non-HP client PCs
- HP Power Assistant allows you to conserve power, stretch battery run-time, accurately monitor your reported power needs, and report workforce power consumption.
- Flexible wireless connectivity options:
  - Optional integrated HP hs2350 HSPA+ Mobile Broadband Module connects to both HSPA and HSPA+ (UMTS) networks and provides GPS functionality
  - Optional integrated HP un2430 EV-DO/HSDPA Mobile Broadband Module (Gobi™ 3000) (provides GPS functionality)
  - Integrated Broadcom 802.11 a/b/g/n 2x2 or b/g/n 1x1 wireless LAN module
  - Bluetooth® v4.0+EDR
- Upgrade Bay for optical drive, optional second hard drive, or weight saver
- Choice of 7200 rpm user-removable hard drive (up to 500 GB) with HP 3D DriveGuard, 500 GB 7200 rpm Self Encrypting Drive, or 128 GB Solid State Drive
- BFR/PVC-free\*, ENERGY STAR qualified (with Microsoft OS) and EPEAT Gold registered in the U.S. (with Microsoft OS). EPEAT status varies by country- please see epeat.net.

\* Meeting the industry definition of 'BFR/PVC-free' per the iNEMI Position Statement on "Low Halogen" Electronics. Plastic parts incorporated into the chassis generally contain < 1000 ppm (0.1%) of bromine or chlorine. Printed circuit board and substrate laminates generally contain < 1500 ppm (0.15%) of total bromine and chlorine. Service parts after purchase may not be BFR/PVC-free. External accessories, including power supplies, power cords, and peripherals as well as the following customer-configurable internal components: ATT SIM card are not BFR/PVC-free.



### Features

## OPERATING SYSTEM

**Preinstalled**  
Genuine Windows 7 Professional 32\*  
Genuine Windows 7 Professional 64\*  
Genuine Windows 7 Home Premium 64\*  
SUSE Linux Enterprise Desktop 11  
FreeDOS

**Supported**  
Genuine Windows 7 Enterprise 32\*  
Genuine Windows 7 Enterprise 64\*  
Genuine Windows 7 Ultimate 32\*  
Genuine Windows 7 Ultimate 64\*  
Genuine Windows XP Professional 32  
Genuine Windows Home Basic 64

**Certified**  
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.

## ACCELERATED PROCESSING UNIT (APU)\*

AMD Quad-Core A10-4600M (3.2 GHz/2.3 GHz, 4 MB L2 cache, 35W) APU with Radeon™ HD 7660G Graphics  
AMD Quad-Core A8-4500M (2.8 GHz/1.9 GHz, 4 MB L2 cache, 35W) APU with Radeon™ HD 7640G Graphics  
AMD Dual-Core A6-4400M (3.2 GHz/2.7 GHz, 1 MB L2 cache, 35W) APU with Radeon™ HD 7520G Graphics  
New AMD Dual-Core APU with Radeon™ HD 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.

**NOTE:** APU speed denotes maximum performance mode; APUs will run at lower speeds in battery optimization mode.

## AMD CONTROLLER HUB (CHIPSET)

AMD A70M FCH

## GRAPHICS INCLUDED WITH ACCELERATED PROCESSING UNIT (APU)

AMD Radeon™ HD 7660G Graphics (with AMD Quad-Core A10-4600M APU)  
AMD Radeon™ HD 7640G Graphics (with AMD Quad-Core A8-4500M APU)  
AMD Radeon™ HD 7520G Graphics (with AMD Dual-Core A6-4400M APU)  
AMD Radeon™ HD 7420G Graphics (with new AMD APU)

## DISPLAY

### Internal

14.0" diagonal LED-backlit HD 16:9 anti-glare (1366 x 768)



### Features

14.0" diagonal LED-backlit HD+ 16:9 anti-glare (1600 x 900)

HP Privacy Filter support

#### **External**

Up to 32-bit per pixel color depth

#### **DisplayPort**

Supports resolutions up to 2560 x 1600, 30-bit color depth at 60 Hz, and full HD (1920 x 1080) monitors, 24-bit color depth at 120 Hz

#### **VGA**

Port supports resolutions up to 2048 x 1536 external resolution at 75 Hz

#### **DVI-D (single link)**

Video signal available through DVI port in optional HP Docking Station (sold separately)

supports resolutions up to 1600 x 1200 at both full and reduced blanking, and 1920 x 1200 at reduced blanking

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

## STORAGE AND DRIVES

### **Primary Storage Bay**

#### **Hard Drives**

320/500 GB 7200 rpm SMART SATA II

500 GB 7200 rpm SMART SATA II Self Encrypting Drive

#### **HP 3D DriveGuard (Windows only)**

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

#### **Solid State Drive**

SATA 6 Gb/s 128 GB Solid State

**NOTE:** Up to 19 GB is reserved for the system recovery software.

## OPTICAL DRIVES

### **Fixed 12.7 mm SATA optical drive**

Blu-ray ROM DVD+/-RW SuperMulti DL Drive

DVD+/-RW SuperMulti DL Drive

DVD-ROM Drive

### **Second hard drive**

500 GB 7200 rpm SMART SATA II Hard Drive

### **Weight saver**

## MEMORY

### **Standard**

DDR3 PC3-12800 SDRAM (1600 MHz)

Two SODIMM slots supporting dual-channel memory

Standard memory up to 8192 MB (2 GB, 4 GB, and 8 GB SODIMMs)

### **Maximum**



### Features

Upgradeable to 16384 MB with optional 8192 MB SODIMMs in slots 1 and 2

#### Dual-channel

Maximized dual-channel performance requires SODIMMs of the same size and speed in both memory slots.

**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.

## NETWORKING/COMMUNICATIONS

### Wireless

Support for a broad range of secure, integrated wireless LAN and wireless WAN options featuring support for the latest industry standards. Broadband Wireless (WWAN) requires a Windows operating system and is available in select countries as a standard, factory configurable feature only. Wireless LAN and integrated Bluetooth are also available (both are factory configurable only) and can be combined with either of the supported wireless WAN options.

### Mobile Broadband options

HP hs2350 HSPA+ Mobile Broadband Module

HP un2430 EV-DO/HSDPA Mobile Broadband Module (Gobi™ 3000)

### Integrated wireless LAN options

802.11 a/b/g/n WiFi Adapter (2x2)

802.11 b/g/n WiFi Adapter (1x1)

HP Integrated Module with Bluetooth 4.0+EDR Wireless Technology

### Communications

Integrated Realtek RTL8151FH-CG 10/100/1000\* NIC

56K V.92 modem (optional)\*\*

\* The term "10/100/1000" or "Gigabit" Ethernet indicates compatibility with IEEE standard 802.3ab for Gigabit Ethernet, and does not connote actual operating speed of 1 Gb/s. For high-speed transmission, connection to a Gigabit Ethernet server and network infrastructure is required.

\*\* Designed for downloads from 56K modem compliant sources. Maximum achievable download transmission rates currently do not reach 56 KB/s, and will vary with line conditions. Modem availability is subject to country regulatory approval.

## AUDIO/MULTIMEDIA

### Audio

SRS Premium Sound™

Integrated stereo speakers

Integrated microphone (dual-microphone array when equipped with optional webcam)

Button for volume mute; function keys for volume up and down

Stereo headphone port

Stereo microphone port

### Webcam



### Features

Optional 720p HD webcam

- HD format (widescreen)
- Supports videoconferencing and still image capture
- High quality fixed focus lens
- Video capture at various resolutions up to 1280x720 resolution (720p) and up to 30fps
- M-JPEG compression supports higher frame rates for video capture and videoconferencing
- Improved low light sensitivity
- Improved dynamic range

## KEYBOARDS/POINTING DEVICES/BUTTONS & FUNCTION KEYS

### Keyboard

The HP spill-resistant keyboard is designed using a thin layer of Mylar film under the keyboard and a drain system that funnels fluid through a hole in the bottom of the notebook. This minimizes the risk of damage to sensitive components underneath. The 101/102-key compatible keyboard features a full-pitch key layout with desktop keyboard features, such as the isolated inverted-T cursor control keys, editing keys, both left and right control and alt keys, 12 function keys, and 19.05 x 19.05 mm key pitch (center-to-center spacing). U.S. and International key layouts are available. Other features include hot keys for instant access to power conservation and brightness.

### Pointing Devices

Touchpad with on/off button, two-way scroll, gestures, two pick buttons

Optional pointstick with two additional pointstick buttons (for a total of four)

### Buttons and Function Keys

Discrete launch buttons provide easy access to the following features: wireless on/off, Web browser, and volume mute. Function keys provide control of the following features: standby mode, external display, volume down, volume up, HP Power Assistant, and display brightness.

## SOFTWARE AND SECURITY

### Preinstalled Software with Windows Operating System

HP Connection Manager

HP Hotkey Support

HP Power Assistant

HP ProtectTools for Central Management

HP ProtectTools Security Manager

HP Recovery Manager

HP Support Assistant

HP Webcam Software (select models)

Adobe Flash Player

Corel WinDVD (select models)

Microsoft® Office Starter: reduced-functionality Word and Excel® only, with advertising. No PowerPoint® or Outlook®.

Buy Office 2010 to use the full-featured software.\*

Microsoft Security Essentials

PDF Complete Corporate Edition

Roxio MyDVD Business 2010 (select models)



### Features

Roxio Secure Burn (select models)  
Skype -ready (Internet access required.)  
WinZip Basic

**NOTE:** HP Recovery Manager enables fast recovery of the factory preinstalled image if the system becomes corrupted or if important system files are accidentally deleted. Up to 19 GB of the hard drive is reserved for the system recovery software. Support in Windows Operating System only.

#### Additional Software Available from the Web

HP SoftPaq Download Manager

\* 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>.

### Security

#### Standard

HP Disk Sanitizer  
HP ProtectTools  
HP Spare Key (requires initial user setup)  
Central Management for HP ProtectTools  
Credential Manager for HP ProtectTools  
Drive Encryption for HP ProtectTools  
Enhanced Pre-Boot Security  
Face Recognition for HP ProtectTools  
File Sanitizer for HP ProtectTools  
HP Fingerprint Sensor  
Microsoft Security Essentials  
Security lock slot  
TPM Embedded Security Chip 1.2

#### Optional

Computrace (requires a subscription)  
Smart Card Reader (replaces ExpressCard)  
HP Privacy Filter

**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>.

## POWER

#### Power Supply

External 65-watt Smart AC adapter  
Power cord included is 6-foot (1.8 meter).  
Total length including external AC adapter is 12 feet (3.66 meter).  
HP Fast Charge (not supported on 9-cell primary or secondary batteries)



### Features

#### Primary Battery

HP 9-cell Lithium-Ion Battery (100 WHr)

HP 6-cell HP Long Life Lithium-Ion Battery (55 WHr)

HP 6-cell Lithium-Ion Battery (55 WHr)

#### Secondary Battery

HP Extended Life Notebook Battery (9-cell /73 WHr)

HP Ultra Extended Life Notebook Battery (9-cell /100 WHr)

#### Battery Life\*

**6-cell (55 WHr)** Up to 8 hours and 30 minutes  
with optional Up to 19 hours and 30 minutes

HP ST09 Extended Life  
Notebook Battery

with optional Up to 23 hours and 15 minutes

HP BB09 Ultra Extended  
Life Notebook Battery

**9-cell (100 WHr)** Up to 15 hours and 15 minutes

#### 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.

#### Power Conservation

AMD PowerPlay technology (models with discrete graphics)

Hibernation

Standby

ACPI compliance

## ENVIRONMENTAL

ENERGY STAR qualified (with Microsoft OS)

IT ECO Declaration

EPEAT – Gold 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.

## WEIGHTS & DIMENSIONS

#### Weight

Starting at 4.48 lb (2.03 kg)



### Features

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

13.31 x 9.11 x 1.34 in (at front)

33.8 x 23.13 x 3.4 cm (at front)

**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 no optical drive. Weight varies by configuration and components.

### PORTS/SLOTS

**Ports**

VGA – One

DisplayPort v1.2– One

Stereo microphone port – One

Stereo headphone port – One

Power Connector – One

Secondary Battery Connector – One

Docking Connector – One

RJ-45 (Ethernet) – One

RJ-11 (Modem)– One (optional)

1394a – One

USB 3.0 – Two

USB 2.0 – One

eSATA/USB 2.0 combo port – One

**Digital Media Slots**

1 ExpressCard/54 slot

1 SD/MMC slot (supported media include: SD, SDHC, SDXC, MMC, MMC+)

### SERVICE AND SUPPORT

HP Services offers limited 3 year and 1 year warranty options depending on country;

1-year limited warranty on primary battery; 3-year limited warranty on HP Long Life Battery (only available with 3-year platform warranty). 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/services/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>Stand-Alone Power Requirements</b> (AC Power)	<b>Nominal Operating Voltage</b>	18.5 V
	<b>Average Operating Power</b>	Integrated graphics: TBD W Discrete graphics: TBD W
	<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 Gold 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
	<b>Saudi Arabian Compliance (ICCP)</b>	Yes
	<b>SABS</b>	Yes
	<b>UKRSERTCOMPUTER</b>	Yes

\* Configurations of the HP ProBook 6475b that are ENERGY STAR qualified are identified as HP 6475b ENERGY STAR on HP websites and on [www.energystar.gov](http://www.energystar.gov).



### Technical Specifications

\*\* 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>.

### DISPLAYS

#### 14.0-inch LED HD (1366 x 768) anti-glare

<b>Dimensions (W x H)</b>	12.74 x 7.56 in (32.4 x 19.2 cm)
<b>Diagonal Size</b>	14.0 in (35.6cm)
<b>Surface Treatment</b>	Anti-glare
<b>Contrast Ratio</b>	400:1 (typical)
<b>Refresh Rate</b>	60 Hz
<b>Brightness</b>	200 nit (typical)
<b>Pixel Resolution</b>	<b>Pitch</b> 0.227 mm
	<b>Format</b> 1366 x 768
	<b>Configuration</b> RGB Stripe
<b>Backlight</b>	LED
<b>PPI</b>	112 ppi
<b>Viewing Angle</b>	±30° Horizontal, ±10° Vertical (minimum) 30/30/20/10 (Left/Right/Down/Up) (minimum) or 45/45/35/25 (Left/Right/Down/Up) (typical)

#### 14.0-inch LED HD+ (1600 x 900) anti-glare

<b>Dimensions (W x H)</b>	12.74 x 7.56 in (32.4 cm x 19.2 cm)
<b>Diagonal Size</b>	14.0 in (35.6cm)
<b>Surface Treatment</b>	Anti-glare
<b>Contrast Ratio</b>	300 (min)
<b>Refresh Rate</b>	60 Hz
<b>Brightness</b>	200 nits (typ)
<b>Pixel Resolution</b>	<b>Pitch</b> 0.1935mm
	<b>Format</b> 1600 x 900
	<b>Configuration</b> RGB Stripe
<b>Backlight</b>	LED
<b>PPI</b>	131 ppi
<b>Viewing Angle</b>	30/30/20/10 (Left/Right/Down/Up) (minimum)

### STORAGE AND DRIVES



### Technical Specifications

#### Internal Storage

<b>500 GB 7200 rpm SATA Hard Drive</b>	<b>Drive Weight</b>	0.25 lbs (115g)		
	<b>Capacity</b>	500 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>	300 MB/s (Drive Capability)	
		(maximum)		
	<b>Seek Time</b>	<b>Single Track</b>	1.5 ms	
	(typical reads, including settling)	<b>Average</b>	11 ms	
		<b>Maximum</b>	22 ms	
	<b>Rotational Speed</b>	7200 rpm		
	<b>Logical Blocks</b>	976,773,168		
	<b>Operating Temperature</b>	32° to 140° F (0° to 60° C) [case temp]		
<b>Features</b>	ATA Security			

<b>500 GB 7200 rpm SMART SATA II Self Encrypting Drive</b>	<b>Drive Weight</b>	0.25 lbs (115g)		
	<b>Capacity</b>	500 GB		
	<b>Height</b>	0.37 in (9.5 mm)		
	<b>Width</b>	2.50 in (63.5 mm)		
	<b>Interface</b>	ATA-8, SATA 2.6, 3.0 Gb/s		
	<b>Transfer Rate</b>	<b>Synchronous</b>	300 MB/s (Drive Capability)	
		(maximum)		
	<b>Seek Time</b>	<b>Single Track</b>	1 ms	
	(typical reads, including settling)	<b>Average</b>	12 ms	
		<b>Maximum</b>	20 ms	
	<b>Rotational Speed</b>	7200 rpm		
	<b>Logical Blocks</b>	976,773,168		
	<b>Operating Temperature</b>	32° to 140° F (0° to 60° C) [case temp]		
<b>Features</b>	ATA Security			

<b>320 GB 7200 rpm SATA Hard Drive</b>	<b>Drive Weight</b>	0.25 lbs (115 g)	
	<b>Capacity</b>	320 GB	



### Technical Specifications

<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>	300 MB/s (Drive Capability)
	(maximum)	
<b>Seek Time</b>	<b>Single Track</b>	1.5 ms
(typical reads, including settling)	<b>Average</b>	11 ms
	<b>Maximum</b>	22 ms
<b>Rotational Speed</b>	7200 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	

### 128 GB 2.5-inch SATA Solid State Drive

<b>Drive Weight</b>	75 Grams	
<b>Capacity</b>	128 GB	
<b>Height</b>	0.276 in (7 mm)	
<b>Width</b>	2.76 in (70 mm)	
<b>Interface</b>	SATA Gen 2	
<b>Performance</b>	<b>Maximum Sequential Read</b>	<b>Maximum Sequential Write</b>
	250 MB/s	140 MB/s
<b>Logical Blocks</b>	250,069,680	
<b>Operating Temperature</b>	32° to 158°F (0° to 70°C) [case temp]	
<b>Features</b>	ATA Security; ATA-7; SATA 2.6; DIPM; TRIM	



### Technical Specifications

#### Optical Drives

<b>DVD-ROM Drive</b>	<b>Access Times</b>	Random	< 140 ms CD (typical) < 160 ms DVD (typical)	
	<b>Max Data Transfer Rate</b>	24X CD-ROM 8X-DVD		
	<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>	None		
	<b>Max Media Capacity (read)</b>	8.5GB		
	<b>Transport</b>	Tray Loading		
	<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 6X - DVD+R Dual Layer 6X - DVD-R Dual Layer 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,		



### Technical Specifications

	DVD-9, DVD-10, DVD-18), DVD-R, DVD-RW, DVD+R, DVD+RW, DVD-RAM	
<b>Supported Media</b> (write)	CD-R, CD-RW, DVD+R, DVD+RW, DVD-R, DVD-RW, DVD-RAM, DVD+R DL, DVD-R DL	
<b>Max Media Capacity</b> (read)	8.5 GB	
<b>Max Media Capacity</b> (write)	8.5 GB	
<b>Transport</b>	Tray Loading	
<b>Blu-ray ROM DVD+/- RW SuperMulti DL Drive</b>	Random	<190 ms CD-ROM (typical) < 180ms DVD-ROM (typical) <230 ms BD-ROM (typical)
<b>Max Data Transfer Rate</b>	24X CD-ROM 8X DVD-ROM 24X CD-R 16X CD-RW 8X DVD+R 8X DVD+RW 8X DVD-R 6X DVD-RW 4X - DVD+R Dual Layer 4X - DVD-R Dual Layer 5X DVD-RAM 6X BD-ROM	
<b>Transfer Mode</b>	UDMA Mode 5	
<b>Interface</b>	Gen 1 SATA	
<b>Supported Media</b> (read)	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, BD-ROM, BD-R, BD-RE	
<b>Supported Media</b> (write)	CD-R, CD-RW, DVD+R, DVD+R DL, DVD+RW, DVD-R, DVD-R DL, DVD-RW, DVD-RAM	
<b>Max Media Capacity</b> (read)	50.0 GB	



### Technical Specifications

<b>Max Media Capacity</b>	8.5GB (write)
<b>Transport</b>	Tray Loading

### SECURITY

<b>HP Fingerprint Sensor</b>	<b>Mobile Voltage Operation</b>	3.0V-3.6V Single Supply
	<b>Operating Temperature</b>	32° – 158°F (0° – 70°C)
	<b>Current Consumption @ 3.3V</b>	Less than 70 mA peak imaging and scrolling Less than 25 mA hardware finger detection Advanced Power Management
	<b>High-Rate Image Capture</b>	Up to 240 image frames /sec
	<b>ESD Resistance</b>	IEC 61000-4-2 Level 4 (±15KV)
	<b>Detection Matrix</b>	192 x 16 Pixels
		9.7 mm x 0.81 mm 500 ppi High-Resolution Images

### NETWORKING/COMMUNICATIONS

<b>Integrated Realtek RTL8151FH-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 (1000BASE-T; IEEE 802.3ab; IEEE 8023 clauses 40)
		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)
		IEEE 802.3az EEE (Energy Efficient Ethernet)
	Jumbo Frame 9K	
Auto MDI/MDIX Crossover cable detection		
<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	



### Technical Specifications

		consumption
	<b>Performance Features</b>	TCP/IP/UDP Checksum Offload (configurable) Protocol Offload (ARP & NS) Large send offload and Giant send offload Receiving Side Scaling
	<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 GBE Ethernet Family Controller
<b>V.92 56K Data/Fax Modem (optional)</b>	<b>Form Factor</b>	MDC 1.5 Daughtercard
	<b>Power Management Support</b>	APM Revision 1.2, ACPI
	<b>Approvals/Certifications</b>	UL, CSA, NEMKO, CCIB, Industry Canada, FCC Part 68, CTR21, FCC Part 15 Class B, Canadian ICES-003 Class B, C.I.S.P.R.22, Australian ACA, CE Mark, Other Countries
	<b>Data Mode Capabilities</b>	V.92 data V.8bis V.80 V44, V.42bis, MNP5 (Compression) V.42 (LAPM, MNP2-4) (Error Correction)
		<b>Optional symbol rates:</b> 2800, 3429 Asymmetric Symbol rates
		<b>Synchronous primary channel data signaling rates:</b> 3600, 31200 Automatic rate re-negotiation V.34 V.32bis V.32 V.23 V.22bis V.22



### Technical Specifications

	V.21 Bell 212A Bell 103J
<b>Fax Mode Capabilities</b>	TIA/EIA-578-B (Class 1) T.30, T.4 (Group 3) V.17 V.29 V.27ter V.21 Channel 2 T.31
<b>Command Set</b>	V.250 (Partial) TIA-602 Identification: +GMI, +GMM, +GMR Port control: +IPR, +ICF, +IFC, +ILRR Modulation: +MS, +MR, +MA Error control: +ES, +ER, +EB, +ESR, +ETBM Data compression: +DS, +DR V.251
<b>HP un2430 EV-DO/HSDPA Mobile Broadband Module (Gobi™ 3000)</b>	<b>Technology/Operating Bands</b> GSM/GPRS/EDGE: 850MHz(Cell), 900MHz(EGSM), 1800MHz(DCS), 1900MHz (PCS) UMTS/WCDMA with receive diversity: 2100MHz (UTRA FDD Band I), 1900MHz (UTRA FDD Band II), AWS (UTRA FDD Band IV), 900MHz(UTRA FDD Band VIII), 850MHz (UTRA FDD Band V) 1xEVDO/1xRTT with receive diversity: 850MHz (Band Class0-Cell), 1900MHz (Band Class1-PCS)
	<b>Wireless Protocol Standards</b> GSM/GPRS/EDGE: Class A, Multi-slot class 10 operation, coding schemes CS1 - CS4 and MSC1 - MSC9. UMTS/WCDMA: Release 99 and Release 6 CDMA: 1xEVDO Release 0 and Release A, IS-95A, IS-95B, IS-856, IS-2000
	<b>Wireless Parametric Standards</b> Meets or exceeds TIA/EIA IS-98-D
	<b>Maximum Data Rates</b> UMTS (HSPA) - 14.4 Mbps (Download ), 5.76Mbps (Upload) CDMA (EVDO Release A) - 3.1 Mbps (Download), 1.8Mbps (Upload)
	<b>GPS</b> Standalone GPS enabled gpsOneXTRATM™
	<b>GPS Bands</b> L1 - 1575.42 MHz



### Technical Specifications

<b>Maximum Output Power</b>	GSM/GPRS/EDGE: 32dBm (+/-1) WCDMA: 24dBm (+0.7/-2.3) CDMA: 24dBm (+0.7/-2)
<b>Maximum Power Consumption</b>	2750mA (peak); 1100mA (average)
<b>Power Consumption, Idle Not Connected</b>	20 mA
<b>Power Management</b>	USB selective suspend Integrated notebook wireless button
<b>Antenna Type</b>	Dual high efficiency 5 band antennae with spatial diversity, mounted in the display enclosure
<b>Form Factor</b>	PCI-Express MiniCard, USB 2.0 interface
<b>Weight</b>	11.5 g
<b>Dimensions</b> (Length x Width x Thickness)	2.01 x 1.18 x 0.18 in (51 x 30 x 5 mm)
<b>Voltage, Operating</b>	3.3v +/- 10%
<b>Temperature, Operating</b> (from TIA/EIA/IS-98-D)	-22° to 158° F (-30° to 70° C) (full RF performance) -22° to 167° F (-30° to 75° C) (reduced RF performance)
<b>Temperature, Non-operating, 96 hours</b> (from MIL-STD 202 Method 108)	-40° to 185° F (-40° to 85° C)
<b>Humidity, Non-operating</b>	95% relative humidity for 48 hours @ 185° F (85° C) (non-condensing)
<b>Configuration Utilities</b>	HP Connection Manager
<b>LED Activity</b>	LED Off - Radio Off; Solid LED On - Radio On
<b>HP hs2350 HSPA+ Mobile Broadband Module</b>	<b>Technology/ Operating Bands</b> GSM/GPRS/EDGE: 850MHz(Cell), 900MHz(EGSM), 1800MHz(DCS), 1900MHz (PCS) UMTS/WCDMA with receive diversity: 2100MHz (UTRA FDD Band I), 1900Mhz (UTRA FDD Band II), 900Mhz(UTRA FDD Band VIII), 850 MHz (UTRA FDD Band V)
	<b>Wireless Protocol Standards</b> GSM/GPRS/EDGE: Class B, Multi-slot class 10 operation, coding schemes CS1 – CS4 and MSC1 – MSC9. UMTS/WCDMA: Release 99 and Release 7 Advanced Receiver Type 3i



### Technical Specifications

<b>Wireless Parametric Standards</b>	Complies with 3GPP specifications
<b>Maximum Data Rates</b>	UMTS (HSPA) – 21 Mbps (Download ), 5.76Mbps (Upload)
<b>GPS</b>	Standalone, A-GPS (Internet- and Network assisted)
<b>GPS Bands</b>	1575.42 MHz (± 1.023 MHz)
<b>Maximum Output Power</b>	GSM/EDGE GSM850 & GSM900 bands GPRS: +33 dBm ± 2 dBm (class 4) EGPRS: +27 dBm ± 3 dBm (class E2)  DCS1800 & PCS1900 bands GPRS: +30 dBm ± 2 dBm (class 1) EGPRS: +26 dBm +4 / -3 dBm (class E2)
<b>Maximum Power Consumption</b>	UMTS UTRA FDD Bands +24 dBm +4 / -3 dBm (class 3) 2000mA (peak); 600mA (average)
<b>Power Consumption, Sleep Mode</b>	5 mA
<b>Power Management</b>	USB selective suspend Integrated notebook wireless button
<b>Antenna Type</b>	Dual high efficiency 5 band antennae with spatial diversity, mounted in the display enclosure
<b>Form Factor</b>	PCI-Express MiniCard, USB 2.0 interface
<b>Weight</b>	< 12 g
<b>Dimensions (L x W x H)</b>	2.01 x 1.18 x 0.18 in (51 x 30 x 5 mm)
<b>Voltage, Operating Temperature, Operating Temperature, Non-operating, 96 hours</b> (from MIL-STD 202 Method 108)	3.3v +/- 9% 14° to 149° F (-10° to 65° C) (full RF performance) 14° to 167° F (-10° to 75° C) (reduced RF performance) -22° to 185° F (-30° to 85° C)
<b>Humidity, Non-operating Configuration</b>	85% relative humidity for 48 hours @ 185° F (85° C) (non-condensing) HP Connection Manager



### Technical Specifications

	<b>Utilities</b>	
	<b>LED Activity</b>	LED Off – Radio Off; Solid LED On – Radio On
<b>a/b/g/n WiFi Adapter (2x2)</b>	<b>Wireless LAN Standards</b>	IEEE 802.11a IEEE 802.11b IEEE 802.11g IEEE 802.11n
	<b>Interoperability</b>	Wi-Fi certified Cisco Compatible Extensions Program compliant with Microsoft Windows 7, Windows Vista and XP (details at: <a href="http://www.hp.com/go/notebooks/WLAN">http://www.hp.com/go/notebooks/WLAN</a> )
	<b>Frequency Band</b>	2.4 GHz and 5 GHz
	<b>Data Rates</b>	802.11b: 1, 2, 5.5, 11 Mbps 802.11a/g: 6, 9, 12, 18, 24, 36, 48, 54 Mbps 802.11n: 6, 6.5, 9, 12, 13, 13.5, 18, 19.5, 24, 26, 27, 36, 39, 40.5, 48, 52, 54, 58.5, 65, 78, 81, 104, 108, 117, 121.5, 130, 135, 162, 216, 243, 270, 300 Mbps
	<b>Frequency Support</b>	20 MHz: 2.4 GHz and 5 GHz bands 40 MHz: 2.4 GHz and 5 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 4) with Microsoft Windows Vista and XP 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</b> (for CCK) <sup>2</sup>	17 dBm , nominal
	<b>Output Power</b> (for OFDM; power varies by data rate) <sup>2</sup>	15 dBm , nominal



### Technical Specifications

<b>Power Consumption</b>	Idle associated: 250 mW Idle unassociated: 150 mW Transmit/Receive 20 MHz channel: 2.0 W (max) Transmit/Receive 40 MHz channel: 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>	270 Mbps: -61dBm, , 54 Mbps: -72 dBm, 11 Mbps: -85 dBm , 1 Mbps: -92 dBm												
<b>Antenna type</b>	High efficiency dual band antenna with spatial diversity, mounted in the display enclosure												
<b>Form Factor</b>	PCI-Express Half-MiniCard												
<b>Weight</b>	0.013 lb (6 g)												
<b>Dimensions</b>	0.19 x 1.06 x 1.18 in (4.75 x 26.8 x 30 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 - Radio ON												
	<ol style="list-style-type: none"> <li>1. Check latest software/driver release for updates on supported security features.</li> <li>2. Maximum output power may vary by country according to local regulations.</li> <li>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).</li> <li>4. 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.</li> </ol>												
<b>802.11 b/g/n WiFi Adapter (1x1)</b>	<table border="0"> <tr> <td><b>Wireless LAN Standards</b></td> <td>IEEE 802.11b IEEE 802.11g IEEE 802.11n</td> </tr> <tr> <td><b>Interoperability</b></td> <td>Wi-Fi certified</td> </tr> <tr> <td><b>Frequency Band</b></td> <td>2.4 GHz</td> </tr> <tr> <td><b>Data Rates</b></td> <td>802.11b: 1, 2, 5.5, 11 Mbps 802.11g: 6, 9, 12, 18, 24, 36, 48, 54 Mbps 802.11n: many possible data rates, ranging from 6 Mbps to 300 Mbps, depending on the combination of Bandwidth, Modulation Coding Scheme, and Guard Interval used, as defined in IEEE 802.11n specification</td> </tr> <tr> <td><b>Modulation</b></td> <td>Direct Sequence Spread Spectrum DBPSK, DQPSK, CCK, OFDM, BPSK, QPSK, 16-QAM, 64-QAM</td> </tr> <tr> <td><b>Security<sup>1</sup></b></td> <td>Supports 64- and 128-bit WEP, WPA, WPA2, hardware-accelerated</td> </tr> </table>	<b>Wireless LAN Standards</b>	IEEE 802.11b IEEE 802.11g IEEE 802.11n	<b>Interoperability</b>	Wi-Fi certified	<b>Frequency Band</b>	2.4 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: many possible data rates, ranging from 6 Mbps to 300 Mbps, depending on the combination of Bandwidth, Modulation Coding Scheme, and Guard Interval used, as defined in IEEE 802.11n specification	<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
<b>Wireless LAN Standards</b>	IEEE 802.11b IEEE 802.11g IEEE 802.11n												
<b>Interoperability</b>	Wi-Fi certified												
<b>Frequency Band</b>	2.4 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: many possible data rates, ranging from 6 Mbps to 300 Mbps, depending on the combination of Bandwidth, Modulation Coding Scheme, and Guard Interval used, as defined in IEEE 802.11n specification												
<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												



### Technical Specifications

	AES, 802.1x authentication types EAP-TLS, EAP-TTLS, PEAP-GTC, PEAP-MSCHAPv2, LEAP, EAP-FAST.
<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</b>	Ad-hoc (Peer to Peer) Infrastructure (Access Point Required)
<b>Models</b>	
<b>Roaming</b>	IEEE 802.11 compliant roaming between access points
<b>Output<sup>2</sup></b>	13.5 dBm, nominal
<b>Power Consumption</b>	Transmit: 2.0 W (max) Receive: 1.6 W (max) Associated to Access Point, Idle: 250 mW nominal Wireless Button Off: 100 mW nominal Radio disabled: 75 mW nominal
<b>Power Management</b>	ACPI compliant power management 802.11 compliant power saving mode
<b>Receiver Sensitivity<sup>3</sup></b>	72.2 Mbps: -70 dbm, 54 Mbps: -74 dBm, 11 Mbps: -88 dBm , 1 Mbps: -95 dBm
<b>Antenna type</b>	High efficiency antenna with spatial diversity, mounted in the display enclosure
<b>Form Factor</b>	PCI-Express Half-MiniCard 1.2
<b>Weight</b>	0.013 lb (6 g)
<b>Dimensions</b>	0.19 x 1.06 x 1.18 in (4.75 x 26.8 x 30 mm)
<b>Operating Voltage</b>	3.3v +/- 9%
<b>Temperature</b>	Operating 14° to 158° F (-10° to 70° 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 – Radio ON
	<ol style="list-style-type: none"> <li>1. Check latest software/driver release for updates on supported security features.</li> <li>2. Maximum output power may vary by country according to local regulations.</li> <li>3. Receiver sensitivity is measured at a packet error rate of 8% for 802.11b (CKK modulation) and a packet error rate of 10% for 802.11a/g (OFDM modulation).</li> </ol>
<b>HP Integrated Module with Bluetooth 4.0+EDR Wireless Technology</b>	
<b>Bluetooth Specification</b>	4.0+EDR Compliant
<b>Dimensions</b>	1.18 x 0.26 x 0.13 in (30 x 6.5 x 3.25 mm)
<b>Frequency Band</b>	2402 to 2480 MHz
<b>Number of Available Channels</b>	79 (1 MHz) available channels
<b>Data Rates and</b>	3 Mbps data rate; throughput up to 2.17 Mbps



### Technical Specifications

<b>Throughput</b>	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>	-1.5 dBm to 4 dBm (Bluetooth Class II)	
<b>Receiver Sensitivity</b>	Better than -20 dBM at 0.1 % raw bit error rate	
<b>Power Consumption</b>	Peak (Tx) 264 mW	
	Peak (Rx) 231 mW	
	Sleep <1 mW	
<b>Antenna</b>	Internally integrated within module	
<b>Range</b>	Up 33 ft (10 m)	
<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>Temperature</b>	Operating	-14° to 158° F (-10° to 70° C)
	Non-operating	-40° to 212° F (-40° to 100° C)
<b>Humidity</b>	Operating	0% to 90%
	Non-operating	0% to 95%
<b>Altitude</b>	Operating	15,000 ft (4,572 m)
	Non-operating	40,000 ft (12,192 m)
<b>Bluetooth Profiles Supported</b>	Serial Port Profile (SPP) <sup>1</sup>	
	Service Discovery Application Profile (SDAP)	
	Dial-Up Networking (DUN) <sup>1,2</sup>	
	Generic Object Exchange Profile (GOEP) <sup>1,2</sup>	
	Object Push Profile (OPP) <sup>1,2</sup>	
	File Transfer Profile (FTP)	
	Synchronization Profile (SYNC)	



### Technical Specifications

Hard Copy Cable Replacement (HCRP)<sup>1,2</sup>  
 Personal Area Networking Profile (PAN)<sup>1,2</sup>  
 Human Interface Device Profile (HID)<sup>1,2</sup>  
 FAX Profile (FAX)  
 Basic Imaging Profile (BIP)<sup>2</sup>  
 Headset Profile (HSP)  
 Hands Free Profile (HFP)  
 Advanced Audio Distribution Profile (A2DP)

1. indicates the profile is supported by Microsoft Windows XP SP2
2. indicates the profile is part of Windows Vista

## AUDIO/MULTIMEDIA

<b>Hardware</b>	<b>Implementation</b>	IDT 92HD87 High Definition CODEC
	<b>Touch-Sensitive Volume Controls</b>	Volume up, volume down, and mute
	<b>Full Duplex</b>	Yes
	<b>Microphone In</b>	Stereo
	<b>Headphone/Line Out</b>	Stereo
	<b>Integrated Microphone</b>	Yes, dual digital microphone array when equipped with optional webcam
<b>Audio Output Quality</b>	<b>Frequency Response</b>	20 Hz – 20 kHz
	<b>Signal to Noise Ratio</b>	>85 dB
	<b>Total Harmonic Distortion</b>	0.01%
	<b>Noise Floor</b>	-110 dB
	<b>Play/Record Sampling Rate(s)</b>	8 kHz – 48kHz
	<b>DAC</b>	16, 20 or 24-bit
	<b>ADC</b>	16 or 20-bit
	<b>Integrated Stereo Speakers</b>	<b>Power Rating</b>
	<b>Impedance</b>	4 Ohms

## POWER

<b>HP 65W Smart AC</b>	<b>Dimensions</b>	4.17 x 1.85 x 1.1 in (10.6 x 4.7 x 2.8 cm)
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### Technical Specifications

<b>Adapter</b>	<b>Weight</b>	0.62 lb (280 g)	
	<b>Input</b>	100 to 240 VAC	
		Input Efficiency	87% min at 115 VAC
	<b>Output</b>	Input frequency range	47 to 63 Hz
		Input AC current	1.7 A at 90 VAC, 0.85 A at 180 VAC
		Output power	65W
		DC output	18.5V
		Hold-up time	5 msec at 115 VAC input
		Output current limit	<11A, Over voltage protection- 29V max automatic shutdown
		<b>Connector</b>	3 pin/grounded, mates with interchangeable cords
	<b>Environmental Design</b>	Operating temperature	32° to 104° F (0° to 40° C)
		Non-operating (storage) temperature	-4° to 149° F (-20° to 65° C)
		Altitude	0 to 10,000 ft (0 to 3,048 m)
Humidity		20% to 80%	
Storage Humidity		10% to 90%	
<b>EMI and Safety Certifications</b>	CE Mark - full compliance with LVD and EMC directives; Worldwide safety standards - IEC60950, EN60950, UL60950, Class 1, 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.		
<b>HP 9-cell (100 WHr) Lithium-Ion Primary battery</b>	<b>Dimensions</b> (H x W x L)	0.8 x 2.4 x 8.1 in (2 x 6.6 x 20.5cm)	
	<b>Weight</b> (max)	1.1lb, (.488kg)	
	<b>Cells/Type</b>	Lithium-Ion	
	<b>Energy</b>	Voltage	11.25V
		Amp-hour capacity	8.85Ah
		Watt-hour capacity	100Wh
	<b>Temperature</b>	Operating (Charging)	32° to 113° F (0° to 45° C)
		Operating (Discharging)	14° to 122° F (-10° to 50° C)
		Non-operating	-4° to 122° F (-20° to 50° C)
	<b>Battery Re-Charge Time</b>	System in OFF or Standby Mode	3.5 to 5 hours
System ON		4 to 7 hours	
<b>Fuel Gauge LED</b>		No	



### Technical Specifications

	<b>Warranty</b>	1 year	
	<b>Compatible with optional Travel Battery</b>	Yes	
<b>HP 6-cell (55 WHr) Lithium-Ion Primary battery</b>	<b>Dimensions</b> (H x W x L)	0.8 x 1.8 x 8.0in (2.0 x 4.7 x 20.5cm)	
	<b>Weight</b> (max)	.70lb, (.313kg)	
	<b>Cells/Type</b>	Lithium-Ion	
	<b>Energy</b>	Voltage	10.8V
		Amp-hour capacity	5.1Ah
		Watt-hour capacity	55Wh
	<b>Temperature</b>	Operating (Charging)	32° to 113° F (0° to 45° C)
		Operating (Discharging)	14° to 122° F (-10° to 50° C)
		Non-operating	-4° to 122° F (-20° to 50° C)
	<b>Battery Re-Charge Time</b>	System in OFF or Standby Mode	2.5 hours
System ON		3 to 5 hours	
<b>Fuel Gauge LED</b>	No		
<b>Warranty</b>	1 year		
<b>Compatible with optional Travel Battery</b>	Yes		
<b>Optional HP 6-cell (55 WHr) Long Life Primary Battery</b>	<b>Dimensions</b> (H x W x L)	0.8 x 1.8 x 8.0in (2.0 x 4.7 x 20.5cm)	
	<b>Weight</b> (max)	.72lb, (.323kg)	
	<b>Cells/Type</b>	Lithium-Ion	
	<b>Energy</b>	Voltage	10.8V
		Amp-hour capacity	5.1Ah
		Watt-hour capacity	55Wh
	<b>Temperature</b>	Operating (Charging)	32° to 113° F (0° to 45° C)
		Operating (Discharging)	14° to 122° F (-10° to 50° C)
		Non-operating	-4° to 122° F (-20° to 50° C)
	<b>Battery Re-Charge</b>	System in OFF or	2.5 hours



### Technical Specifications

	<b>Time</b>	Standby Mode		
		System ON	3 to 5 hours	
	<b>Fuel Gauge LED</b>	No		
	<b>Warranty</b>	3 years		
	<b>Compatible with optional Travel Battery</b>	Yes		
<b>Optional HP BB09 Ultra Extended Life Notebook Battery (secondary battery)</b>	<b>Dimensions</b> (H x W x L)	1.2 x 5.9 x 11.4 in (3x15x29cm)		
	<b>Weight</b> (max)	1.5lb, (.682kg)		
	<b>Cells/Type</b>	Lithium-Ion		
	<b>Energy</b>	Voltage	11.25V	
		Amp-hour capacity	8.85Ah	
		Watt-hour capacity	100Wh	
	<b>Temperature</b>	Operating (Charging)	32° to 113° F (0° to 45° C)	
		Operating (Discharging)	14° to 122° F (-10° to 50° C)	
		Non-operating	-4° to 122° F (-20° to 50° C)	
	<b>Battery Re-Charge Time</b>	System in OFF or Standby Mode	3.5 to 5 hours	
		System ON	4 to 7 hours	
	<b>Fuel Gauge LED</b>	Yes		
	<b>Warranty</b>	1 year		
<b>Dockable</b>	No			
<b>Optional HP ST09 Extended Life Notebook Battery ("Travel Battery") (secondary battery)</b>	<b>Dimensions</b> (H x W x L)	1.2 x 6.1 x 12 in (3x15.5x30.5cm)		
	<b>Weight</b> (max)	1.2lb, (.550kg)		
	<b>Cells/Type</b>	Lithium-Ion Polymer		
	<b>Energy</b>	Voltage	11.1V	
		Amp-hour capacity	6.6Ah	
		Watt-hour capacity	73Wh	
	<b>Temperature</b>	Operating (Charging)	32° to 113° F (0° to 45° C)	
		Operating (Discharging)	14° to 122° F (-10° to 50° C)	
		Non-operating	-4° to 122° F (-20° to 50° C)	
	<b>Battery Re-Charge Time</b>	System in OFF or	3.5 to 5 hours	



### Technical Specifications

<b>Time</b>	Standby Mode	
	System ON	4 to 7 hours
<b>Fuel Gauge LED</b>	Yes	
<b>Warranty</b>	1 year	
<b>Dockable</b>	Yes	

### ENVIRONMENTAL TBD

#### Environmental Data

**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:

ENERGY STAR qualified (with Microsoft OS)  
IT ECO declaration  
EPEAT – Gold with a Microsoft OS where HP registers commercial notebook products. See <http://www.epeat.net> for registration status in your country.

### 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:



### *Technical Specifications*

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



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

<b>Type</b>	<b>Description</b>	<b>Part #</b>
<b>Cases</b>	HP Professional Slim Top Load Case	AY530AA
	HP Professional Series Backpack	AT887AA
	HP Deluxe 4 Wheel Roller	XW576AA
<b>Docking</b>	HP Display and Notebook Stand	AW662AA
	HP Dual Hinge Notebook Stand	AW661AA
	HP Adjustable Dual Display Stand	AW664AA
	HP 90W Docking Station	A7E32AA#xxx
	HP 120W Advanced Docking Station	A7E36AA#xxx
<b>Input/Output – Mice</b>	HP 2.4 GHz Wireless Optical Mobile Mouse	LX732AA
	HP Wireless Mobile Mouse	H2L63AA
	USB Keyboard & Mouse Bundle	RC465AA#xxx
<b>Adapters</b>	HP 90W Slim Adapter	BT796AA#xxx
	HP 90W Smart AC/Auto/Air Combo Adapter	AJ652AA#xxx
<b>Storage - External Storage</b>	HP Mobile USB DVDRW	A2U57AA
	SATA Upgrade Bay 500 GB 7200 rpm Hard Drive	AU097AA
<b>Batteries</b>	HP CC06XL Long Life Notebook Battery	QK642AA
	HP CC09 Notebook Battery	QK643AA
	HP ST09 Extended Life Notebook Battery	QK639AA
	HP BB09 Ultra Extended Life Notebook Battery	QK640AA
<b>Health and Education</b>	HP 20-Notebook Managed Charging Cart	QL489AA
	HP 20-Notebook Charging Cart	QL488AA
	HP 30-Notebook Managed Charging Cart	QL490AA
	HP Pocket Whiteboard	A0X37AA
<b>Security</b>	HP Keyed Cable Lock	BV411AA
	HP Docking Station Cable Lock	AU656AA



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