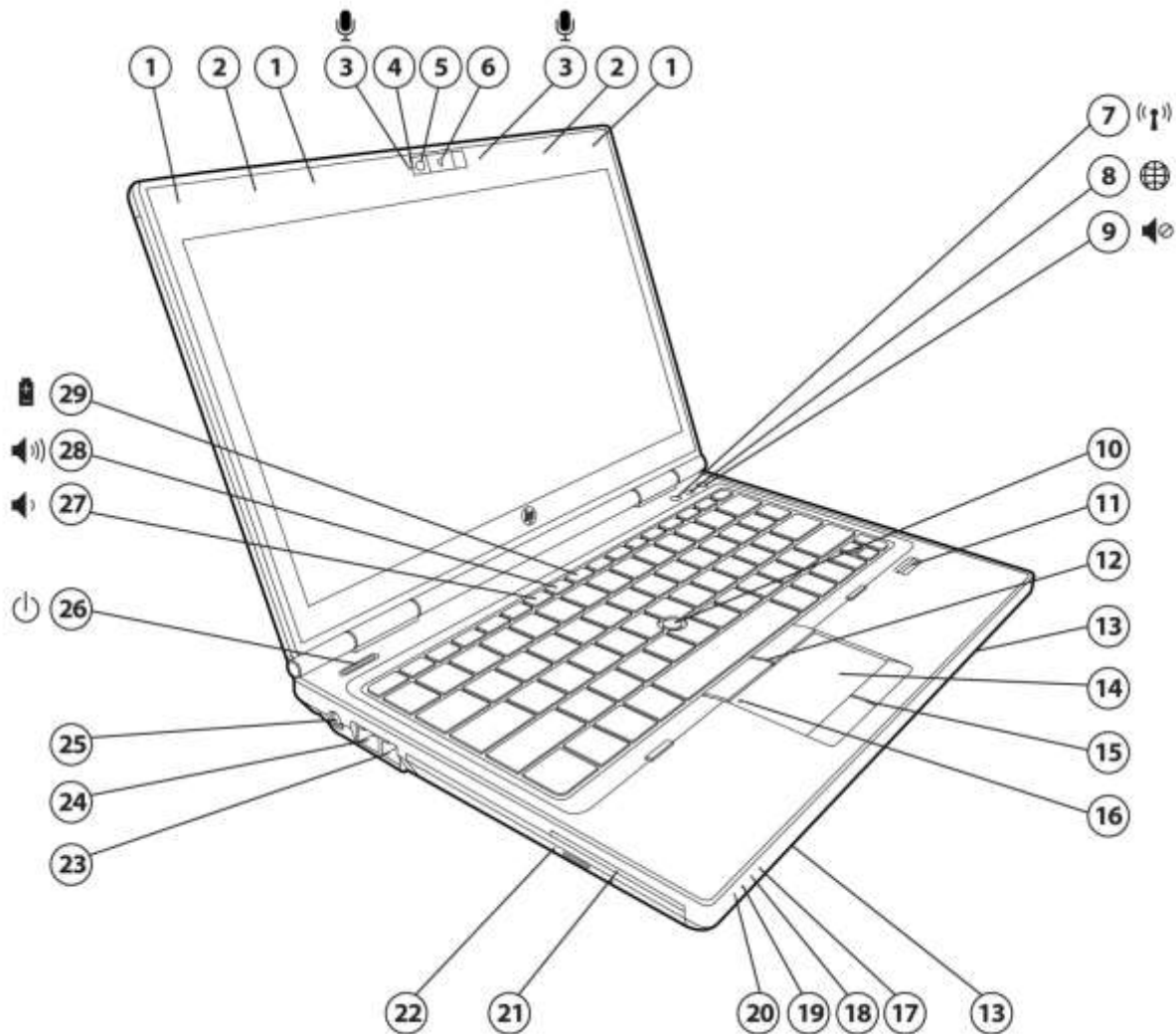


### Overview

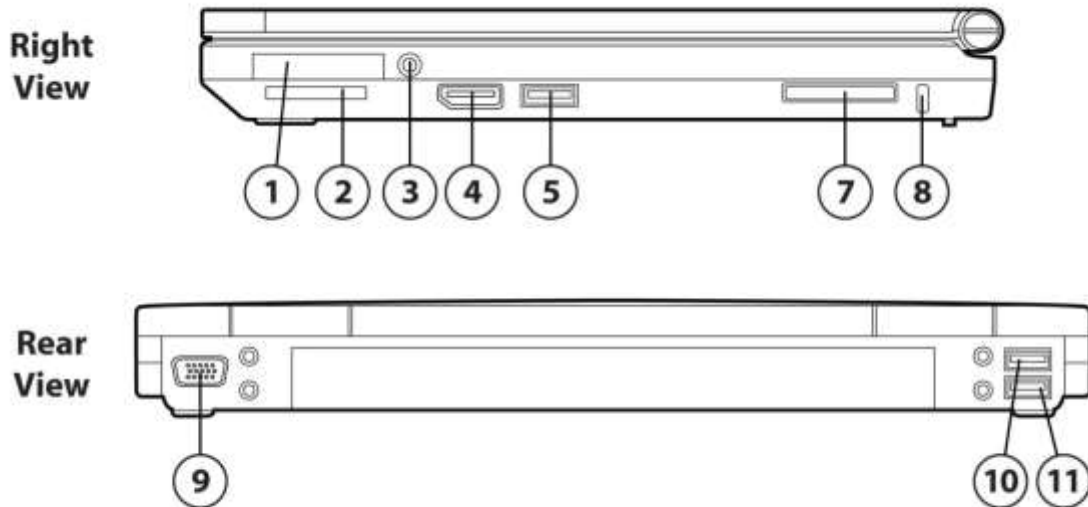
#### HP EliteBook 2570p Notebook PC



- |     |   |     |   |
|-----|---|-----|---|
| 1.  | WLAN antennas (3)                         | 16. | Touchpad on/off button with LED indicator       |
| 2.  | WWAN antennas (2)                         | 17. | Drive activity / HP 3D DriveGuard LED indicator |
| 3.  | Dual-microphone array                     | 18. | Battery charging LED indicator                  |
| 4.  | Webcam LED indicator                      | 19. | Power/standby LED indicator                     |
| 5.  | Optional 720p HD Webcam                   | 20. | Wireless on/off LED indicator                   |
| 6.  | HP Night Light button                     | 21. | Integrated Smart Card Reader                    |
| 7.  | Wireless on/off button with LED indicator | 22. | Optical drive or weight saver                   |
| 8.  | HP QuickWeb button with LED indicator     | 23. | Optional RJ-11/modem port                       |
| 9.  | Volume mute button with LED indicator     | 24. | RJ-45/Ethernet port                             |
| 10. | Pointstick                                | 25. | Power connector                                 |
| 11. | Optional HP Fingerprint Sensor            | 26. | Power button with LED indicator                 |
| 12. | Pointstick buttons (2)                    | 27. | Volume down function key                        |
| 13. | Stereo Speakers                           | 28. | Volume up function key                          |
| 14. | Touchpad with scroll zone                 | 29. | HP Power Assistant function key                 |
| 15. | Touchpad buttons (2)                      |     |   |

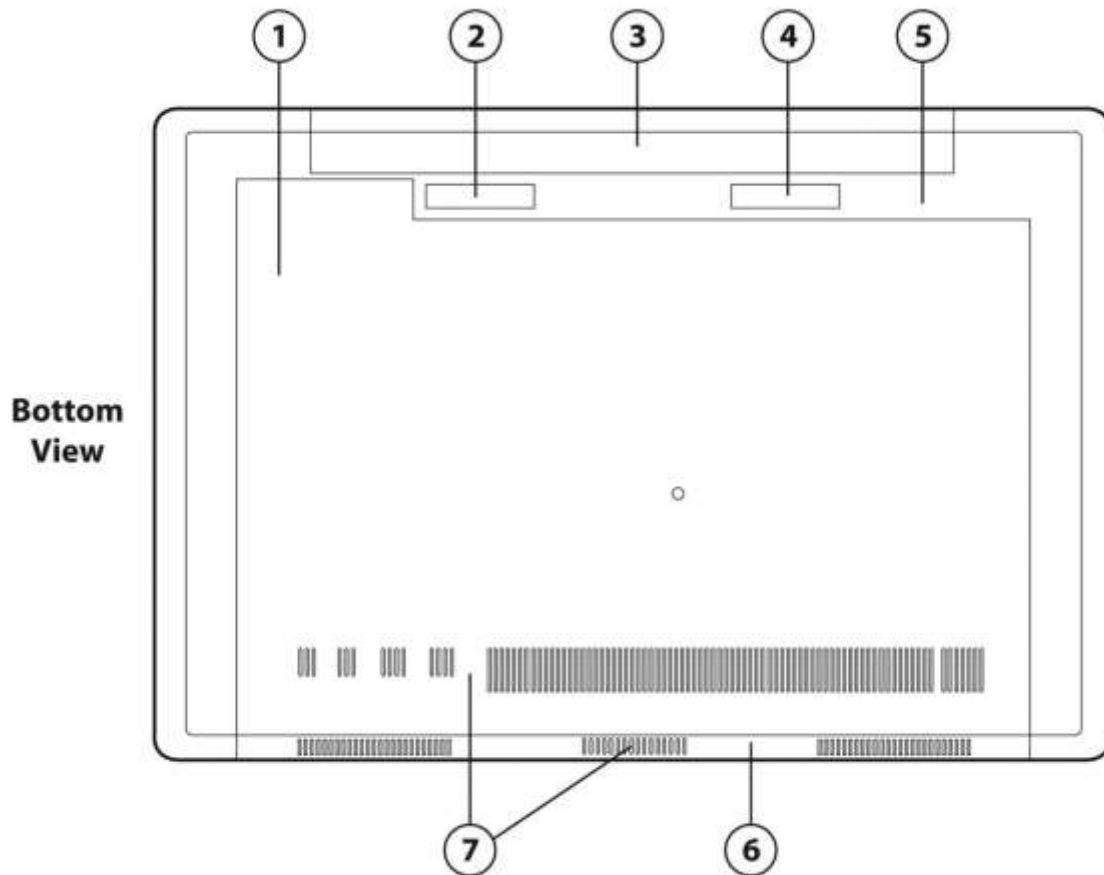


### Overview



- |                                    |   |
|------------------------------------|---|
| 1. ExpressCard/34 slot             | 6. Vent                                       |
| 2. Secure Digital slot             | 7. Docking connector                          |
| 3. Combo headphone/microphone jack | 8. Security Lock slot                         |
| 4. DisplayPort                     | 9. VGA connector (external monitor/projector) |
| 5. eSATA/USB 3.0 combo port        | 10. USB 2.0 charging port                     |
|                                    | 11. USB 3.0 port                              |

### Overview



- |  |   |
|--|---|
| 1. Service cover                               | 5. SIM slot for WWAN (select models) inside battery bay |
| 2. Security screw slot / Service cover release | 6. Bluetooth module compartment                         |
| 3. Battery bay                                 | 7. Vents  |
| 4. Battery release latch                       |   |



### Overview

#### AT A GLANCE

- Genuine Windows 7 versions or FreeDOS
- 12.5-inch diagonal LED-backlit HD display
- Industrial, business rugged HP DuraCase construction features a full magnesium alloy chassis, wear-resistant HP DuraFinish, precision aluminum-alloy hinges, and cast titanium-alloy display latches; designed to meet the military standard Mil-Std-810G for vibration, dust, altitude, and high temperature operation\*
- Spill-resistant keyboard with drains
- Choice of an Intel® Core™ i7, Core i5, or Core i3 standard voltage processor for maximum performance
- Intel vPro technology (optional) enables you to remotely monitor, diagnose, and repair PCs over the network, even if a system's OS is inoperable or it is powered off
- Optional fixed optical drive or weight saver
- Choice of 7200 rpm 2.5-inch hard drive up to 500 GB, with HP 3D DriveGuard protection; 7200 rpm Self-encrypting drive (SED) up to 500 GB, or 128/180 GB Solid State Drive (SSD) or 256 GB SED SSD
- Flexible wireless connectivity options:
  - Optional integrated wireless mobile broadband module support
  - Integrated Intel Centrino® 802.11 a/b/g/n 2x2, 802.11 a/b/g/n 2x2 or b/g/n 1x1 wireless LAN module
  - Bluetooth® v4.0+EDR
- Choice of 9-cell or 6-cell battery, including HP Long Life battery, to customize weight, run-time, and battery life to your needs
- HP Power Assistant to conserve power, increase battery run-time, monitor power needs, and report workforce power consumption
- Integrated Intel HD Graphics 4000
- SRS Premium Sound PRO optimized for high fidelity audio
- Security features including HP ProtectTools, with central management across HP and non-HP client PCs
- Separate launch buttons for easy access to the following features: wireless on/off, HP QuickWeb, and volume mute
- DisplayPort for high resolution support
- Optional HP 2570 Series Docking Station provides additional DisplayPort, eSATA port, four additional USB ports (one charging), audio in/out ports, RJ-45, VGA, power connector, and HP Docking Station Cable Lock
- Optional 720p HD Webcam
- Dual pointing devices (touchpad with scroll zone and pointstick)
- HP Night Light
- ExpressCard/34 slot
- Secure Digital slot
- Low Halogen\*\*, ENERGY STAR qualified and EPEAT Gold Target registered in the U.S. EPEAT status varies by country- please see [epeat.net](http://epeat.net).

\* Testing was not intended to demonstrate fitness for DOD contracts requirements or for military use. Test results are not a guarantee of future performance under these test conditions.

\*\* External power supplies, power cords, cables and peripherals are not Low Halogen. Service parts obtained after purchase may not be Low Halogen.



### Features

#### OPERATING SYSTEM

<b>Preinstalled</b>	Genuine Windows® 7 Professional 32* Genuine Windows 7 Professional 64* Genuine Windows 7 Home Premium 64* FreeDOS
<b>Supported</b>	Genuine Windows 7 Enterprise 32* Genuine Windows 7 Enterprise 64* Genuine Windows 7 Ultimate 32* Genuine Windows 7 Ultimate 64* Genuine Windows 7 Home Basic 64* Genuine Windows XP Professional 32 Novell SUSE Linux Enterprise Desktop SUSE Linux Enterprise Desktop MS WHQL
<b>Certified</b>	

\* 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 [microsoft.com/windows/windows-7/](http://microsoft.com/windows/windows-7/) for details.

#### PROCESSOR

- 3<sup>rd</sup> Generation Intel® Core™ i7-3520M (2.9 GHz, 4 MB L3 cache, 2 cores)  
Up to 3.60 GHz with Intel Turbo Boost Technology
- 3<sup>rd</sup> Generation Intel® Core™ i5-3360M (2.8 GHz, 3 MB L3 cache, 2 cores)  
Up to 3.50 GHz with Intel Turbo Boost Technology
- 3<sup>rd</sup> Generation Intel® Core™ i5-3320M (2.6 GHz, 3 MB L3 cache, 2 cores)  
Up to 3.30 GHz with Intel Turbo Boost Technology
- 3<sup>rd</sup> Generation Intel® Core™ i5-3210M (2.5 GHz, 3 MB L3 cache, 2 cores) †  
Up to 3.10 GHz with Intel Turbo Boost Technology
- 3<sup>rd</sup> Generation Intel® Core™ i3-3110M (2.4 GHz, 3 MB L3 cache, 2 cores) †

† Not available with vPro

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

#### CHIPSET

Mobile Intel QM77 Express (vPro support)

#### 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 7.0 (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 3rd party software in order to run. Availability of future "virtual



### Features

appliances" applications for Intel Core i5 with vPro/Core i7 with vPro technology is dependent on 3rd party software providers. Compatibility with future "virtual appliances" is yet to be determined.

### GRAPHICS

Integrated:  
Intel HD Graphics 4000

### DISPLAY

#### Internal

12.5" diagonal LED-backlit HD 16:9 anti-glare (1366 x 768)  
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 at 75 Hz, and lower resolutions at up to 100 Hz

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

### STORAGE AND DRIVES

#### Primary Storage Bay

##### Hard Drives

##### SATA, 7mm or 9.5mm, 2.5"

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**

##### **2.5" SSD III**

128GB SATA III  
180GB SATA III  
256GB SATA III Self Encrypting Drive

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

### OPTICAL DRIVES

#### **Fixed 9.5 mm SATA optical drive**

DVD+/-RW SuperMulti DL Drive

DVD-ROM Drive

#### **Weight saver**

### MEMORY

#### **Standard**

DDR3 PC3-12800 SDRAM (1600 MHz)  
Two SODIMM slots supporting dual-channel memory  
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. Integrated Bluetooth is also available (factory configurable only) and can be combined with any of the supported wireless LAN and wireless WAN options.

#### Broadband Wireless (WWAN)

HP hs2350 HSPA+ Mobile Broadband Module

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

HP lt2522 LTE/EV-DO Mobile Broadband Module (not available at product introduction) – U.S. only

HP lt2523 LTE/HSPA+ Mobile Broadband Module (not available at product introduction) – U.S./Canada only

#### Wireless LAN (WLAN)

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

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

56K V.92 modem\*\*

\* 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 PRO™

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/line out

Stereo microphone/line in

#### Webcam

Optional 720p HD webcam

- HD format (widescreen)
- Supports videoconferencing and still image capture



### Features

- 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 an industry standard, 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, and 12 function keys. U.S. and International key layouts are available. Other features include an integrated numeric keypad, hotkeys for instant access to power conservation, brightness, and other features, 19 mm x 19 mm key pitch (center-to-center spacing), 2.0 mm stroke, and comfort-dished keycaps.

HP Night Light shines directly on keyboard for low-light conditions

#### Pointing Devices

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

Pointstick with two additional pointstick buttons

#### Buttons and Function Keys

Discrete 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

Buy Office

Skype

Adobe Flash

PDF Complete, Corporate Edition

WinZip Basic

Cyberlink Media Suite

**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.

#### Security

##### Standard

HP ProtectTools

TPM Embedded Security Chip 1.2

Drive Encryption for HP ProtectTools

Smart Card Reader

Security lock slot

##### Optional

HP Fingerprint Sensor

HP Privacy Filter

HP Combo Lock

Microsoft® Security Essentials





### Features

**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: [hp.com/go/security](http://hp.com/go/security).

### POWER

#### Power Supply

External 65W 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).

HP Fast Charge

#### Primary Battery

HP 9-cell Lithium-Ion Battery (100 WHr)  
HP 6-cell Lithium-Ion Battery (62 WHr)  
HP Long Life Battery (6-cell /55 WHr)

#### Battery Life\*

**HP 9-cell Primary Battery** Up to 15 hours and 15 minutes

**HP 6-cell Primary Battery** Up to 9 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 [bapco.com/products/mobilemark2007](http://bapco.com/products/mobilemark2007) for additional details.

**NOTE:** Fast Charge recharges your battery up to 90% within 90 minutes when the system is off. Please note that 9-cell batteries do not support Fast Charge.

#### Power Conservation

Supports enhanced Intel SpeedStep technology (allows Battery Optimized Mode, Maximum Performance Mode, or Automatic mode)

Intel Display Power Saving technology

Hibernation

Standby

ACPI compliance

### ENVIRONMENTAL

ENERGY STAR

IT ECO Declaration

EPEAT Gold where HP registers commercial notebook products. See [epeat.net](http://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



### Features

Starting at 3.92 lbs (1.78 kg) with 6-cell battery and weight saver  
Starting at 4.18 lbs (1.90 kg) with 6-cell battery and lightest optical drive  
Starting at 4.25 lbs (1.93 kg) with 9-cell battery and weight saver  
Starting at 4.51 lbs (2.05 kg) with 9-cell battery and lightest optical drive

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

12.02 x 8.23 x 1.08 in (at front) / 30.5 x 20.9 x 2.7 cm (at front)

**NOTE:** Height varies depending upon where on the notebook the measurement is made. Weight varies by configuration and components. Weight includes battery, lightest hard drive/SSD, 1 SODIMM, and either weight saver or lightest optical drive.

### PORTS/SLOTS

#### **Ports**

VGA – One  
DisplayPort – One (v1.1a)  
Stereo headphone/microphone combo jack – One  
Power Connector – One  
Docking Connector – One  
RJ-45 (Ethernet) – One  
RJ-11 (Modem) – One  
USB 3.0 – One  
USB 2.0 – One charging port  
eSATA/USB 3.0 combo port – One

#### **Digital Media Slots**

1 ExpressCard/34 slot, 1 Secure Digital slot (SD/SDHC/SDXC)

### SERVICE AND SUPPORT

Limited 3-year, 1-year and 90-day warranty options available, 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: [hp.com/go/lookuptool](http://hp.com/go/lookuptool). Additional HP Care Pack Services information by product is available at: [hp.com/services/carepack](http://hp.com/services/carepack).

**NOTE:** Certain restrictions and exclusions apply. Consult the HP Customer Support Center for details. [hp.com/bizsupport/TechSupport/ProductRoot.jsp](http://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>	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 EliteBook 2570p that are ENERGY STAR qualified are identified as HP 2570p ENERGY STAR on HP websites and on [energystar.gov](http://energystar.gov).

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

For accessibility information on HP products, please visit: [hp.com/accessibility](http://hp.com/accessibility).

#### DISPLAYS

<b>12.5-inch LED-backlit HD anti-glare</b>	<b>Active Area (W x H)</b>	10.63 x 6.4 in (27.7 x 15.6 cm)
	<b>Diagonal Size</b>	12.5 in (31.75 cm)
	<b>Surface Treatment</b>	Anti-glare
	<b>Contrast Ratio</b>	400:1 (typical)



### Technical Specifications

<b>Refresh Rate</b>	60 Hz			
<b>Brightness</b>	200 nit (typical)			
<b>Pixel Resolution</b>	<b>Pitch</b>	0.2025 mm		
	<b>Format</b>	1366 x 768		
	<b>Configuration</b>	RGB Stripe		
<b>Backlight</b>	LED			
<b>PPI</b>	125			
<b>Viewing Angle</b>	±30° Horizontal, 30/30/20/10 45/45/35/25 (Left/Right/Down/Up) (typical)	±10° Vertical (Left/Right/Down/Up)	(minimum) (minimum)	SVA or

### STORAGE AND DRIVES

#### Internal Storage

##### 500 GB 7200 rpm SATA Hard Drive

<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 (maximum)</b>	300 MB/s (Drive Capability)	
<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		

##### 500 GB 7200 rpm SMART SATA II Self Encrypting Drive

<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 (maximum)</b>	300 MB/s (Drive Capability)	
<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		



### Technical Specifications

<b>320 GB 7200 rpm SATA Hard Drive</b>	<b>Drive Weight</b>	0.25 lbs (115 g)		
	<b>Capacity</b>	320 GB		
	<b>Height</b>	0.37 in (9.5 mm)		
	<b>Width</b>	2.75 in (70 mm)		
	<b>Interface</b>	ATA-8, SATA 2.6, 3.0 Gb/s, NCQ		
	<b>Transfer Rate</b>	<b>Synchronous (maximum)</b>	300 MB/s (Drive Capability)	
	<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>	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 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 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 3 (6 Gb/s)		
	<b>Performance</b>	<b>Maximum Sequential Read</b>	<b>Maximum Sequential Write</b>	
		Up to 550MB/s	Up to 520MB/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 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		

### 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	



### Technical Specifications

<b>Transfer Mode</b>	UDMA Mode 5
<b>Interface</b>	Gen 1 SATA
<b>Supported Media (read)</b>	CD-DA, CD-TEXT, CD-ROM, CD-ROM XA, MIXED MODE CD, CD-I, CD-I Bridge (Photo-CD, Video CD), Multisession CD (Photo-CD, CD-EXTRA, Portfolio, CD-R, CD-RW), CD-R, CD-RW, DVD-ROM (DVD-5, DVD-9, DVD-10, DVD-18), DVD-R, DVD-RW, DVD+R, DVD+RW, DVD-RAM
<b>Supported Media (write)</b>	CD-R, CD-RW, DVD+R, DVD+RW, DVD-R, DVD-RW, DVD-RAM, DVD+R DL, DVD-R DL
<b>Max Media Capacity (read)</b>	8.5 GB
<b>Max Media Capacity (write)</b>	8.5 GB
<b>Transport</b>	Tray Loading

### SECURITY

<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 Network Connection</b>	<b>Ethernet Features</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 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</b>	ACPI compliant - multiple power modes



### Technical Specifications

	<b>Management</b>	Energy Detect Low Power Mode(Green Ethernet)
	<b>Performance</b>	TCP/IP/UDP Checksum Offload (configurable)
	<b>Features</b>	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
	<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
<b>V.92 56K Data/Fax Modem</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
	<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



### Technical Specifications

<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>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 Complies with 3GPP specifications
<b>Wireless Parametric Standards</b>	
<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

**HP hs2350 HSPA+ Mobile Broadband Module**



### Technical Specifications

	+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
<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 Complies with 3GPP specifications Release 8 for LTE
	<b>Wireless Parametric Standards</b>
	<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)



### Technical Specifications

<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
<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

### HP It2523 LTE/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), 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)
<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
<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)



### 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>	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 Vista and XP (details at: <a href="http://hp.com/go/notebooks/WLAN">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
	<b>Network Architecture Models</b>	Ad-hoc (Peer to Peer) 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<sup>4</sup></b>	54 Mbps: -76 dBm, 6 Mbps: -92 dBm



### Technical Specifications

<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	
	<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. In Power Save Polling mode and on battery power.</li> <li>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).</li> <li>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.</li> </ol>	
<b>802.11a/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 (802.11abg only) Cisco Compatible Extensions Program compliant (802.11abg only) with Microsoft Windows Vista and XP (details at: <a href="http://hp.com/go/notebooks/WLAN">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



### 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 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
<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</b> <sup>3</sup>	270 Mbps: -61 dBm , , 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

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.

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

<b>Wireless LAN Standards</b>	IEEE 802.11b IEEE 802.11g IEEE 802.11n
<b>Interoperability</b>	Wi-Fi certified Cisco Compatible Extensions Program compliant with Microsoft Win7, Vista and XP (details at: <a href="http://hp.com/go/notebooks/WLAN">hp.com/go/notebooks/WLAN</a> )
<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: 6.5, 7.2, 13, 14.4, 19.5, 21.7, 26, 28.9, 39, 43.3, 52, 57.8, 58.5, 65, 72.2Mbps



### Technical Specifications

<b>Frequency Support</b>	20 MHz: 2.4 GHz bands
<b>Modulation</b>	Direct Sequence Spread Spectrum DBPSK, DQPSK, CCK, OFDM, BPSK, QPSK, 16-QAM, 64-QAM
<b>Security<sup>1</sup></b>	Supports 64- and 128-bit WEP, WPA, WPA2, hardware-accelerated AES, 802.1x authentication types EAP-TLS, EAP-TTLS, PEAP-GTC, PEAP-MSCHAPv2, LEAP, EAP-FAST.  Support for Cisco Security Features (proven compatibility with Cisco Aironet infrastructure products through the Cisco Compatible Extensions Program Version 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 (for CCK)<sup>2</sup></b>	17 dBm , nominal
<b>Output Power (for OFDM; power varies by data rate)<sup>2</sup></b>	15 dBm , nominal
<b>Power Consumption</b>	Idle associated: 250 mW avg (CLKREQ enabled) Idle unassociated: 425 mW avg Transmit/Receive 20 MHz channel: 5.5 W (max)
<b>Power Management</b>	ACPI compliant power management 802.11 compliant power saving mode
<b>Receiver Sensitivity<sup>3</sup></b>	150 Mbps: -71 dBm
<b>Antenna type</b>	High efficiency dual band antenna with spatial diversity, usually 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

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 and Win7.](#)





### Technical Specifications

<b>HP Integrated Module with Bluetooth 4.0+EDR Wireless Technology</b>	<b>Bluetooth Specification</b>	2.1+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 Throughput</b>	3 Mbps data rate; throughput up to 2.17 Mbps Synchronous Connection Oriented links up to 3, 64 kbps, voice channels Asynchronous Connection Less links 2178.1 kbps/177.1 kbps asymmetric or 1306.9 kbps symmetric
	<b>Transmit Power</b>	-6 dBm to 4 dBm (Bluetooth Class II)
	<b>Receiver Sensitivity</b>	Better than -80 dBM at 0.1 % raw bit error rate
	<b>Power Consumption</b>	Peak (Tx) 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 -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)	



### 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>1,2,3</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

<b>Audio</b>	<b>SRS Premium Sound PRO</b>	
<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 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>	2 Watts
	<b>Impedance</b>	4 Ohms

### POWER

<b>HP 65W Smart AC Adapter</b>	<b>Dimensions</b>	4.17 x 1.85 x 1.1 in (10.6 x 4.7 x 2.8 cm)		
	<b>Weight</b>	0.62 lb (280 g)		
	<b>Input</b>	<b>Input</b>	100 to 240 VAC	
		<b>Input Efficiency</b>	87% min at 115 VAC	
		<b>Input frequency range</b>	47 to 63 Hz	
		<b>Input AC current</b>	1.7 A at 90 VAC, 0.85 A at 180 VAC	
	<b>Output</b>	<b>Output power</b>	65W	
		<b>DC output</b>	18.5V	



### Technical Specifications

	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, Class1, SELV; Agency approvals - C-UL-US, NORDICS, DENAN, EN55022 Class B, FCC Class B, CISPR22 Class B, CCC, NOM-1 NYCE; MTBF - over 200,000 hours at 25°C ambient condition.		
<b>HP 9-cell (100 WHr) Lithium-Ion Primary battery</b>	<b>Dimensions (H x W x L)</b>	0.8 x 2.4 x 8.1in (2 x 6.6 x 20.5cm)	
	<b>Weight (max)</b>	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	
	<b>Warranty</b>	1 year	
<b>Optional Travel Battery Available</b>	Yes		
<b>HP 6-cell (62 WHr) Lithium-Ion Primary battery</b>	<b>Dimensions (H x W x L)</b>	0.8 x 2.0 x 8.3 in (2.0 x 5.1 x 21.1 cm)	
	<b>Weight (max)</b>	0.72 lb (0.325 kg)	
	<b>Cells/Type</b>	6-cell Lithium-Ion	
	<b>Energy</b>	Watt-hour capacity	62Wh
	<b>Temperature</b>	Operating (Charging)	32° to 113° F (0° to 45° C)
		Operating (Discharging)	14° to 140° F (-10° to 60° C)
Non-operating		-4° to 140° F (-20° to 60° C)	
<b>Battery Re-Charge Time</b>	System in OFF or Standby	2.5 hours	



### Technical Specifications

		Mode	
	<b>Warranty</b>	1 year	
	<b>Optional Travel Battery Available</b>	Yes	
<b>HP 6-cell (55 WHr) Long Life Battery</b>	<b>Dimensions (H x W x L)</b>	0.8 x 1.8 x 8.0in (2.0 x 4.7 x 20.5cm)	
	<b>Weight (max)</b>	.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 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>	3 years	
	<b>Optional Travel Battery Available</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:

US ENERGY STAR  
 IT ECO declaration  
 EPEAT Gold where HP registers commercial notebook products.  
 See [epeat.net](http://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: [hp.com/go/reuse-recycle](http://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:

[hp.com/go/recyclers](http://hp.com/go/recyclers). These instructions may be used by recyclers and other WEEE treatment facilities as well as HP OEM



### Technical Specifications

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

[hp.com/hpinfo/globalcitizenship/gcreport/index.html](http://hp.com/hpinfo/globalcitizenship/gcreport/index.html)

Environment website

[hp.com/environment](http://hp.com/environment)

Eco-label certifications

[hp.com/hpinfo/globalcitizenship/environment/  
productdesign/ecolabels.html](http://hp.com/hpinfo/globalcitizenship/environment/productdesign/ecolabels.html)

ISO 14001 certificates:

[hp.com/hpinfo/globalcitizenship/environment/  
operations/envmanagement.html](http://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	BP848AA
	HP Professional Series Backpack	BP849AA
<b>Docking</b>	HP 2570p Docking Station	A9B77AA
	HP Dual Hinge Notebook Stand	AW661AA
	HP Display and Notebook Stand	AW662AA
<b>Input/Output – Mice</b>	HP 2.4 GHz Wireless Optical Mobile Mouse	LX732AA
	HP Wireless Mobile Mouse	H2L63AA
	HP USB Essential Keyboard/Mouse	H2S75AA
<b>Adapters</b>	HP 90W Slim Adapter	BT796AA
	HP 90W Smart AC/Auto/Air Combo Adapter	AJ652AA
<b>Storage - External Storage</b>	HP Mobile USB DVDRW	A2U57AA
<b>Batteries</b>	HP SX06XL Long Life Notebook Battery	QK644AA
	HP SX09 Notebook Battery	QK645AA
<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	AOX37AA
<b>Security</b>	HP Docking Station Cable Lock	AU656AA

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