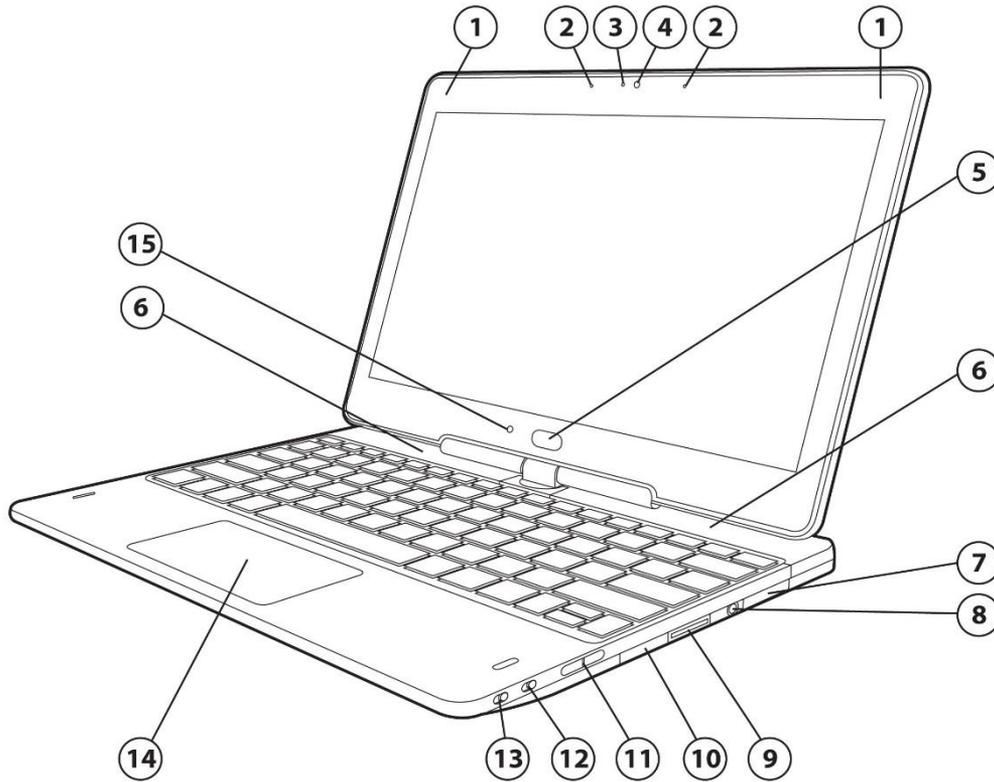


Overview

HP EliteBook Revolve 810 G3

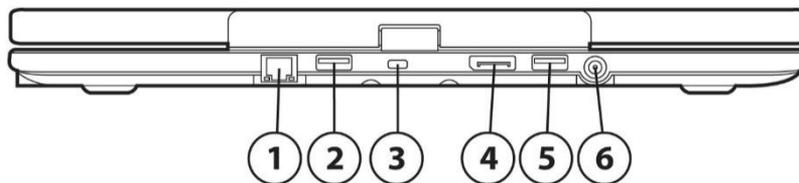


Front, Right

- | | |
|---------------------------|---------------------------|
| 1. WLAN antennas | 9. MicroSD slot |
| 2. Dual-microphone array | 10. Speaker |
| 3. Webcam LED | 11. Volume up/down button |
| 4. 720p HD Webcam | 12. Rotation lock button |
| 5. Home button | 13. Power button |
| 6. WWAN antennas* | 14. Clickpad image sensor |
| 7. Side docking connector | 15. Ambient light sensor |
| 8. Audio jack | |

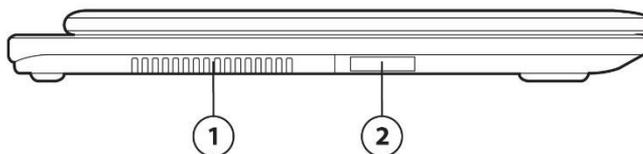
*. WWAN is an optional feature and requires separately purchased service contract. Check with service provider for coverage and availability in your area. Connection speeds will vary due to location, environment, network conditions, and other factors. 4G LTE is not available in models, in all regions.

Overview



Rear

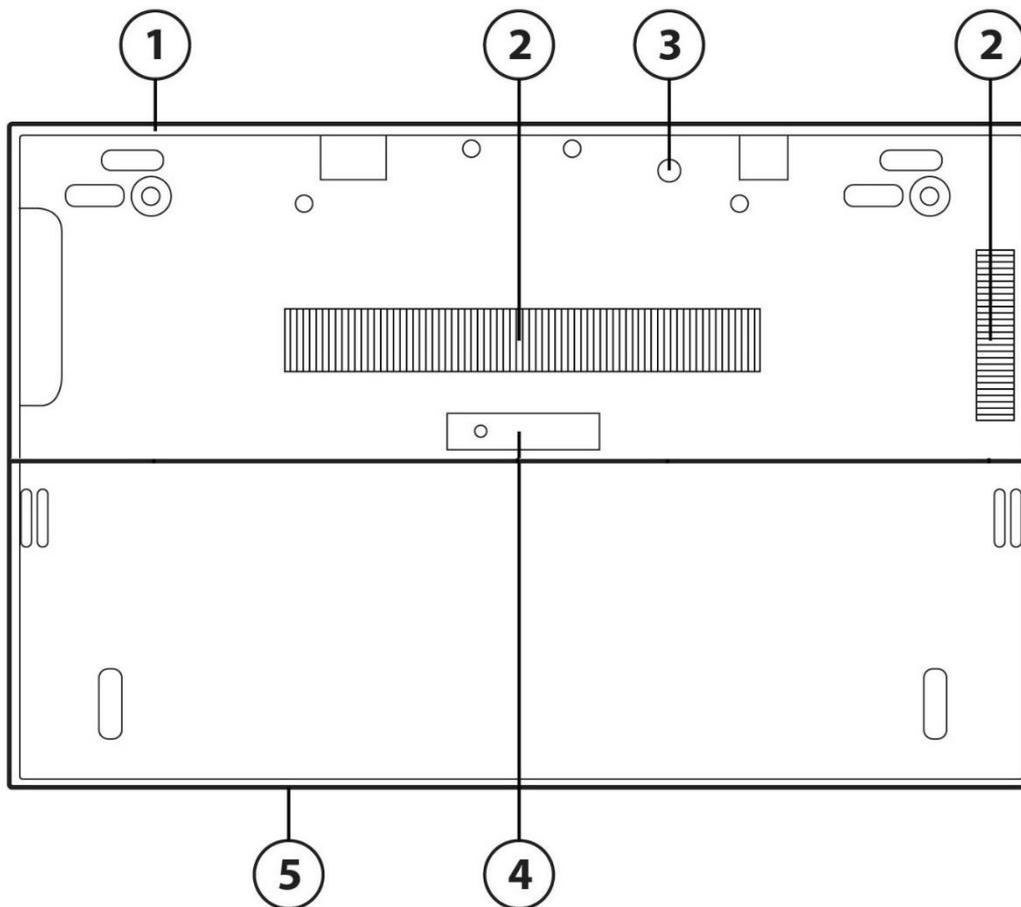
- 1. RJ-45 (Ethernet) jack
- 2. USB 3.0 port
- 3. Security lock slot
- 4. DisplayPort 1.2
- 5. USB 3.0 charging port
- 6. Power connector



Left

- 1. Vent
- 2. Speaker

Overview



1. Service cover
2. Vents
3. Near Field Communication (NFC) antenna

Bottom

4. Battery bay cover release latch
5. Battery bay

Overview

At A Glance

- Choose from versions of Windows 8.1, Windows 7 Professional, or FreeDOS 2.0
- 11.6-inch diagonal LED-backlit, ultra-slim, HD UWVA display (1366 x 768) with capacitive multi-touch screen
- Industrial, business rugged HP DuraCase construction features a full magnesium alloy chassis, wear-resistant HP DuraFinish, and stainless steel hinges
- Full-sized backlit, spill-resistant keyboard with bottom-case drain
- Clickpad image sensor
- Choice of Future 5th Generation Intel® Core™ processors with Turbo Boost Technology
- Intel® vPro™ technology 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 (vPro not available with Core i3-5010, Core i5-5200 or i7-5500)
- Choice of up to 512 GB Solid State Drive or 256 GB SED Solid State Drive
- Supports a broad range of wireless LAN and wireless WAN options, including 4G LTE, for connectivity on the go.
- Battery life up to 12 hours
- 6-cell polymer long life battery (44 WHr)
- Integrated Intel® HD 5500 Graphics
- Integrated 720p HD Webcam
- DTS Studio Sound™ with integrated stereo speakers and dual microphone array
- Security features including HP Client Security, Common Criteria Certified Discrete TPM 1.2 Embedded Security Chip, and security lock slot
- Separate launch buttons for easy access to the following features: Windows, power, rotation lock, volume up and down
- DisplayPort v1.2 for high resolution support
- Optional HP UltraSlim docking station
- Sensors include Gyroscope, Accelerometer, Compass, Ambient Light Sensor, Near Field Communication (NFC)
- microSD slot

NOTE: See important legal disclosures for all listed specs in their respective features sections.

Features

PRODUCT NAME

HP EliteBook Revolve 810 G3 Tablet PC

OPERATING SYSTEM

Preinstalled Windows 8.1 Pro (64-bit)¹
Windows 8.1 (64-bit)¹
Windows 7 Professional (64-bit)¹
Windows 7 Professional (64-bit) (available through downgrade rights from Windows 8.1 Pro 64-bit)²
FreeDOS 2.0

1. Not all features are available in all editions and versions of Windows. Systems may require upgraded and/or separately purchased hardware, drivers and/or software to take full advantage of Windows functionality. See <http://www.microsoft.com/>
2. 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.

PROCESSOR*

Intel® Core™ i7-5500U with Intel HD Graphics 5500 (2.4 GHz, up to 3 GHz with Intel Turbo Boost Technology, 4 MB cache, 2 cores);

Intel® Core™ i5-5300U with Intel HD Graphics 5500 (2.3 GHz, up to 2.9 GHz with Intel Turbo Boost Technology, 3 MB cache, 2 cores);

Intel® Core™ i5-5200U with Intel HD Graphics 5500 (2.2 GHz, up to 2.7 GHz with Intel Turbo Boost Technology, 3 MB cache, 2 cores);

Intel® Core™ i3-5010U with Intel HD Graphics 5500 (2.1 GHz, 3 MB cache, 2 cores)

* 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 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.

** Intel® Turbo Boost technology requires a PC with a processor with Intel Turbo Boost capability. Intel Turbo Boost performance varies depending on hardware, software and overall system configuration. See www.intel.com/technology/turboboost for more information.

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

CHIPSET

Chipset is integrated with processor

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 9.0 (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

Features

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 this technology, such as Intel® Active management technology and Intel Virtualization technology, requires additional 3rd party software in order to run. Availability of future "virtual appliances" applications for Intel vPro technology is dependent on 3rd party software providers. Microsoft Windows required.

GRAPHICS

Intel® HD Graphics 5500

DISPLAY

Internal

11.6-inch diagonal LED-backlit HD* UWVA Touch (1366 x 768)

- Ultra- Wide-viewing angle
- LVDS – low voltage differential signaling
- Capacitive multitouch screen with digitizer
- Tough, durable Corning® Gorilla® Glass 3

* HD content required to view HD images.

External

Up to 32-bit per pixel color depth

DisplayPort v1.2

Supports resolutions up to 3840 x 2160, 30-bit color depth at 60 Hz, and full HD (1920 x 1080) monitors, 24-bit color depth at 120 Hz

Number of Supported Displays

Number of Displays with 2013 UltraSlim Docking Station	UMA	Discrete
EliteBook Revolve 810 G3	3	n/a

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

STORAGE AND DRIVES

Solid State Drive

128 GB SATA-3 Solid State Drive

180 GB SATA-3 Solid State Drive

180 GB SATA-3 Self-Encrypting Drive

256 GB SATA-3 Solid State Drive

256 GB SATA-3 Self-Encrypting Drive

512 GB SATA-3 Solid State Drive

NOTE: For hard drives and solid state drives, GB = 1 billion bytes. Actual formatted capacity is less. Up to 16 GB (for Windows

Features

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

MEMORY

Standard

DDR3L, PC3L-12800 SDRAM (1600 MHz)

One SODIMM slot supporting up to 8 GB dual-channel memory plus 4 GB soldered down

Supports

4 GB Total System Memory (4 GB on motherboard)

8 GB Total System Memory (4 GB on motherboard + 4 GB DIMM)

12 GB Total System Memory (4 GB on motherboard + 8 GB DIMM)

Maximum

Upgradeable to 12 GB

NOTE: Maximum memory capacities assume Windows 64-bit operating systems. With Windows 32-bit operating systems, memory above 3 GB may not all be available due to system resource requirements.

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.

NETWORKING/COMMUNICATIONS

LOCAL AREA NETWORK (LAN)

Integrated Intel® 1218LMGigabit* Network Connection (vPro configurations)

WIRELESS

Support for a broad range of secure, integrated wireless LAN and wireless WAN options featuring support for the latest industry standards. Integrated Bluetooth® is also available as both a factory configurable and after-market option and can be combined with any of the supported wireless LAN and wireless WAN options.

WWAN** (Mobile Broadband) options

HP hs3110 HSPA+ Intel® Mobile Broadband Module

HP lt4112 LTE/HSPA+ Gobi™ 4G Mobile Broadband Module

HP lt4211 LTE/EV-DO/HSPA Qualcomm® Gobi™ 4G Mobile Broadband Module

Wireless LAN (WLAN)***

Intel® 7265 AC 802.11 ac (2x2) Bluetooth® 4.0 Combo

Intel® 7265N 802.11 a/b/g/n (2x2) Bluetooth® 4.0 Combo

COMMUNICATIONS

Intel® Wireless Display (WiDi)*****

Intel® WiDi technology enables users to stream content wirelessly from a compatible computer to a projector, TV or monitor.

Near Field Communication (NFC)

* 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.

** WWAN is an optional feature and requires wireless data service contract, network support, and is not available in all areas. Contact your service provider to determine the coverage area and availability. Connection speeds will vary based on location,

Features

environment, network conditions and other factors. 4G LTE is not available in all models, all regions.

***Wireless access point and Internet service is required and is not included. Availability of public wireless access points limited.

***** Integrated Intel® Wi-Di Display is available on select configurations only and requires a separate projector, TV or monitor with an integrated or external Wi-Di receiver. For more information on Intel® Wi-Di Display visit www.intel.com/go/wirelessdisplay.

AUDIO/MULTIMEDIA

Audio

DTS Studio Sound™

Integrated stereo speakers

Integrated microphone (dual-microphone array)

Buttons for volume up and down

Headphone/microphone combo jack

Webcam

Integrated 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

* HD content required to view HD images.

KEYBOARDS/POINTING DEVICES/BUTTONS & FUNCTION KEYS

Keyboard

The HP backlit, 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.

Pointing Devices

Clickpad image sensor

Multitouch gestures enabled

Taps enabled as default

Buttons and Function Keys

F1 - Ambient Light Sensor

F2 - Battery Gauge

F3 - Sleep

F4 - Display Switching

F5 - Speaker Mute

F6 - Volume Down

F7 - Volume Up

F8 - mic mute

Features

- F9 - Brightness Down
- F10 - Brightness Up
- F11 - Backlit
- F12 - WiFi toggle

SENSORS

- Gyro
- Accelerometer
- ALS
- Proximity (SAR)
- Compass

SOFTWARE AND SECURITY

Preinstalled Software with Windows Operating System

BIOS

- Absolute Data Protect (Windows 8.1 only)²
- HP BIOSphere¹
- HP Sure Start²
- HP DriveLock | HP Automatic DriveLock
- HP BIOS Protection³
- HP Disk Sanitizer⁴
- HP SpareKey⁵
- BIOS Update via Network
- Master Boot Record Security
- Power On Authentication
- Pre-Boot Security
- Secure Erase⁶
- Hybrid Boot (Windows 8.1 only)
- Measure Boot (Windows 8.1 only)
- Secure Boot (Windows 8.1 only)
- Absolute Persistence Module⁷

MultiMedia

- Cyberlink Power DVD, BD
- Cyberlink Power2Go (Secure Burn)
- Cyberlink YouCam BE (Windows 7 only)

Communication

- HP GPS and Location (Windows 7 only)⁸
- HP Connection Manager with support for HP Mobile Connect (Windows 7 only)⁹
- HP Mobile Connect (Windows 8.1 only)
- HP Wireless Hotspot (Windows 8.1 only)¹⁰
- Intel® Wireless Display (WiDi) Software for Windows¹¹
- HP Roaming Alert (Windows 8.1 only)
- Native Miracast Support¹²

HP Value Add Software

- HP 3D DriveGuard
- HP ePrint Driver¹³
- HP Hotkey
- HP PageLift
- HP Recovery Manager (Windows 7 only)
- HP Recovery Disc Creator (Windows 7 only)
- HP Registration App (Windows 8.1 only)

Features

HP Support Assistant

3rd Party

Foxit PhantomPDF Express for HP
Netflix Application (Windows 8.1 only)

Microsoft Products

Buy Office
Bing Search
Skype¹⁴

Manageability

HP Driver Packs¹⁵
HP SoftPaq Download Manager (SDM)
HP System Software Manager (SSM)¹⁵
HP BIOS Config Utility (BCU)¹⁵
HP Client Catalog¹⁵
HP CIK for Microsoft SCCM¹⁵
LANDESK Management¹⁶

For more information on HP Client Management Solutions refer to: <http://www.hp.com/go/clientmanagement>.

Client Security Software

Absolute Data Protect (Windows 8.1 only)
Absolute Persistence Module
HP Device Access Manager
HP Drive Encryption¹⁷
HP File Sanitizer¹⁸
HP Security Manager
HP SpareKey
Microsoft Security Essentials (Windows 7 only)¹⁹
Microsoft Defender (Windows 8.1 only)¹⁹

Standard

TPM 1.2
Security lock slot
Pre-boot Authentication

For more information on HP Client Security Software Suite, refer to <http://www.hp.com/go/clientsecurity>.

1. HP BIOSphere features may vary depending on the PC platform & configuration.
2. Absolute Data Protect software is preloaded, subscription required. See <http://www.absolute.com/landing/2012/computrace-hp> for complete details. Absolute Data Protect agent is shipped turned off, and must be activated by customers. Service may be limited, check with Absolute for availability outside the U.S. The optional subscription service of Absolute Recovery Guarantee is a limited warranty. Certain conditions apply. For full details visit: <http://www.absolute.com/company/legal/agreements/computrace-agreement>. If Data Delete is utilized, the Recovery Guarantee payment is null and void. In order to use the Data Delete service, customers must first sign a Pre-Authorization Agreement and either create a PIN or purchase one or more RSA SecurID tokens from Absolute Software.
3. HP BIOS Protection requires a HPTools partition for automatic recovery
4. For the use cases outlined in the DOD 5220.22-M Supplement. Does not support solid state drives and requires Windows.
5. Requires initial user set up.

Features

6. For the methods outlined in the National Institute of Standards and Technology Special Publication 800-88.
7. BIOS Absolute Persistence module is shipped turned off, and will be activated when customers purchase and activate a subscription. Service may be limited. Check with Absolute for availability outside the U.S. The optional subscription service of Absolute Recovery Guarantee is a limited warranty. Certain conditions apply. For full details visit: <http://www.absolute.com/company/legal/agreements/computrace-agreement>. If Data Delete is utilized, the Recovery Guarantee payment is null and void. In order to use the Data Delete service, customers must first sign a Pre-Authorization Agreement and either create a PIN or purchase one or more RSA SecurID tokens from Absolute Software.
8. GPS access requires an unobstructed path to multiple satellites. Performance may be affected if/when used inside of buildings, bridges or heavily congested metropolitan areas. Requires separately purchased GPS navigation software available from multiple GPS applications.
9. HP Mobile Connect service requires a compatible CDMA or HSPA mobile broadband module and prepaid service purchase. Find coverage and availability for your service area at hp.com/go/mobileconnect. Available in EMEA only.. For geographic
10. The HP Wireless Hotspot application requires an active internet connection and separately purchased data plan. While HP wireless hotspot is active, on-device applications will continue to work and will use the same data plan as the wireless hotspot. Wireless hotspot data usage may incur additional charges. Check with your service provider for plan details. Requires Windows 8.1 or HP Connection Manager for Windows 7
11. Integrated Intel Wi-Di feature is available on select configurations only and requires separately purchased projector, TV or computer monitor with an integrated or external Wi-Di receiver. External Wi-Di receivers connect to the projector, TV or computer monitor via a standard HDMI cable, also sold separately.
12. Miracast is a wireless technology your PC can use to project your screen to TVs, projectors, and streaming media players that also support Miracast. You can use Miracast to share what you're doing on your PC and present a slide show. For more information: <http://windows.microsoft.com/en-us/windows-8/project-wireless-screen-miracast>
13. Requires an Internet connection to HP web-enabled printer and HP ePrint account registration (for a list of eligible printers, supported documents and image types and other HP ePrint details, see www.hp.com/go/businessmobileprinting).
14. Skype is not offered in China.
15. Not preinstalled, however available on manageability website.
16. LANDesk is an optional feature sold separately. Managed devices must be connected to the management server. Location based functionality requires active LANDesk maintenance service. Wipe functionality performs a "Windows 8 Reset" and requires Windows 8. Lock performs a Windows "Lock Computer."
17. Data is protected prior to Drive Encryption login. Turning the PC off or into hibernate logs out of Drive Encryption and prevents data access. Requires Windows.
18. Managed devices must be connected to the management server. Location based functionality requires active LANDesk maintenance service. Wipe functionality performs a "Windows 8 Reset" and requires Windows 8. Lock performs a Windows "Lock Computer."
19. Opt in and internet connection required for updates.

POWER

Power Supply

HP 45W Smart AC Adapter

HP 65W EM Smart AC Adapter (Asia, PRC, India only)

Power cord is configurable; either 3.2 feet or 6 feet (1.0 or 1.8 meter)

Primary Battery

HP 6-cell polymer battery (44WHr)

Battery Life

Features

Up to 12 hours¹

1. Windows 8 MM12 battery life will vary depending on various factors including 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 www.bapco.com for additional details.

System Standby Time

TBD

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

Eco-Label Certifications & declarations

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:

IT ECO declaration

US ENERGY STAR®

EPEAT Gold registered in the United States. See <http://www.epeat.net> for registration status in your country.

System Configuration

The configuration used for the Energy Consumption and Declared Noise Emissions data for the Notebook model is based on a “Typically Configured Notebook”.

Energy Consumption (in accordance with US ENERGY STAR® test method)

	115VAC, 60Hz	230VAC, 50Hz	100VAC, 60Hz
Normal Operation (Sort idle)	3.91 W	4.11 W	4.00 W
Normal Operation (Long idle)	2.23 W	2.41 W	2.35 W
Sleep	0.62 W	0.75 W	0.61 W
Off	0.39 W	0.51 W	0.38 W

Note:

Energy efficiency data listed is for an ENERGY STAR® compliant product if offered within the model family. HP computers marked with the ENERGY STAR® Logo are compliant with the applicable U.S. Environmental Protection Agency (EPA) ENERGY STAR® specifications for computers. If a model family does not offer ENERGY STAR® compliant configurations, then energy efficiency data listed is for a typically configured PC featuring a hard disk drive, a high efficiency power supply, and a Microsoft Windows® operating system.

Heat	115VAC, 60Hz	230VAC, 50Hz	100VAC, 60Hz
------	--------------	--------------	--------------

Features

Dissipation*

Normal Operation (Short idle)	13 BTU/hr	14 BTU/hr	14 BTU/hr
Normal Operation (Long idle)	8 BTU/hr	8 BTU/hr	8 BTU/hr
Sleep	2 BTU/hr	3 BTU/hr	2 BTU/hr
Off	2 BTU/hr	2 BTU/hr	1 BTU/hr

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

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

Sound Power (L_{WA}d, bels)

Sound Pressure (L_{pAm}, decibels)

Typically Configured – Idle	2.9	21
Fixed Disk – Random writes	2.9	29

Longevity and Upgrading

This product can be upgraded, possibly extending its useful life by several years. Upgradeable features and/or components contained in the product may include:

- 3 USB ports
- 1 PC card slot (type I/II)
- 1 ExpressCard/54 slot
- 1 IEEE 1394 Port
- 2 SODIMM memory slots
- Optional expansion base docking station
- 1 multi-bay II storage port
- Interchangeable HDD??

<edit list of features as required>

Spare parts are available throughout the warranty period and or for up to “5” years after the end of production.

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 1ppm by weight

Cadmium greater than 20ppm by weight

Battery size: CR2032 (coin cell)

Battery type: Lithium

Battery size: 6-cell high capacity Lithium-Ion battery (optional 8 cell available)

Battery type:

Features

Additional Information

This product is in compliance with the Restrictions of Hazardous Substances (RoHS) directive - 2011/65/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

Plastics parts weighing over 25 grams used in the product are marked per ISO11469 and ISO1043.

This product contains 30.6 % post-consumer recycled plastic (by wt.)

This product is 92.4 % recycle-able when properly disposed of at end of life.

Packaging Materials

External:	PAPER/Paper	349 g
Internal:	PLASTIC/EPE (Expanded Polyethylene)	37 g
	PLASTIC/Polyethylene	3 g

The plastic packaging material contains at least 30 % recycled content.
 The corrugated paper packaging materials contains at least 30 % recycled content.

Material Usage

This product does not contain any of the following substances in excess of regulatory limits (refer to the HP General Specification for the Environment at <http://www.hp.com/hpinfo/globalcitizenship/environment/pdf/qse.pdf>):

- 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
- Nickel – finishes must not be used on the external surface designed to be frequently handled or carried by the user.
- 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)

Features

Packaging Usage

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.

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/qcreport/index.html>

Eco-label certifications

<http://www8.hp.com/us/en/hp-information/environment/ecolabels.html>

ISO 14001 certificates:

http://www.hp.com/hpinfo/globalcitizenship/environment/pdf/PC_GBU_Product_Design_ISO_14K_Certificate.pdf

and

<http://www.hp.com/hpinfo/globalcitizenship/environment/pdf/cert.pdf>

WEIGHTS & DIMENSIONS

Weight

Starting at 3.08 lbs (1.40 kg)

Weight varies by configuration and components.

Dimensions (w x d x h)

11.22 x 8.35 x 0.87 in (at front)

285 x 212 x 22.2 mm (at front)

PORTS/SLOTS

Ports

(1) USB 3.0 Port

(1) USB 3.0 Charging Port

(1) Display Port 1.2

(1) RJ-45 / Ethernet

(1) Headphone/MIC jack

(1) Side docking connector

Features

(1) Power connector

Digital Media Slots

microSD Media Reader Slot - supports SD, SDHC, SDXC

SERVICE AND SUPPORT

HP Services offers 3-year, 1-year and 90 day limited warranty options depending on country. Batteries have a default one year limited warranty except for Long Life batteries which will have same 1-year or 3-year limited warranty as the platform. On-site service and extended coverage is also available. HP Care Pack Services are optional extended service contracts that go beyond the standard limited 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/cpc>. *Sold separately or as an optional feature.

** Service levels and response times for HP Care Services may vary depending on your geographic location. Service starts on date of hardware purchase. Restrictions and limitations apply. For details, visit www.hp.com/go/cpc

Technical Specifications

SYSTEM UNIT - TBD

DISPLAYS

11.6-inch diagonal LED HD (1366 x 768)	Active Area	9.88 x 5.67 in (25.61 x 14.40 cm)		
	Dimensions (W x H)	11.53 x 6.49 in (29.3 x 16.5 cm)		
	Diagonal Size	11.6 in (29.46 cm)		
	Contrast Ratio	300:1 (typical)		
	Refresh Rate	60 Hz		
	Brightness	400 nit (typical)		
	Pixel Resolution	Format	1366 x 768	
		Configuration	RGB Stripe	
	Backlight	LED		
	Viewing Angle	40/40/15/30 (Left/Right/Down/Up) (typical)		

STORAGE AND DRIVES

Internal Storage

128 GB* M.2 Solid State Drive	Drive Weight	Up to 10 grams		
	Capacity	128 GB		
	Height	0.091 in (2.3 mm)		
	Width	0.87 in (22 mm)		
	Interface	SATA 3 (6 Gb/s)		
	Performance	Maximum Sequential Read	Maximum Sequential Write	
		Up to 500 MB/s	Up to 300 MB/s	
	Logical Blocks	250,069,680		
Operating Temperature	32° to 158°F (0° to 70°C) [case temp]			
Features	ATA Security; ATA-8; SATA 3.0; DIPM; TRIM			
180 GB* M.2 Solid State Drive	Drive Weight	Up to 10 grams		
	Capacity	180 GB		
	Height	0.091 in (2.3 mm)		
	Width	0.87 in (22 mm)		
	Interface	SATA Gen 3 (6 Gb/s)		
	Performance	Maximum Sequential Read	Maximum Sequential Write	
		Up to 510 MB/s	Up to 470 MB/s	
	Logical Blocks	351,651,888		
Operating Temperature	32° to 158°F (0° to 70°C) [case temp]			
Features	ATA Security; ATA-8, SATA 3.0; DIPM; TRIM			
Security Features	TCG Opal 1 compliant			
256 GB* M.2 Solid State Drive	Drive Weight	Up to 10 grams		
	Capacity	256 GB		
	Height	0.091 in (2.3 mm)		
	Width	0.87 in (22 mm)		

Technical Specifications

Interface	SATA Gen 3 (6 Gb/s)	
Performance	Maximum Sequential Read	Maximum Sequential Write
	Up to 510 MB/s	Up to 465 MB/s
Logical Blocks	500,118,192	
Operating Temperature	32° to 158°F (0° to 70°C) [case temp]	
Features	ATA Security; ATA-8, SATA 3.0; DIPM; TRIM	
Security Features	TCG Opal 2 compliant	

180 GB* M.2 SED Solid State Drive

Drive Weight	10 Grams	
Capacity	180 GB	
Height	0.091 in (2.3 mm)	
Width	0.87 in (22 mm)	
Interface	SATA 3 (6 Gb/s)	
Performance	Maximum Sequential Read	Maximum Sequential Write
	Up to 540 MB/s	Up to 490 MB/s
Logical Blocks	351,651,888	
Operating Temperature	32° to 158°F (0° to 70°C) [case temp]	
Features	ATA Security; ATA-8, SATA 3.0; DIPM; TRIM; TCG Opal 1.0	

512 GB SATA-3 Solid State Drive

Drive Weight	0.0154 lb (7g)	
Capacity	512 GB	
Height	0.09 in (2.38mm)	
Width	0.87 in (22mm)	
Interface	ATA-8, SATA 3.0	
Performance	Maximum Sequential Read	Maximum Sequential Write
	Up to 450 MB/s	Up to 400 MB/s
Logical Blocks	1,000,215,216	
Operating Temperature	32° to 158°F (0° to 70°C) [ambient temp]	
Features	ATA Security, DIPM; TRIM; DEVSLP	

* For solid state drives, GB = 1 billion bytes. TB = 1 trillion bytes. Actual formatted capacity is less. Up to 16 GB (for Windows 7) and 30 GB (for Windows 8.1) of system disk is reserved for the system recovery software.

Technical Specifications

NETWORKING/COMMUNICATIONS

HP hs3110HSPA+ Mobile Broadband Module*

Technology/Operating bands	HSPA+: 2100 (Band1), 1900 (Band 2), 1700 (Band 4), 850 (Band 5), 900 (Band 8) MHz E-GPRS: 1900 (Band 2), 1800 (Band 3), 850 MHz (Band 5), 900 (Band 8) MHz
Wireless protocol standards	E-GPRS: Class B, Multi-slot class 33, coding schemes CS1 - CS4 and MSC1 - MSC9. UMTS/WCDMA: Release 99 and Release 7
GPS	Standalone, A-GPS
GPS bands	1575.42 MHz ± 1.023 MHz, GLONASS 1596-1607MHz
Maximum data rates	HSPA+: 21.6 Mbps (Download), 5.76 Mbps (Upload) HSPA: 7.2 Mbps (Download), 5.76 Mbps (Upload) WCDMA PS: 384 kbps (Download), 384 kbps (Upload) WCDMA CS: 64 kbps (Download), 64 kbps (Upload) E-GPRS: 296 kbps (Download), 236.8 kbps (Upload) GPRS: 107 kbps (Download), 85.6 kbps (Upload)
Maximum output power	HSPA+: 24 dBm E-GPRS 1800/1900: 26 dBm E-GPRS 850/900: 27 dBm GPRS 1800/1900: 30 dBm GPRS 850/900: 33 dBm
Maximum power consumption	2500 mA (peak); 600 mA (average)
Form Factor	M.2, 3042-S3 Key B
Weight	6 g
Dimensions (Length x Width x Thickness)	1.65 x 1.18 x 0.09 in (42 x 30 x 2.3 mm)

* Mobile Broadband is an optional feature. Connection requires wireless data service contract, network support, and is not available in all areas. Contact service provider to determine the coverage area and availability. Connection speeds will vary due to location, environment, network conditions, and other factors.

HP lt4112 LTE/HSPA+ Gobi™ 4G Mobile Broadband Module *

Technology/Operating bands	LTE: 2100 (Band 1), 1900 (Band 2), 1800 (Band 3), 850 (Band 5), 2600 (Band 7), 900 (Band 8), 800 MHz (Band 20, DD800) MHz HSPA+: 2100 (Band 1), 1900 (Band 2), 850 (Band 5), 900 (Band 8) MHz E-GPRS: 1900 (Band 2), 1800 (Band 3), 850 (Band 5), 900 (Band 8) MHz
Wireless protocol standards	3GPP Release 8 LTE Specification WCDMA R99, 3GPP Release 5, 6 and 7 UMTS Specification E-GPRS: Class B, Multi-slot class 33, coding schemes CS1 - CS4 and MSC1 - MSC9
GPS	Standalone, A-GPS
GPS bands	1575.42 MHz ± 1.023 MHz, GLONASS 1596-1607MHz
Maximum data rates	LTE: 100 Mbps (Download), 50 Mbps (Upload) DC-HSPA+: 42 Mbps (Download), 5.76 Mbps (Upload) HSPA+: 21.6 Mbps (Download), 5.76 Mbps (Upload) EDGE: 236.8 kbps (Download), 236.8 kbps (Upload) GPRS: 85.6 kbps(Download), 85.6 kbps (Upload)
Maximum output power	LTE: 23 dBm HSPA+: 23.5 dBm E-GPRS 1900/1800: 26.5 dBm E-GPRS 900/850: 27.5 dBm GPRS 1900/1800: 29.5 dBm

Technical Specifications

	GPRS 900/850: 32.5 dBm
Maximum power consumption	LTE: 1,200 mA (peak); 900 mA (average) HSPA+: 1,100 mA (peak); 800 mA (average) E-GPRS: 2,800 mA (peak); 700 mA (average)
Form Factor	M.2, 3042-S3 Key B
Weight	6 g
Dimensions (Length x Width x Thickness)	1.65 x 1.18 x 0.09 in (42 x 30 x 2.3 mm)

* Mobile Broadband is an optional feature. Connection requires wireless data service contract, network support, and is not available in all areas. Contact service provider to determine the coverage area and availability. Connection speeds will vary due to location, environment, network conditions, and other factors. 4G LTE not available on all products or in all countries.

HP It4211 LTE/EV-DO/HSPA+ Gobi™ 4G Mobile Broadband Module

Technology/Operating bands	LTE: 1900 (Band 2), 1700/2100 (Band 4), 850 (Band 5), 700 (Band 13 upper SMH), 700 (Band 17 lower SMH), 1900 MHz (Band 25, extended PCS) MHz HSPA+: 2100 (Band 1), 1900 (Band 2), 1700/2100 (Band 4), 850 (Band 5), 900 (Band 8) MHz E-GPRS: 1900 (Band 2), 1800 (Band 3), 850 (Band 5), 900 (Band 8) MHz EV-DO: 800 (BC0), 1900 (BC1) MHz
Wireless protocol standards	3GPP Release 8 LTE Specification WCDMA R99, 3GPP Release 5, 6 and 7 UMTS Specification E-GPRS: Class B, Multi-slot class 33, coding schemes CS1 - CS4 and MSC1 - MSC9 EVDO Release 0 and Release A
GPS	Standalone, A-GPS
GPS bands	1575.42 MHz ± 1.023 MHz, GLONASS 1596-1607MHz
Maximum data rates	LTE: 100 Mbps (Download), 50 Mbps (Upload) DC-HSPA+: 42 Mbps (Download), 5.76 Mbps (Upload) HSPA+: 21.6 Mbps (Download), 5.76 Mbps (Upload) EDGE: 236.8 kbps (Download), 236.8 kbps (Upload) GPRS: 85.6 kbps(Download), 85.6 kbps (Upload) CDMA 1x: DL 153.6 kbps/UL 153.6 kbps EVDO Rev.A: DL 3.1 Mbps/UL 1.8 Mbps
Maximum output power	LTE: 23 dBm HSPA+: 23.5 dBm E-GPRS 1900/1800: 26.5 dBm E-GPRS 900/850: 27.5 dBm GPRS 1900/1800: 29.5 dBm GPRS 900/850: 32.5 dBm CDMA/EVDO: 24dBm
Maximum power consumption	LTE: 1,200 mA (peak); 900 mA (average) HSPA+: 1,100 mA (peak); 800 mA (average) E-GPRS: 2,800 mA (peak); 700 mA (average) EVDO: 1000mA (peak); 720mA (average)
Form Factor	M.2, 3042-S3 Key B
Weight	6 g
Dimensions (Length x Width x Thickness)	1.65 x 1.18 x 0.09 in (42 x 30 x 2.3 mm)

* Mobile Broadband is an optional feature. Connection requires wireless data service contract, network support, and is not available in all areas. Contact service provider to determine the coverage area and availability. Connection speeds will vary due to location, environment, network conditions, and other factors. 4G LTE not available on all products or in all countries.

Intel Dual Band Wireless- AN 7265 802.11 a/b/g/n (2x2) WiFi + Bluetooth 4.0 Combo Adaptor*	Wireless LAN Standards	IEEE 802.11a IEEE 802.11b IEEE 802.11g IEEE 802.11n
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Technical Specifications

Interoperability	Wi-Fi certified
Frequency Band	802.11b/g/n <ul style="list-style-type: none"> ● 2.402 – 2.482 GHz <p>Note: The FCC has declared as of January 1, 2015 products that utilize passive scanning on channel 12/13 and are capable of transmitting must fully comply with requirements of 15.247 or otherwise disable those channels</p>
	802.11a <ul style="list-style-type: none"> ● 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 <p>Note: Indonesia only supports 5.725 - 5.825 GHz (CH149 - CH161)</p>
Antenna Structure	2 transmit; 2 receive (2x2)
Data Rates	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: MCS 0 ~ MCS 15, (20MHz, and 40MHz)
Modulation	Direct Sequence Spread Spectrum CCK, BPSK, QPSK, 16-QAM, 64-QAM
Security¹	<ul style="list-style-type: none"> ● IEEE and WiFi compliant 64 / 128 bit WEP encryption for a/b/g mode only ● AES-CCMP: 128 bit in hardware ● 802.1x authentication ● WPA, WPA2: 802.1x. WPA-PSK, WPA2-PSK, TKIP, and AES. ● WPA2 certification ● IEEE 802.11i ● Cisco Certified Extensions, all versions through CCX4 and CCX Lite ● WAPI
Sub-channels	Multinational support with frequency bands and channels compliant to local regulations.
Network Architecture Models	Ad-hoc (Peer to Peer) Infrastructure (Access Point Required)
Roaming	IEEE 802.11 compliant roaming between band Access Points
Output Power²	<ul style="list-style-type: none"> ● 802.11b : +16dBm minimum ● 802.11g : +14dBm minimum ● 802.11a : +14dBm minimum ● 802.11n HT20(2.4GHz) : +13dBm minimum ● 802.11n HT40(2.4GHz) : +13dBm minimum ● 802.11n HT20(5GHz) : +12dBm minimum ● 802.11n HT40(5GHz) : +12dBm minimum
Power Consumption	Transmit: 2.0 W (max) Receive: 1.6 W (max) Idle mode (PSP): 180 mW (WLAN Associated) Idle mode: 60 mW (WLAN unassociated)

Technical Specifications

Power Management	Radio disabled: 30 mW ACPI and PCI Express compliant power management 802.11 compliant power saving mode
Receiver Sensitivity⁴	802.11b, 1Mbps : -94dBm maximum 802.11b, 11Mbps : -86dBm maximum 802.11g, 6Mbps : -88dBm maximum 802.11g, 54Mbps : -74dBm maximum 802.11a, 6Mbps : -86dBm maximum 802.11a, 54Mbps : -72dBm maximum 802.11n, MCS07 : -69dBm maximum 802.11n, MCS15 : -66dBm maximum
Antenna Type	High efficiency antenna with spatial diversity, mounted in the display enclosure Two embedded dual band 2.4/5 GHz antennas are provided to the card to support WLAN MIMO and Bluetooth communications
Form Factor	PCI-Express M.2 MiniCard
Dimensions	Type 2230 : 2.3 x 22.0 x 30.0 mm Or Type 1630 : 2.3 x 16.0 x 30.0 mm
Weight	Type 2230 : 2.8g Or Type 1630 : 2g
Operating Voltage	3.3v +/- 9%
Temperature	Operating 14° to 158° F (-10° to 70° C) Non-operating -40° to 176° F (-40° to 80° C)
Humidity	Operating 10% to 90% (non-condensing) Non-operating 5% to 95% (non-condensing)
Altitude	Operating 0 to 10,000 ft (3,048 m) Non-operating 0 to 50,000 ft (15,240 m)
LED Activity	LED Amber - Radio OFF; LED White - 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.

HP Integrated Module with Bluetooth 4.0+EDR Wireless Technology

Bluetooth Specification	4.0+EDR Compliant
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	The Bluetooth component shall operate as a Class II Bluetooth device with

Technical Specifications

a maximum transmit power of +4 dBm for BR and EDR

Receiver Sensitivity

Modulation	0.01% BER	0.001% BER
GFSK	-80 dBm	-70 dBm
$\pi/4$ -DQPSK	-80 dBm	-70 dBm
8DPSK	-80 dBm	-70 dBm

Power Consumption

Peak (Tx) 330 mW
Peak (Rx) 230 mW
Selective Suspend 17 mW

Antenna

Internally integrated within module

Range

Up to 33 ft (10 m)

Electrical Interface

USB 2.0 compliant

Bluetooth Software Supported

Microsoft Windows Plug and Play compliant
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

Certifications

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

Bluetooth Profiles Supported

Serial Port Profile (SPP)¹
Service Discovery Application Profile (SDAP)
Dial-Up Networking (DUN)^{1,2}
Generic Object Exchange Profile (GOEP)^{1,2}
Object Push Profile (OPP)^{1,2}
File Transfer Profile (FTP)
Synchronization Profile (SYNC)
Hard Copy Cable Replacement (HCRP)^{1,2}
Personal Area Networking Profile (PAN)^{1,2}
Human Interface Device Profile (HID)^{1,2}
FAX Profile (FAX)
Basic Imaging Profile (BIP)²
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

* Wireless access point and internet service required. Availability of public wireless access points limited.

Intel Dual Band Wireless- AC 7265 802.11a/b/g/n (2x2) WiFi + BT 4.0 combo Adapter*

IEEE 802.11a
IEEE 802.11b
IEEE 802.11g
IEEE 802.11n
IEEE 802.11ac

Technical Specifications

Interoperability	Wi-Fi certified
Frequency Band	802.11b/g/n <ul style="list-style-type: none"> • 2.402 - 2.482 GHz <p>Note: The FCC has declared as of January 1, 2015 products that utilize passive scanning on channel 12/13 and are capable of transmitting must fully comply with requirements of 15.247 or otherwise disable those channels</p>
	802.11a <ul style="list-style-type: none"> • 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 <p>Note: Indonesia only supports 5.725 - 5.825 GHz (CH149 - CH161)</p>
Antenna Structure	2 transmit; 2 receive (2x2)
Data Rates	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. 802.11ac : MCS0 ~ MCS9, (1SS, and 2SS) (20MHz, 40MHz, and 80MHz)
Modulation	Direct Sequence Spread Spectrum BPSK, QPSK, CCK, 16-QAM, 64-QAM, 256-QAM
Security¹	<ul style="list-style-type: none"> • IEEE and WiFi compliant 64 / 128 bit WEP encryption for a/b/g mode only • AES-CCMP: 128 bit in hardware • 802.1x authentication • WPA, WPA2: 802.1x. WPA-PSK, WPA2-PSK, TKIP, and AES. • WPA2 certification • IEEE 802.11i • Cisco Certified Extensions, all versions through CCX4 and CCX Lite • WAPI
Network Architecture Models	Ad-hoc (Peer to Peer) Infrastructure (Access Point Required)
Roaming	IEEE 802.11 compliant roaming between Access Points
Output Power²	<ul style="list-style-type: none"> • 802.11b : +16dBm minimum • 802.11g : +14dBm minimum • 802.11a : +14dBm minimum • 802.11n HT20(2.4GHz) : +13dBm minimum • 802.11n HT40(2.4GHz) : +13dBm minimum • 802.11n HT20(5GHz) : +12dBm minimum • 802.11n HT40(5GHz) : +12dBm minimum • 802.11ac 80MHz(5GHz) : +11dBm minimum

Technical Specifications

Power Consumption	Transmit: 2.0 W (max) Receive: 1.6 W (max) Idle mode (PSP): 180 mW (WLAN Associated) Idle mode: 60 mW (WLAN unassociated) Radio disabled: 30 mW
Power Management	ACPI and PCI Express compliant power management 802.11 compliant power saving mode
Receiver Sensitivity³	802.11g:-90 dBm (6 Mbps), -89 dBm (9 Mbps), -87 dBm (12 Mbps), -85 dBm (18 Mbps), -82 dBm (24 Mbps), -79 dBm (36 Mbps), -76 dBm (48 Mbps), -74 dBm (54 Mbps) 802.11b:-95 dBm (1 Mbps), -93 dBm (2 Mbps), -91 dBm (5.5 Mbps), -88 dBm (11 Mbps) 802.11g:-90 dBm (6 Mbps), -89 dBm (9 Mbps), -87 dBm (12 Mbps), -85 dBm (18 Mbps), -82 dBm (24 Mbps), -79 dBm (36 Mbps), -76 dBm (48 Mbps), -74 dBm (54 Mbps) 802.11n:-69 dBm (150 Mbps), -66 dBm (300 Mbps)
Antenna type	High efficiency antenna with spatial diversity, mounted in the display enclosure Two embedded dual band 2.4/5 GHz antennas are provided to the card to support WLAN MIMO communications and Bluetooth communications
Form Factor	PCI-Express Half-MiniCard
Dimensions	0.134 x 1.06 x 1.18 in (3.4 x 26.8 x 30 mm)
Weight	3.1g
Operating Voltage	3.3v +/- 9%
Temperature	Operating 14° to 158° F (-10° to 70° C) Non-operating -40° to 176° F (-40° to 80° C)
Humidity	Operating 10% to 90% (non-condensing) Non-operating 5% to 95% (non-condensing)
Altitude	Operating 0 to 10,000 ft (3,048 m) Non-operating 0 to 50,000 ft (15,240 m)
LED Activity	LED Amber - Radio OFF; LED White - 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 (CKK modulation) and a packet error rate of 10% for 802.11a/g (OFDM modulation).

HP Integrated Module with Bluetooth 4.0+EDR Wireless Technology

Bluetooth Specification	4.0+EDR Compliant
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	The Bluetooth component shall operate as a Class II Bluetooth device with a maximum transmit power of +4 dBm for BR and EDR

Technical Specifications

Receiver Sensitivity	Better than -20 dBm at 0.1 % raw bit error rate
Power Consumption	Peak (Tx) 330 mW Peak (Rx) 230 mW Selective Suspend 17 mW
Antenna	Internally integrated within module
Range	Up to 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
Certifications	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
Bluetooth Profiles Supported	Serial Port Profile (SPP) ¹ Service Discovery Application Profile (SDAP) Dial-Up Networking (DUN) ^{1,2} Generic Object Exchange Profile (GOEP) ^{1,2} Object Push Profile (OPP) ^{1,2} File Transfer Profile (FTP) Synchronization Profile (SYNC) Hard Copy Cable Replacement (HCRP) ^{1,2} Personal Area Networking Profile (PAN) ^{1,2} Human Interface Device Profile (HID) ^{1,2} FAX Profile (FAX) Basic Imaging Profile (BIP) ² 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

* Wireless access point and internet service required. Availability of public wireless access points limited.

AUDIO/MULTIMEDIA

Audio	DTS Studio Sound™ (Windows OS only)	
Hardware	Implementation	Realtek ALC3228 High Definition CODEC
	Function Key Volume Controls	Volume up, volume down, and mute
	Mute Buttons	Playback and Record mute buttons with LED indicator

Technical Specifications

Full Duplex	Yes
Microphone In	Mono
Headphone/Line Out	Stereo
Integrated Microphone	Yes, dual digital microphone array

Audio Output Quality	Frequency Response	20 Hz – 20 kHz
	Signal to Noise Ratio	>85 dB
	Total Harmonic Distortion	0.01%
	Noise Floor	-110 dB
	Play/Record Sampling Rate(s)	8 kHz - 48kHz
	DAC	16, 20 or 24-bit
	ADC	16 or 20-bit

Integrated Stereo Speakers	Power Rating	1 Watt
	Impedance	8 Ohms

POWER

HP 45W Slim Smart AC Adapter	Dimensions (H x W x D)	96.0 x 49.5 x 22.4 mm	
	Input	Input	90 to 265 VAC
		Input Efficiency	87% min at 115 VAC/230VAC
		Input frequency range	47 to 63 Hz
	Output	Input AC current	1.4 A at 90 VAC and maximum load
		Output power	45W
		DC output	19.5V
		Hold-up time	5 msec at 115 VAC input
		Output current limit	<8A, Over voltage protection- 29V max automatic shutdown
		Connector	3 pin/grounded, mates with 7.4mm barrel type Smart ID DC connector
		Environmental Design	Operating temperature
	Non-operating (storage) temperature		-4° to 121° F (-20° to 85° C)
	Altitude		0 to 10,000 ft (0 to 2,000 m)
	Humidity		0% to 95%
EMI and Safety Certifications	Storage Humidity	0% to 95%	
		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.	

HP 65W Slim Smart AC Adapter EM	Dimensions (H x W x D)	126.0 x 50.0 x 30.0 mm
	Input	90 to 265 VAC

Technical Specifications

Output	Input Efficiency	87% min at 115 VAC/230VAC	
	Input frequency range	47 to 63 Hz	
	Input AC current	1.7 A at 90 VAC and maximum load	
	Output power	65W	
	DC output	19.5V	
	Hold-up time	5 msec at 115 VAC input	
	Output current limit	<11A, Over voltage protection- 29V max automatic shutdown	
Connector	3 pin/grounded, mates with 7.4mm barrel type Smart ID DC connector		
Environmental Design	Operating temperature	32° to 95° F (0° to 35° C)	
	Non-operating (storage) temperature	-4° to 121° F (-20° to 85° C)	
	Altitude	0 to 16,405 ft (0 to 5,000 m)	
	Humidity	0% to 95%	
EMI and Safety Certifications	Storage Humidity	0% to 95%	
	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.		
HP 6-cell (44 WHr) Polymer Primary battery	Dimensions (H x W x L)	11.09 x 4.05 x 0.54 in (28.156 x 10.282 x 1.365 cm)	
	Weight (max)	0.308 kg	
	Cells/Type	6-cell Polymer	
	Energy	Voltage	11.1V
		Amp-hour capacity	4.0Ah
		Watt-hour capacity	44Wh
	Temperature	Operating (Charging)	32° to 113° F (0° to 45° C)
		Operating (Discharging)	14° to 140° F (-10° to +0° C)
		Non-operating	-4° to 140° F (-20° to 60° C)
	Battery Re-Charge Time	System in OFF or Standby Mode	2.5 hours (This depends on system setting)
		System ON	3-5 hours (This depends on system setting)
Fuel Gauge LED	No		
Optional Travel Battery Available	No		

COUNTRY OF ORIGIN

China

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

Category	Description	Part number
Cases	HP Professional Series Carrying Case (up to 15.6")	H4J90AA
	HP Professional Slim Top Load Case (up to 17.3")	H4J91AA
	HP Business Case(up to 15.6")	H5M92AA
Stands and Docking	HP Display and Notebook Stand II	E8G00AA#xxx
	HP 2013 UltraSlim Docking Station	D9Y32AA#xxx
Input Devices	HP Wireless Mobile Mouse	H2L63AA
	HP Touch To Pair Mouse	H6E52AA
	HP Slim Bluetooth Mouse (Vivaldi)	F3J92AA
	HP 2.4GHz Keyboard and Mouse (Dachshund)	G1K29AA
Adapters	HP Executive Tablet Pen G2	F3G73AA
	USB Graphics Adapter (DBU PL)	NL571AA/AT
	HP DisplayPort to HDMI 1.4 Adapter	F3W43AA
	HP DisplayPort to DVI Adapter	F7W96AA
	HP DisplayPort to VGA Adapter	F7W97AA
	Adapter, USB Graphics - dual output	C5U89AA/AT
Charging	HP 45W Smart AC Adapter (4.5mm) (PL MP only)	H6Y88AA#xxx
	HP 2-Bay Battery Charging Station	H2W29AA#ABA
	HP 10-Bay Battery Charging Station	H2W28AA#ABA
Power	HP OD06XL Battery Adapter (for 2 and 10 bay chargers)	F6V66AA
Security	HP OD06XL Long Life Notebook Battery (2013)	H6L25AA
	HP 11.6" Rotatable Privacy Filter for EliteBook Revolve 810	J6E63AA
Charging Cart	HP Docking Station Cable Lock	AU656AA#XXX
	HP UltraSlim Keyed Cable Lock	H4D73AA
	20 Notebook Managed Charging Cart	QL489AA#xxx
	20 Notebook Charging Cart	QL488AA
Displays	30 Notebook Managed Charging Cart	QL490AA
	30 Notebook Charging Cart	H4F31AA
	HP EliteDisplay E221c 21.5-in Webcam Monitor	D9E49AA
	HP EliteDisplay E221i 21.5-inch IPS Monitor	F9Z09AA
	HP EliteDisplay E231i 23-inch IPS Monitor	F9Z10AA

Summary of Changes

Date of change:	Version History:		Description of change:
January 26, 2015	V1 to V2	Added	Environmental data on page 12
January 29, 2015	V2 to V3	Removed	Finger print reader and Smart card reader
February 26, 2015	V3 to V4	Removed	WLAN disclaimer for draft specs on page 8.
March 6, 2015	V4 to V5	Changed	Memory units on page 7
March 25, 2015	V5 to V6	Added	Battery life on page 4 and 12

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