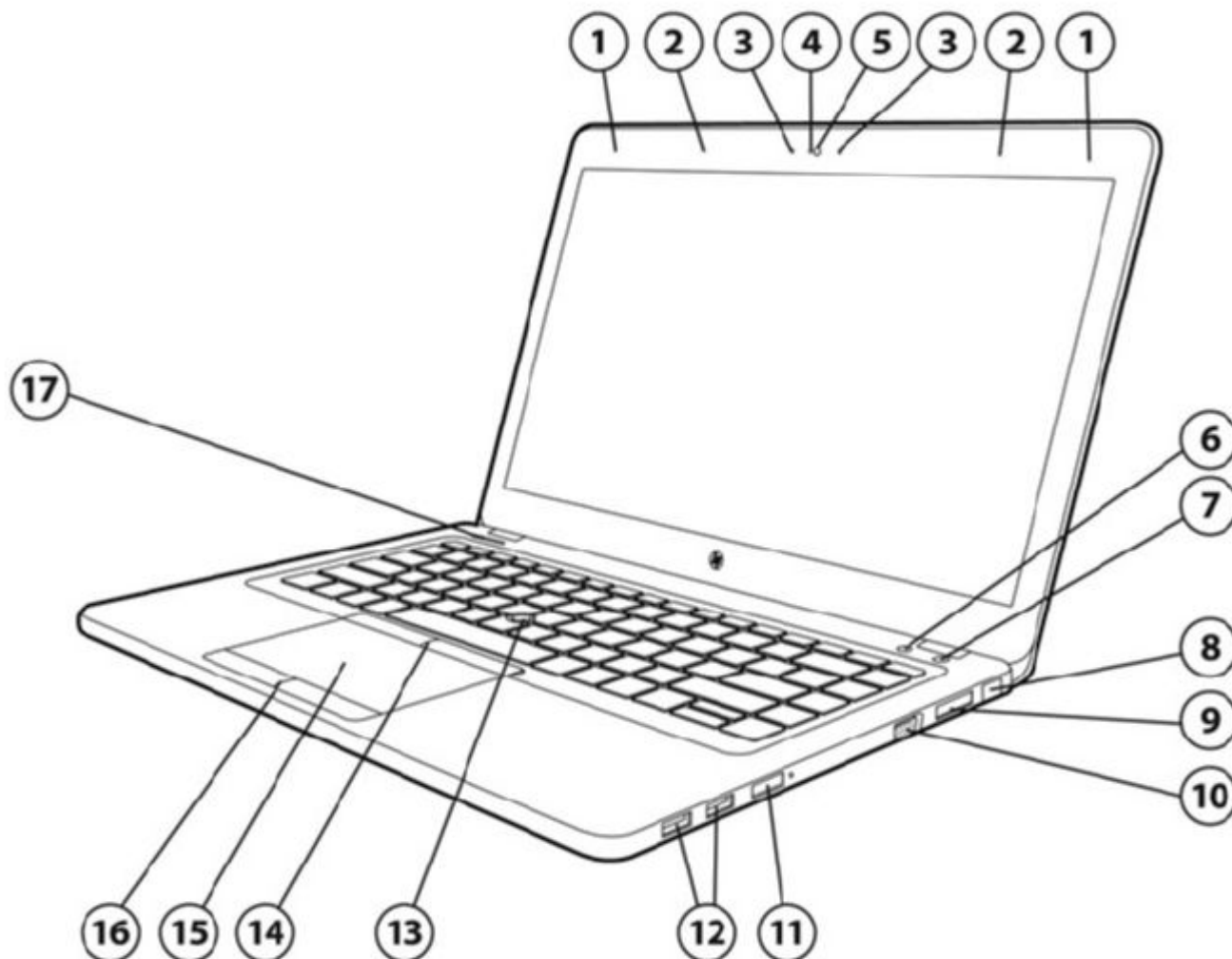
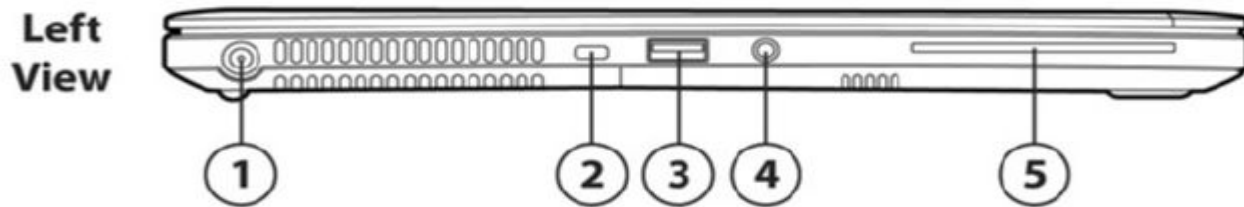


### Overview



- |  |                                    |
|--|------------------------------------|
| 1. WLAN antennas (2)                         | 10. VGA/external monitor connector |
| 2. WWAN antennas (2)                         | 11. DisplayPort 1.1a               |
| 3. Dual-microphone array                     | 12. (2) USB 3.0 ports              |
| 4. Webcam light (only with optional webcam)  | 13. Pointstick                     |
| 5. Optional 720p HD webcam                   | 14. Pointstick pick buttons        |
| 6. Wireless on/off button with LED indicator | 15. Touchpad                       |
| 7. Volume mute button with LED indicator     | 16. Touchpad pick buttons          |
| 8. RJ-45/Ethernet port                       | 17. Power button                   |
| 9. Docking connector                         |                                    |

### Overview



1. Power connector
2. Security lock
3. USB 3.0 charging port
4. Headphone/Microphone combo port
5. Smart Card Reader

### At A Glance

- Windows 8 Pro, Windows 7 versions or FreeDOS
- Magnesium display enclosure, magnesium-reinforced chassis, wear-resistant platinum-colored HP DuraFinish, HP DisplaySafe frame, HP DuraKeys, precision metal-alloy hinges, aluminum keyboard deck, and chemically strengthened glass touchpad
- Choice of 3rd Generation Intel® Core™ i7 and i5 with Turbo Boost Technology, as well as 3rd Generation Intel Core i3 Dual-Core
- Integrated Intel® HD Graphics 4000
- 14.0-inch diagonal HD or HD+ widescreen LED-backlit display
- Choice of 7200 rpm user-removable hard drive (up to 500 GB) with HP 3D DriveGuard, 500 GB 7200 rpm Self Encrypting Hard Drive, 256 GB Self Encrypting Solid State Drive, 240 GB Solid State Drive, 180 GB Solid State Drive, 128 GB Solid State Drive, or 256 GB mSATA Solid State Drive
- Optional 32 GB mSATA Flash Cache module support for Intel Smart Response Technology. (Available only with standard non-SED hard drive).
- Built-in docking for a desktop-like experience
- DisplayPort for high resolution support
- SRS PRO Audio™ optimized for high fidelity audio during video conferencing and web-based training
- 4-cell (52 WHr) HP Long Life battery and 6-cell (60WHr) HP Long Life slice battery for extended battery life
- Glass touchpad with chemically etched surface and pointstick
- Integrated Smart Card Reader and optional fingerprint reader for strong security authentication
- HP Premier Image with Microsoft Security Essentials and without trialware
- Flexible wireless connectivity options:
  - Optional integrated wireless mobile broadband 3G and 4G/LTE support (no Win 8 support)
  - Integrated Intel Centrino® 802.11 a/b/g/n 2x2 + BT Combo 4.0 HS or Atheros 802.11 a/b/g/n 2x2 + BT Combo 4.0 HS
- Low Halogen, 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](http://epeat.net).

\* HD+ display will be available late 1Q 2013.

\*\* Meeting the industry definition of 'Low Halogen' 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 Low Halogen. External accessories, including power supplies, power cords, and peripherals as well as the following customer-configurable internal component: ATT SIM card, are not Low Halogen.

### Features

#### OPERATING SYSTEM

<b>Preinstalled</b>	Windows 8 Pro 64*
	Windows 8 64*
	Windows 7 Professional 32 (available through downgrade rights from Windows 8 Pro 64)**
	Windows 7 Professional 64 (available through downgrade rights from Windows 8 Pro 64)**
	Windows 7 Professional 32***
	Windows 7 Professional 64***
	Windows 7 Home Premium 32***
	Windows 7 Home Premium 64***
<b>Supported</b>	FreeDOS
	Windows 8 Pro 32**
	Windows 7 Enterprise 32***
	Windows 7 Enterprise 64***
	Windows 7 Ultimate 32***
	Windows 7 Ultimate 64***
	Windows 7 Home Basic 64
	Windows XP Professional 32
<b>Certified</b>	SUSE Linux SLED (for China only)
	SUSE Linux Enterprise Desktop 11

\* Not all features are available in all editions of Windows 8. Systems may require upgraded and/or separately purchased hardware, drivers and/or software to take full advantage of Windows 8 functionality. See <http://www.microsoft.com> for details.

\*\* This system is preinstalled with Windows® 7 Pro software and also comes with a license and media for Windows 8 Pro software. You may only use one version of the Windows software at a time. Switching between versions will require you to uninstall one version and install the other version. You must back up all data (files, photos, etc.) before uninstalling and installing operating systems to avoid loss of your data.

\*\*\* 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

- 3rd Generation Intel® Core™ i7-3687U (2.1 GHz, 4 MB L3 cache, 2 cores)\*  
Up to 3.30 GHz with Intel Turbo Boost Technology
- 3rd Generation Intel® Core™ i7-3667U (2.0 GHz, 4 MB L3 cache, 2 cores)\*  
Up to 3.20 GHz with Intel Turbo Boost Technology
- 3rd Generation Intel® Core™ i5-3437U (1.9 GHz, 3 MB L3 cache, 2 cores)\*  
Up to 2.90 GHz with Intel Turbo Boost Technology
- 3rd Generation Intel® Core™ i5-3427U (1.8 GHz, 3 MB L3 cache, 2 cores)\*  
Up to 2.80 GHz with Intel Turbo Boost Technology
- 3rd Generation Intel® Core™ i5-3337U (1.8 GHz, 3 MB L3 cache, 2 cores)\*†  
Up to 2.70 GHz with Intel Turbo Boost Technology
- 3rd Generation Intel® Core™ i5-3317U (1.7 GHz, 3 MB L3 cache, 2 cores)\* not available with Intel iAMT  
Up to 2.60 GHz with Intel Turbo Boost Technology
- 3rd Generation Intel® Core™ i3-3227U (1.9 GHz, 3 MB L3 cache, 2 cores)\*†
- 3rd Generation Intel® Core™ i3-3217U (1.8 GHz, 3 MB L3 cache, 2 cores)\* not available with Intel iAMT†

† Not available with vPro

\* Multi-Core is designed to improve performance of certain software products. Not all customers or software applications will necessarily benefit from use of this technology. 64-bit computing on Intel® architecture requires a



### Features

computer system with a processor, chipset, BIOS, operating system, device drivers, and applications enabled for Intel® 64 architecture. Processors will not operate (including 32-bit operation) without an Intel® 64 architecture-enabled BIOS. Performance will vary depending on your hardware and software configurations. Intel's numbering is not a measurement of higher performance.

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

---

### CHIPSET

Mobile Intel QM77 Express

---

### INTEL CORE I5 WITH VPRO/CORE I7 WITH VPRO TECHNOLOGY CAPABLE

Intel Core i5 with vPro and Core i7 with vPro technology is a selectable feature that is available on units configured with select processors, an Intel Centrino® Advanced-N or Ultimate-N WLAN module and a preinstalled Windows operating system. It provides advances in remote manageability, security, energy efficient performance, and wireless connectivity. Intel Active Management Technology 8.0 (iAMT) offers built-in manageability and proactive security for networked notebook PCs, even when they are powered off\* or when the operating system is inoperable. It can help identify threats before they reach the network, isolate infected systems, and update PCs regardless of their power state.

\*Requires a Windows operating system, network hardware and software, connection with a power source, and a direct (non-VPN) corporate network connection which is either cable or wireless LAN.

**NOTE:** Some functionality of Intel® Core i5 with vPro/Core i7 with vPro technology, such as Intel® Active Management technology and Intel® Virtualization technology, requires additional third- party software in order to run. Availability of future "virtual appliances" applications for Intel® Core i5 with vPro/Core i7 with vPro technology is dependent on third- party software providers. Compatibility with future "virtual appliances" is yet to be determined.

---

### GRAPHICS

Integrated:  
Intel HD Graphics 4000

---

### Features

#### DISPLAY

**Internal**

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

**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 at 75 Hz, and lower resolutions at up to 100 Hz

**Internal**

14.0" diagonal LED-backlit HD+ 16:9 widescreen anti-glare (1600 x 900) 3.0mm

**External**

Up to 32-bit per pixel color depth (250 nits)

**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 at 75 Hz, and lower resolutions at up to 100 Hz

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

---

#### FLASH CACHE MODULE

Optional 32 GB mSATA Flash cache module support for Intel Smart Response Technology. (Available only with standard non-SED hard drive).

---

### Features

## STORAGE AND DRIVES

### Primary Storage Bay

#### Hard Drives

320/500GB 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

SATA 6 Gb/s 180 GB Solid State

SATA 6 Gb/s 240 GB Solid State

SATA 6 Gb/s 256 GB Solid State Self-Encrypting Drive

#### mSATA module

256 GB mSATA module

**NOTE:** For hard drives and solid state drives, GB = 1 billion bytes. Actual formatted capacity is less. Up to 30 GB (for Windows 7) and up to 36 GB (for Windows 8) of system disk is reserved for the system recovery software.

**NOTE:** The EliteBook Folio is available in standard thin and light configurations for customers who value the ultra-thin design but prefer options such as a standalone HDD or require a self-encrypting hard drive. These configurations will not meet Intel's definition of an Ultrabook.

---

## 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

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.

---

### Features

## 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. Wireless LAN and integrated Bluetooth are also available (both are factory configurable only) and can be combined with any of the supported wireless WAN options.

### Broadband Wireless (WWAN)

HP hs2350 HSPA+ Mobile Broadband Module

HP un2430 EV-DO/HSPA Mobile Broadband Module

HP It2522 LTE/EV-DO Mobile Broadband Module- U.S. only\* (no Win 8 support)

HP It2523 LTE/HSPA+ Mobile Broadband Module- U.S. only\* (no Win 8 support)

### Integrated wireless LAN options

Intel Centrino Advanced-N 6205 802.11a/b/g/n (2x2)

Intel Centrino Advanced-N 6235 802.11a/b/g/n (2x2) + BT Combo 4.0 HS

Atheros 802.11 a/b/g/n (2x2) + BT Combo 4.0 HS

Broadcom 802.11 b/g/n (1x1) + BT Combo 4.0 HS

### Communications

Integrated Intel 82579LM Gigabit\* Network Connection (vPro)

\* 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 PRO Audio™

Integrated stereo speakers

Integrated dual-microphone array

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

Headphone/Microphone combo port

### Webcam

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



### Features

## KEYBOARDS/POINTING DEVICES/BUTTONS & FUNCTION KEYS

### Keyboard

The HP spill-resistant, backlit 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

Glass Touchpad (with chemically etched surface) with on/off button, two finger scrolling, pinch zoom, rotating and three-finger flick gestures, two pick buttons

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

### Buttons and Function Keys

Discrete buttons provide easy access to the following features: wireless on/off, and volume mute. Function keys provide control of the following features: sleep mode, external display switching, volume down, volume up, microphone mute, backlit keyboard, and display brightness.

---

## SOFTWARE AND SECURITY

### Preinstalled Software with Windows Operating System

HP Wireless Hotspot (Windows 8 and web only)

HP Connection Manager (Windows 7 only)

HP Hotkey Support

HP ProtectTools for Central Management

HP ProtectTools Security Manager

HP Recovery Manager

HP Support Assistant

Adobe® Flash Player (Windows 7 only)

HP Premier Image

Cyberlink PowerDVD

Evernote

HP 3D DriveGuard

Microsoft Office 2010 60 days trial (Windows 8 only)

Microsoft Office Starter (Windows 7 only): reduced-functionality Word and Excel® only, with advertising. No PowerPoint® or Outlook®. Buy Office 2010 to use the full-featured software.\*

Buy Microsoft Office to activate Office Software on this PC.

PDF Complete Corporate Edition

Supports UEFI specification 2.3

WinZip Basic (Windows 7 only)

**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 30 GB (for Windows 7) and up to 36 GB (for Windows 8) of system disk is reserved for the system recovery software.

\* 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 Client Security (Windows 8 only),





### Features

- Central Management for HP ProtectTools\*
- Credential Manager for HP ProtectTools
- Device Access Manager w/ JITA
- Drive Encryption (will be web-only ready at Win8 GA date)
- Enhanced Pre-Boot Security
- Face Recognition
- File Sanitizer for HP ProtectTools (Windows 7 only)
- HP BIOS Protection
- HP ProtectTools
- HP Spare Key (requires initial user setup)
- Intel Rapid Start Technology\* \*
- Intel Smart Response Technology\*\*\*
- Microsoft Defender
- Microsoft Security Essentials (included with Microsoft Defender for Windows 8)
- One Step Logon
- Smart Card Reader
- Security lock slot
- TPM Embedded Security Chip 1. 2

#### Optional

- Computrace (requires a subscription)
- Intel Anti-Theft Technology (requires a Computrace subscription)
- HP Fingerprint Reader

**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.

\*In order to deploy and receive updated policies, the client needs to be connected to the network server and requires separately purchased DigitalPersona Pro software. System access may not prevent users from logging into the system on the first attempt if policy updates haven't yet been received and applied. Requires Microsoft Windows.

\*\* Requires a compatible Intel® Core processor, Intel® Rapid Start software and BIOS update, and optional Solid State Drive (SSD) or mSATA flash cache module. Depending on system configuration, results may vary.

\*\*\*Requires a compatible Intel® Core processor, enabled chipset, Intel® Rapid Storage technology software and non-SED HDD + optional mSATA SSD flash cache module. Intel® Smart Response Technology is only available on select 2012 HP systems. Depending on system configuration, results may vary.

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

---

### Features

#### POWER

##### Power Supply

Models with integrated graphics with dual-core processor:  
External 45W HP Smart AC Adapter  
Power cord included is 6-foot (1.8 meter).  
Total length including external AC adapter is 12 feet (3.66 meter).

##### Primary Battery

HP 4-cell Lithium-Ion Long Life Battery (52 WHr)

##### Slice Battery

HP 6-cell Lithium-Ion Long Life Battery (60 WHr)

##### Battery Life\*

##### HP EliteBook Folio 9470m (Hard Drive)

**4-cell (52 WHr) Primary** Up to 8 hours and 30 minutes  
**4-cell (52 WHr) Primary** Up to 19 hours  
and  
**6-cell (60 WHr) Slice**

##### HP EliteBook Folio 9470m (Solid State Drive)

**4-cell (52 WHr) Primary** Up to 9 hours and 30 minutes  
**4-cell (52 WHr) Primary** Up to 21 hours and 15 minutes  
and  
**6-cell (60 WHr) Slice**

##### HP EliteBook Folio 9470m (mSATA module)

**4-cell (52 WHr) Primary** Up to 10 hours  
**4-cell (52 WHr) Primary** Up to 21 hours and 45 minutes  
and  
**6-cell (60 WHr) Slice**

##### System Standby Time

Deep sleep enabled: with main battery - 3 weeks 2 days

\*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.

##### Power Conservation

Hibernation  
Standby  
ACPI compliance

### Features

#### ENVIRONMENTAL

ENERGY STAR qualified (with Microsoft OS)

BFR/PVC-free (does not cover adapters and power cords)

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 3.56 lb (1.61 kg)

##### Dimensions (w x d x h)

13.3 x 9.09 x 0.75 in

33.8 x 23.1 x 1.895 cm

**NOTE:** Weight varies by configuration and components. Weight includes 4-cell battery, mSATA solid state drive, and 4 GB memory. Weight varies by configuration and components.

---

#### PORTS/SLOTS

##### Ports

VGA – One

DisplayPort – One (v1.1a)

Headphone/Microphone combo port – One

Power Connector – One

Secondary Battery Connector – One

Docking Connector – One

RJ-45 (Ethernet) – One

USB 3.0 – Two

USB 3.0 charging port – One

##### Digital Media Slots

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

---

#### 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/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>Stand-Alone Power Requirements (AC Power)</b>	<b>Nominal Operating Voltage</b>	18.5 V	
	<b>Average Operating Power</b>	<b>Windows 7 (32-bit)</b>	<b>Windows 7 (64-bit)</b>
		6.06 W	6.18 W
	<b>Max Operating Power</b>	< 45 W	
<b>Temperature</b>	<b>Operating</b>	32° to 95° F (0° to 35° C) (not 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 (unpressurized)</b>	<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 (Microsoft OS)*	
	<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	

### Technical Specifications

\* Configurations of the HP EliteBook Folio that are ENERGY STAR qualified are identified as HP EliteBook Folio 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

<b>14.0-inch LED HD (1366 x 768) anti-glare</b>	<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)

<b>14.0-inch LED HD+ (1600 x 900) anti-glare</b>	<b>Dimensions (W x H)</b>	12.64 x 8.11 in (32.1 x 20.6 cm)
	<b>Diagonal Size</b>	14.0 in (35.6cm)
	<b>Surface Treatment</b>	Anti-glare
	<b>Contrast Ratio</b>	300
	<b>Refresh Rate</b>	60 Hz
	<b>Brightness</b>	250 nit (typical)
	<b>Pixel Resolution</b>	<b>Pitch</b> 0.1935 mm <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° Horizontal, ±10° Vertical (minimum) 30/30/20/10 (Left/Right/Down/Up) (minimum) or 45/45/35/25 (Left/Right/Down/Up) (typical)

## STORAGE AND DRIVES



### Technical Specifications

#### Internal Storage

The EliteBook Folio is available in standard thin and light configurations for customers who value the ultra-thin design but prefer options such as a standalone HDD or require a self-encrypting hard drive. These configurations will not meet Intel's definition of an Ultrabook.

<b>500 GB 7200 rpm SATA Hard Drive</b>	<b>Drive Weight</b>	0.21 lbs (95g)	
	<b>Capacity</b>	500 GB	
	<b>Height</b>	0.276 in (7 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> (typical reads, including settling)	<b>Single Track</b>	1.5 ms
		<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>	0.21 lbs (95g)	
	<b>Capacity</b>	500 GB	
	<b>Height</b>	0.276 in (7 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> (typical reads, including settling)	<b>Single Track</b>	1 ms
		<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		

---

### Technical Specifications

<b>320 GB 7200 rpm SATA Hard Drive</b>	<b>Drive Weight</b>	0.21 lbs (95g)		
	<b>Capacity</b>	320 GB		
	<b>Height</b>	0.276 in (7 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			

<b>SATA 6 Gb/s 128 GB, 2.5-inch Solid State Drive</b>	<b>Drive Weight</b>	73 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 3 (6 Gb/s)		
	<b>Performance</b>	<b>Maximum Sequential Read</b>	<b>Maximum Sequential Write</b>	
		415 MB/s	175 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-8; SATA 3.0 DIPM; TRIM			

<b>SATA 6 Gb/s 180 GB, 2.5-inch Solid State Drive</b>	<b>Drive Weight</b>	78 Grams		
	<b>Capacity</b>	180 GB		
	<b>Height</b>	0.276 in (7 mm)		
	<b>Width</b>	2.76 in (70 mm)		
	<b>Interface</b>	SATA Gen 3 (6 Gb/s)		
	<b>Performance</b>	<b>Maximum Sequential Read</b>	<b>Maximum Sequential Write</b>	
		550 MB/s	520 MB/s	
	<b>Logical Blocks</b>	351,651,888		
<b>Operating Temperature</b>	32° to 158°F (0° to 70°C) [case temp]			
<b>Features</b>	ATA Security; ATA-8, SATA 3.0; DIPM; TRIM			



### Technical Specifications

<b>SATA 6 Gb/s 256 GB, 2.5-inch SATA SED Solid State Drive</b>	<b>Drive Weight</b>	73 Grams		
	<b>Capacity</b>	256 GB		
	<b>Height</b>	0.276 in (7 mm)		
	<b>Width</b>	2.76 in (70 mm)		
	<b>Interface</b>	SATA 3 (6 Gb/s)		
	<b>Performance</b>	<b>Maximum Sequential Read</b>	<b>Maximum Sequential Write</b>	
		Up to 460 MB/s	Up to 260 MB/s	
	<b>Logical Blocks</b>	500,118,192		
<b>Operating Temperature</b>	32° to 158°F (0° to 70°C) [case temp]			
<b>Features</b>	ATA Security; ATA-8 compliant; SATA 3.0; DIPM; TRIM			

<b>SATA 6 Gb/s 240 GB, 2.5-inch Solid State Drive</b>	<b>Drive Weight</b>	78 Grams		
	<b>Capacity</b>	240 GB		
	<b>Height</b>	0.276 in (7 mm)		
	<b>Width</b>	2.76 in (70 mm)		
	<b>Interface</b>	SATA Gen 3 (6 Gb/s)		
	<b>Performance</b>	<b>Maximum Sequential Read</b>	<b>Maximum Sequential Write</b>	
		550 MB/s	520 MB/s	
	<b>Logical Blocks</b>	468,862,128		
<b>Operating Temperature</b>	32° to 158°F (0° to 70°C) [case temp]			
<b>Features</b>	ATA Security; ATA-8, SATA 3.0; DIPM; TRIM			

<b>SATA 6 Gb/s 256 GB, mSATA Solid State Drive</b>	<b>Drive Weight</b>	Up to 10 Grams		
	<b>Capacity</b>	256 GB		
	<b>Height</b>	Up to 0.191 in (Up to 4.85 mm)		
	<b>Width</b>	1.18 in (29.85 mm)		
	<b>Interface</b>	SATA 3 (6 Gb/s)		
	<b>Performance</b>	<b>Maximum Sequential Read</b>	<b>Maximum Sequential Write</b>	
		Up to 490 MB/s	Up to 250 MB/s	
	<b>Logical Blocks</b>	500,118,192		
<b>Operating Temperature</b>	32° to 158°F (0° to 70°C) [case temp]			
<b>Features</b>	ATA Security; ATA-8, SATA 3.0; DIPM; TRIM			

### SECURITY

### Technical Specifications

<b>HP Fingerprint Sensor (optional)</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>Intel® 82579LM Gigabit Ethernet Features Network Connection</b>	10 Mbit/s operation (10BASE-T; IEEE 802.3i; IEEE 802.3 clauses 13-14) 100 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 802.3. 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 Energy Detect Low Power Mode(Green Ethernet)
<b>Performance Features</b>	TCP/IP/UDP Checksum Offload (configurable) Protocol Offload( ARP & NS) Large send offload and Giant send offload Receiving Side Scaling MACSec Offload (802.3ae) Intel vPro iSCSI Boot
<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

### Technical Specifications

<b>Interface</b>	PCI Express 1.1 x1 to fully support ASPM L0s/L1 and CLKREQ. <b>NOTE:</b> Intel 82579 PCIe interface is not PCIe compliant. It operates at half of PCIe specification V1.1 (2.5GT/S) speed.
<b>NIC Device Driver Name</b>	Intel 82579LM/82579V Ethernet Network Connection

#### HP un2430 EV-DO/HSPA Mobile Broadband Module

<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
<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 (Length x Width x Thickness)</b>	2.01 x 1.18 x 0.18 in (51 x 30 x 5 mm)
<b>Voltage, Operating Temperature, Operating (from TIA/EIA/IS-98-D)</b>	3.3v +/- 10% -22° to 158° F (-30° to 70° C) (full RF performance) -22° to 167° F (-30° to 75° C) (reduced RF performance)



### Technical Specifications

<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

#### HP hs2350 HSPA+ Mobile Broadband Module

<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
<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)  UMTS UTRA FDD Bands +24 dBm +4 / -3 dBm (class 3)
<b>Maximum Power Consumption</b>	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



### Technical Specifications

<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 +/- 9%
<b>Temperature, Operating</b>	14° to 149° F (-10° to 65° C) (full RF performance) 14° to 167° F (-10° to 75° C) (reduced RF performance)
<b>Temperature, Non-operating, 96 hours</b> (from MIL-STD 202 Method 108)	-22° to 185° F (-30° to 85° C)
<b>Humidity, Non-operating</b>	85% 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 It2522 LTE/EV-DO Mobile Broadband Module</b>	<b>Technology/Operating Bands</b>	CDMA/1xRTT/EvDO: 800MHz (Cell), 1900MHz (PCS) 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) LTE: 700 MHz (Verizon, Band XIII)
	<b>Mobile Operator</b>	Verizon (US only)
	<b>Wireless Protocol Standards</b>	GSM/GPRS/EDGE: Class B, Multi-slot class 10 operation, coding schemes CS1 - CS4 and MSC1 - MSC9. CDMA: 1xEVDO Release 0 and Release A, IS-95A, IS-95B, IS-856, IS-2000 UMTS/WCDMA: Release 99 and Release 7 LTE: Power Class III as per 3GPP TS 36.101
	<b>Wireless Parametric Standards</b>	Complies with 3GPP specifications Release 8 for LTE
	<b>Maximum Data Rates</b>	EvDO (Revision A) - 3.1 Mbps (Download), 1.8 Mbps (Upload) WCDMA (DC-HSPA+) - 42Mbps (Download) LTE (Category 3) - 100 Mbps (Download ), 50Mbps (Upload)
	<b>GPS</b>	Standalone, Assisted, XTRA
	<b>GPS Bands</b>	1575.42 MHz (± 1.023 MHz)
	<b>Maximum Output Power</b>	GSM/GPRS/EDGE: 32dBm (+/-1) WCDMA: 24dBm (+0.7/-2.3) LTE: +23 dBm (+2.7 dBm/-1.7 dBm) 1xRTT/EvDO: +24 dBm (+0.5 dBm/-1.5 dBm)
	<b>Maximum Power Consumption</b>	2700mA (peak)
	<b>Power Consumption, Sleep Mode</b>	10 mA
	<b>Power Management</b>	USB selective suspend Integrated notebook wireless button

### Technical Specifications

<b>Antenna Type</b>	Dual high efficiency 6 band antennae with spatial diversity, mounted in the display enclosure
<b>Form Factor</b>	PCI-Express MiniCard, USB 2.0 interface
<b>Weight</b>	< 10 g
<b>Dimensions</b> (Length x Width x Thickness)	2.01 x 1.18 x 0.18 in (51 x 30 x 4.5 mm)
<b>Voltage, Operating</b>	3.3v +/- 9%
<b>Temperature, Operating</b>	-4° to 149° F (-20° to 65° C)
<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>	85% relative humidity for 48 hours @ 185° F (85° C) (non-condensing)
<b>LED Activity</b>	LED Off - Radio Off; Solid LED On - Radio On

<b>HP It2523 LTE/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), 850 MHz (UTRA FDD Band V) LTE: AWS (Band IV) 700 MHz (AT&T, Band XVII)
	<b>Mobile Operator</b>	AT&T (US only)
	<b>Wireless Protocol Standards</b>	LTE: Power Class III as per 3GPP TS 36.101
	<b>Wireless Parametric Standards</b>	Complies with 3GPP specifications Release 8 for LTE
	<b>Maximum Data Rates</b>	WCDMA (DC-HSPA+) - 42Mbps (Download) LTE (Category 3) - 100 Mbps (Download ), 50Mbps (Upload)
	<b>GPS</b>	Standalone, Assisted, XTRA
	<b>GPS Bands</b>	1575.42 MHz (± 1.023 MHz)
	<b>Maximum Output Power</b>	GSM/GPRS/EDGE: 32dBm (+/-1) WCDMA: 24dBm (+0.7/-2.3) LTE: +23 dBm (+2.7 dBm/-1.7 dBm) 1xRTT/EvDO: +24 dBm (+0.5 dBm/-1.5 dBm)
	<b>Maximum Power Consumption</b>	2700mA (peak)
	<b>Power Consumption, Sleep Mode</b>	10 mA
	<b>Power Management</b>	USB selective suspend Integrated notebook wireless button
	<b>Antenna Type</b>	Dual high efficiency 6 band antennae with spatial diversity, mounted in the display enclosure
	<b>Form Factor</b>	PCI-Express MiniCard, USB 2.0 interface
	<b>Weight</b>	< 10 g

### Technical Specifications

<b>Dimensions</b> (Length x Width x Thickness)	2.01 x 1.18 x 0.18 in (51 x 30 x 4.5 mm)
<b>Voltage, Operating</b>	3.3v +/- 9%
<b>Temperature, Operating</b>	-4° to 149° F (-20° to 65° C)
<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>	85% relative humidity for 48 hours @ 185° F (85° C) (non-condensing)
<b>LED Activity</b>	LED Off - Radio Off; Solid LED On - Radio On

---

<b>Intel Centrino Advanced-N 6205 (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 5GHz
	<b>Antenna Structure</b>	2 transmit; 2 receive (2x2)
	<b>Data Rates</b>	802.11a: 6, 9, 12, 18, 24, 36, 48, 54 Mbps 802.11b: 1, 2, 5.5, 11 Mbps 802.11g: 6, 9, 12, 18, 24, 36, 48, 54 Mbps 802.11n: 66 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>	Authentication: WPA and WPA2, 802.1x (EAP_TLS, TTLS, PEAP, LEAP, EAP-FAST)  Authentication Protocols: PAP, CHAP, TLS, GTC, MS-CHAP, MS-CHAPv2  Encryption: 64 and 128-bit WEP, AES-CCMP, CKIP, TKIP  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



### Technical Specifications

<b>Network Architecture</b>	Ad-hoc (Peer to Peer)
<b>Models</b>	Infrastructure (Access Point Required)
<b>Roaming</b>	IEEE 802.11 compliant roaming between 2.4GHz band Access Points
<b>Output Power</b> (for CCK and OFDM) <sup>2</sup>	17 dBm max
<b>Power Consumption</b>	Transmit: 2.3 Watts (max, with two spatial streams) Receive: 1 Watt (max with two spatial streams) Idle mode <sup>3</sup> : 35 mW (average) Radio off: 20 mW (max)
<b>Power Management</b>	ACPI compliant power management 802.11 compliant power saving mode
<b>Receiver Sensitivity</b> <sup>4</sup>	54 Mbps: -76 dBm, 6 Mbps: -92 dBm
<b>Antenna Connections</b>	2 U.FL type connectors, 50 ohm nominal impedance
<b>Form Factor</b>	PCI-Express Half-MiniCard
<b>Weight</b>	0.0075 lb (3.4 g)
<b>Dimensions</b>	0.12 x 1.06 x 1.18 in (3.1 x 26.8 x 30.0 mm)
<b>Operating Voltage</b>	3.3V +/- 9%
<b>Temperature</b>	Operating 32° to 176° F (0° to 80° C) Non-operating -40° to 176° F (-40° to 80° C)
<b>Humidity</b>	Operating 10% to 90% (non-condensing) Non-operating 5% to 90% (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

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. In Power Save Polling mode and on battery power.
4. 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).
5. 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.

<b>Intel Centrino Advanced -N 6235 802.11a/g/n (2x2) Bluetooth v4.0 combo</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>	802.11a: 6, 9, 12, 18, 24, 36, 48, 54 Mbps 802.11b: 1, 2, 5.5, 11 Mbps 802.11g: 6, 9, 12, 18, 24, 36, 48, 54 Mbps



### Technical Specifications

	802.11n: 66 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 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 Windows 7, 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<sup>2</sup></b>	13.5 dBm , nominal
<b>Power Consumption</b>	Idle associated: 250 mW Idle unassociated: 100 mW Radio disabled: 75mW Transmit: 2.0 W (max) Receive: 1.6 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: -71 dBm, 11 Mbps: -85 dBm , 1 Mbps: -95 dBm
<b>Antenna Connections</b>	High efficiency dual band 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 +/- 10%
<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>Configuration Utility<sup>4</sup></b>	Microsoft Windows XP Choice of Configuration Utility: <ul style="list-style-type: none"> <li>● Microsoft Windows XP Wireless Network Connection Manager</li> <li>● Broadcom Wireless Configuration Utility (required for Cisco Compatible Extensions support)</li> </ul>



### Technical Specifications

#### Microsoft Windows Vista

- Microsoft Windows Vista Wireless Network Connection Manager
- Broadcom IHV extensions for Windows Vista available to support Cisco Compatible Extensions.

#### Microsoft Windows 7

- Microsoft Windows 7 Wireless Network Connection Manager
- Broadcom IHV extensions for Windows 7 available to support Cisco Compatible Extensions.

#### LED Activity

LED Off - Radio OFF; Solid LED On - Radio ON

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 \(OFDM modulation\).](#)
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.](#)

#### Bluetooth 4.0 Wireless Technology

**Bluetooth Specification** 2.1+EDR, 3.0+HS, 4.0 Compliant

**Dimensions** 1.18 x 0.26 x 0.13 in (30 x 6.5 x 3.25 mm)

**Frequency Band** 2402 to 2480 MHz

**Number of Available Channels** 79 (1 MHz) available channels

**Data Rates and Throughput** 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

**Transmit Power** Max 4 dBm (Bluetooth Class II)

**Receiver Sensitivity** Better than -80 dBm at 0.1 % raw bit error rate

**Power Consumption** Average 230mW  
Sleep <1 mW

**Antenna** Internally integrated within module

**Range** Up 33 ft (10 m)

**Electrical Interface** USB 2.0 compliant

Microsoft Windows Plug and Play compliant

**Bluetooth Software Supported** Broadcom Bluetooth for Windows

Microsoft Windows Bluetooth Software

**Link Topology** Point to Point, Multipoint Pico Nets up to 7 slaves

**Security** Full support of Bluetooth Security Provisions

**Power Management** Microsoft Windows ACPI, and USB Bus Support

Self configurable to optimize power conservation in all operating modes, including Standby, Hold, Park, and Sniff



### Technical Specifications

<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 -4° to 158° F (-20° to 70° C) Non-operating -40° to 176° F (-40° to 80° C)
<b>Humidity</b>	Operating 10% to 90% Non-operating 5% 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) Hard Copy Cable Replacement (HCRP) <sup>1,2</sup> Personal Area Networking Profile (PAN) <sup>1,2</sup> Human Interface Device Profile (HID) <sup>1,2,3</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

<b>Atheros 802.11 a/b/g/n (2x2) Bluetooth v4.0 combo</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>	802.11b/g/n: 2.4 GHz and 5 GHz 802.11a/n: 4.9 - 4.95 GHz (Japan) 5.15 - 5.25 GHz 5.25 - 5.35 GHz 5.47 - 5.725 GHz 5.825 - 5.850 GHz

### Technical Specifications

<b>Data Rates</b>	802.11a: 6, 9, 12, 18, 24, 36, 48, 54 Mbps 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 and NSS=2 for RX and TX for 20 and 40 MHz channels. Short and long guard interval 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. Support for Cisco Security Features (proven compatibility with Cisco Aironet infrastructure products through the Cisco Compatible Extensions Program Version 5) with Microsoft Windows 7, 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<sup>2</sup></b>	13.5 dBm , nominal
<b>Power Consumption</b>	Idle associated: 250 mW Idle unassociated: 100 mW Radio disabled: 75mW Transmit: 2.0 W (max) Receive: 1.6 W (max)
<b>Power Management</b>	ACPI compliant power management 802.11 compliant power saving mode
<b>Receiver Sensitivity<sup>3</sup></b>	300 Mbps: -66 dBm, 54 Mbps: -74 dBm, 11 Mbps: -88 dBm , 1 Mbps: -95 dBm
<b>Antenna Type</b>	Two embedded, high efficiency dual band antennae 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 +/- 10%
<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>Configuration Utility<sup>4</sup></b>	Microsoft Windows XP Choice of Configuration Utility: <ul style="list-style-type: none"><li>● Microsoft Windows XP Wireless Network Connection Manager</li></ul>

### Technical Specifications

- Broadcom Wireless Configuration Utility (required for Cisco Compatible Extensions support)

#### Microsoft Windows Vista

- Microsoft Windows Vista Wireless Network Connection Manager
- Broadcom IHV extensions for Windows Vista available to support Cisco Compatible Extensions.

#### Microsoft Windows 7

- Microsoft Windows 7 Wireless Network Connection Manager
- Broadcom IHV extensions for Windows 7 available to support Cisco Compatible Extensions.

#### LED Activity

LED Off - Radio OFF; Solid LED On - Radio ON

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).
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.

#### Bluetooth 4.0 Wireless Technology

<b>Bluetooth Specification</b>	2.1+EDR, 3.0+HS, 4.0 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 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>	Max 4 dBm (Bluetooth Class II)
<b>Receiver Sensitivity</b>	Better than -80 dBm at 0.1 % raw bit error rate
<b>Power Consumption</b>	Average 230mW 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

### Technical Specifications

<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 -4° to 158° F (-20° to 70° C) Non-operating -40° to 176° F (-40° to 80° C)
<b>Humidity</b>	Operating 10% to 90% Non-operating 5% 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) Hard Copy Cable Replacement (HCRP) <sup>1,2</sup> Personal Area Networking Profile (PAN) <sup>1,2</sup> Human Interface Device Profile (HID) <sup>1,2,3</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

---

<b>Broadcom 802.11 b/g/n (1x1) Bluetooth v4.0 combo</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 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



### Technical Specifications

<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 interval 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, WAPI, 802.1x authentication types EAP-TLS, EAP-PEAPv0, EAP-PEAPv1, EAP-PEAPv2, EAP-FAST, EAP-SIM, LEAP. Support for Cisco Security Features (proven compatibility with Cisco Aironet infrastructure products through the Cisco Compatible Extensions Program Version 5) with Microsoft Windows 7, 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<sup>2</sup></b>	13.5 dBm , nominal
<b>Power Consumption</b>	Idle associated: 250 mW Idle unassociated: 100 mW Radio disabled: 75mW Transmit: 2.0 W (max) Receive: 1.6 W (max)
<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>	Two embedded single band, 2.4 antennae 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 +/- 10%
<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>Configuration Utility<sup>4</sup></b>	Microsoft Windows XP Choice of Configuration Utility: <ul style="list-style-type: none"> <li>• Microsoft Windows XP Wireless Network Connection Manager</li> <li>• Broadcom Wireless Configuration Utility (required for Cisco)</li> </ul>

### Technical Specifications

Compatible Extensions support)

#### Microsoft Windows Vista

- Microsoft Windows Vista Wireless Network Connection Manager
- Broadcom IHV extensions for Windows Vista available to support Cisco Compatible Extensions.

#### Microsoft Windows 7

- Microsoft Windows 7 Wireless Network Connection Manager
- Broadcom IHV extensions for Windows 7 available to support Cisco Compatible Extensions.

**LED Activity** LED Off - Radio OFF; Solid LED On - Radio ON

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).
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.

#### Bluetooth 4.0 Wireless Technology

<b>Bluetooth Specification</b>	2.1+EDR, 3.0+HS, 4.0 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 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>	Max 4 dBm (Bluetooth Class II)
<b>Receiver Sensitivity</b>	Better than -80 dBM at 0.1 % raw bit error rate
<b>Power Consumption</b>	Average 230mW 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



### Technical Specifications

<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	-4° to 158° F (-20° to 70° C)
	Non-operating	-40° to 176° F (-40° to 80° C)
<b>Humidity</b>	Operating	10% to 90%
	Non-operating	5% 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) Hard Copy Cable Replacement (HCRP) <sup>1,2</sup> Personal Area Networking Profile (PAN) <sup>1,2</sup> Human Interface Device Profile (HID) <sup>1,2,3</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

#### Audio

<b>Hardware</b>	<b>Implementation</b>	IDT 92HD87 High Definition CODEC
	<b>Function Key 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

### Technical Specifications

<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>Internal Stereo Speaker</b>	<b>Power Rating</b>	2 Watts
	<b>Impedance</b>	4 ohms

### POWER

<b>HP 45W Smart AC Adapter</b>	<b>Dimensions</b>	3.78 x 1.95 x 0.88 in (9.6 x 4.95 x 2.24 cm)		
	<b>Input</b>		90 to 265 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>	1.4 A at 90 VAC and maximum load	
		<b>Output power</b>	45W	
		<b>DC output</b>	19.5V	
		<b>Hold-up time</b>	5 msec at 115 VAC input	
		<b>Output current limit</b>	<8A, 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>	32° to 95° F (0° to 35° C)
	<b>Non-operating (storage) temperature</b>		-4° to 121° F (-20° to 85° C)	
	<b>Altitude</b>		0 to 16,405 ft (0 to 5,000 m)	
	<b>Humidity</b>		0% to 95%	
	<b>Storage Humidity</b>		0% 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; Reliability - failure rate of less than 0.1% annually within the first three years of operation.		

### Technical Specifications

<b>HP 4-cell Lithium-Ion Long Life Battery (52 WHr)</b>	<b>Dimensions</b> (h x w x l)	0.31 x 5.25 x 8.15in (0.8 x 13.3 x 20.7cm)		
	<b>Weight</b>	0.74 lb (0.335kg)		
	<b>Cells/Type</b>	4-cell Lithium-Ion		
	<b>Energy</b>	<b>Voltage</b>	14.8V	
		<b>Amp-hour capacity</b>	3.515Ah	
		<b>Watt-hour capacity</b>	52Wh	
		<b>Temperature</b>	<b>Operating (Charging)</b>	32° to 113° F (0° to 45° C)
	<b>Operating (Discharging)</b>		14° to 122° F (-10° to 50° C)	
	<b>Non-operating</b>		-4° to 122° F (-20° to 50° 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	
		<b>Fuel Gauge LED</b>	No	
	<b>Optional Travel Battery Available</b>	No		

<b>HP 6-cell Lithium-Ion Long Life Slice Battery (60 WHr)</b>	<b>Dimensions</b> (h x w x l)	0.28 x 12.6 x 8.39in (0.7 x 32 x 21.3 cm)		
	<b>Weight</b>	1.72 lb (0.78 kg)		
	<b>Cells/Type</b>	6-cell Lithium-Ion		
	<b>Energy</b>	<b>Voltage</b>	11.4V	
		<b>Amp-hour capacity</b>	2.0Ah	
		<b>Watt-hour capacity</b>	60Wh	
		<b>Temperature</b>	<b>Operating (Charging)</b>	32° to 113° F (0° to 45° C)
	<b>Operating (Discharging)</b>		14° to 122° F (-10° to 50° C)	
	<b>Non-operating</b>		-4° to 122° F (-20° to 50° C)	
	<b>Battery Re-Charge Time</b>	<b>System in OFF or Standby Mode</b>	3.5 to 5 hours	
		<b>System ON</b>	4 to 7 hours	
		<b>Fuel Gauge LED</b>	No	
	<b>Optional Travel Battery Available</b>	No		

### ENVIRONMENTAL



### Technical Specifications

#### 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:

US Energy Star®  
 IT ECO declaration  
 EPEAT Gold where HP registers commercial desktop 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 is based on a "Typically Configured Notebook"

##### Energy Consumption

	115 VAC	230 VAC	100 VAC
Normal Operation	5.12 W	5.24 W	5.13 W
	0.64 W	0.65 W	0.65 W
	0.34 W	0.36 W	0.35 W
Sleep (Energy Star low power mode)			
Off			

##### Heat Dissipation\*

	115 VAC	230 VAC	100 VAC
Normal Operation	17 BTU/hr	18 BTU/hr	17 BTU/hr
	2 BTU/hr	2 BTU/hr	2 BTU/hr
	1 BTU/hr	1 BTU/hr	1 BTU/hr
Sleep			
Off			

\* 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	2.7	26.4
	3.2	32.8
Fixed Disk (random writes)		

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:

### Technical Specifications

#### Additional information

CR2032 (coin cell), Li-ion  
6-cell high capacity Lithium-Ion battery (optional 8 cell available)  
This product is in compliance with the Restrictions of Hazardous Substances (RoHS) directive - 2002/95/EC.

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 Gold 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 97.4% recycle-able when properly disposed of at end of life.

#### Packaging Materials

- External:
  - PAPER/Corrugated 509 g
- Internal:
  - PLASTIC/Polyethylene low density 66 g
- The PAPER/Corrugated packaging material is made from 70% recycled content.
- The PLASTIC/Polyethylene low density packaging material is made from 50% 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.

### Technical Specifications

#### 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
- 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 (TBTO)
- 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)

Type	Description	Part #
<b>Cases</b>	HP Business Slim Top Load (up to 14.1" x .75" thick)	H2T13AA
	HP Professional Slim Top Load Case	H4J91AA
	HP Professional Series Backpack	H4J93AA
	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 UltraSlim Side Docking Station	TBD#xxx
	HP 2005pr USB 2.0 Port Replicator	H1L07AA#xxx
	HP 3005pr USB 3.0 Port Replicator	H1L08AA#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
	HP Stylish USB Keyboard and Mouse	H4B80AA
<b>Adapters</b>	HP Smart 65W Travel AC Adapter	AU155AA#xxx
	HP 65W Slim Adapter	AX727AA#xxx
	HP 90W Smart AC/Auto/Air Combo Adapter	AJ652AA#xxx
<b>Storage - External Storage</b>	HP Mobile USB DVDRW	A2U57AA
<b>Batteries</b>	HP BT04XL Long Life Notebook Battery	H4Q47AA
	HP BA06XL Long Life Notebook Battery	H4Q48AA
<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
<b>Security</b>	HP UltraSlim Keyed Cable Lock	H4D73AA

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

Copyright © 2013 Hewlett-Packard Development Company, L.P.

All rights reserved. Microsoft, Windows, Windows 7, Windows Vista and Windows XP are registered trademarks or trademarks of Microsoft Corporation in the U.S. and/or other countries. Intel, Core, and Celeron are registered trademarks or trademarks of Intel Corporation in the U.S. and/or other countries. Bluetooth is a registered trademark of Bluetooth SIG, Inc., in the U.S. and other countries. All other product names mentioned herein may be trademarks of their respective companies.

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