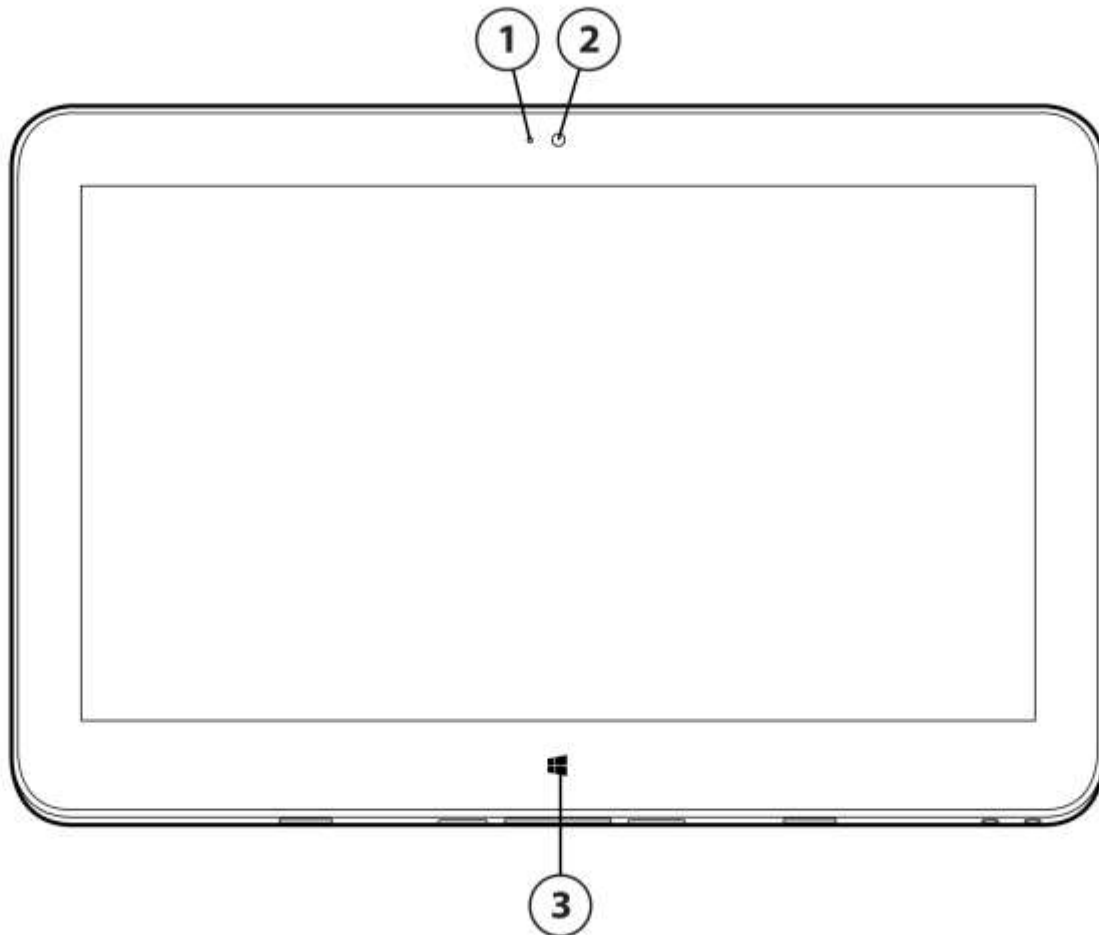


Overview

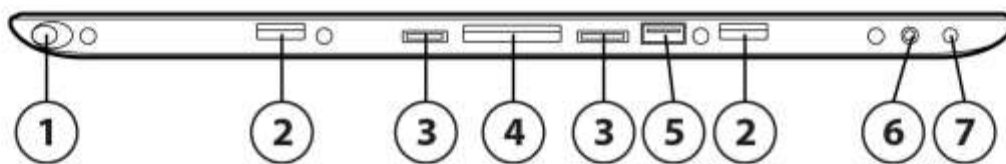
HP Pro x2 612 G1



Front Tablet View

- 1. Front-facing camera LED
- 2. 2 MP front facing FHD Webcam
- 3. Home button

Overview

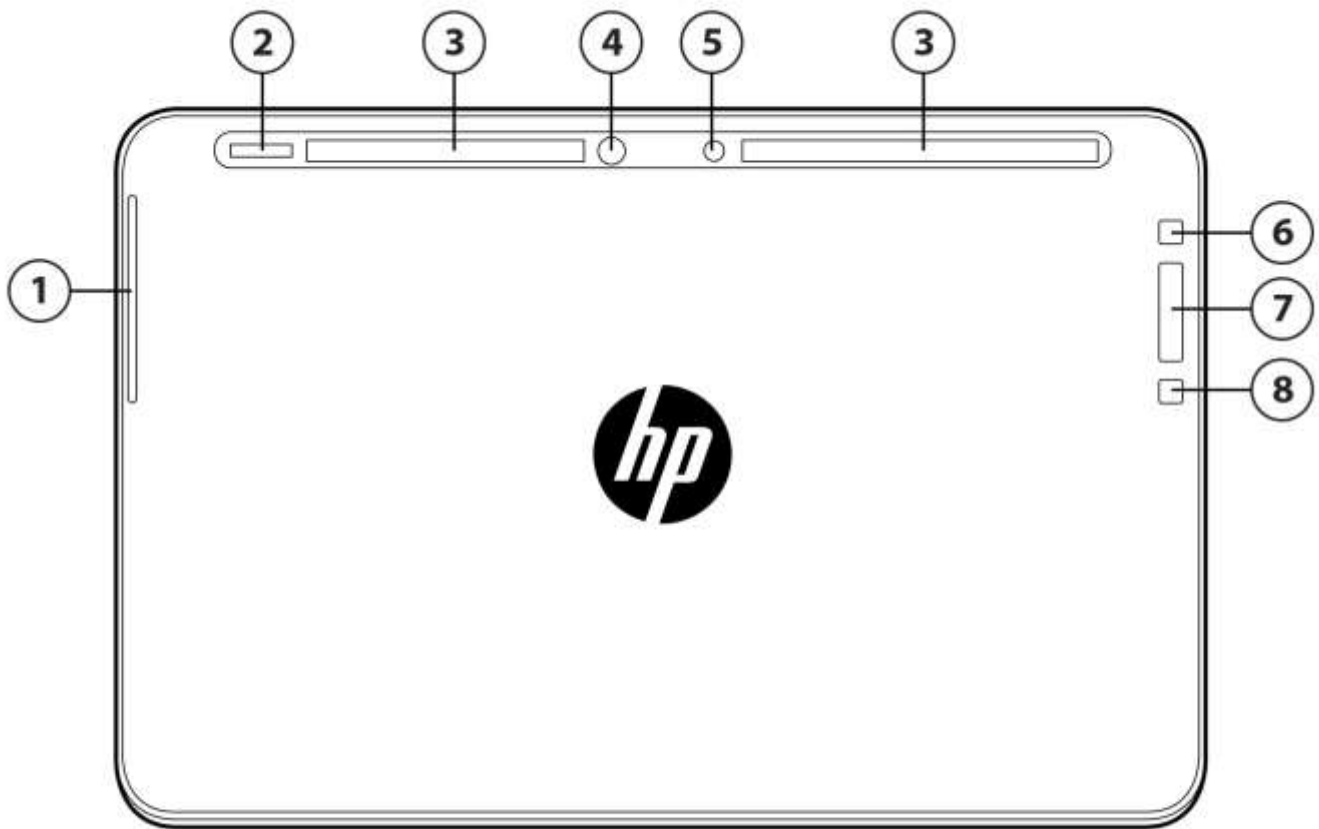


1. Pen holder (select models only)
2. Alignment post connectors (2)
3. Micro SIM slot and Micro SD
4. Docking connector

Tablet Bottom

5. USB 3.0 port
6. Stereo headphone-out/mic-in combo jack
7. 4.5mm Multi-Pin AC Port

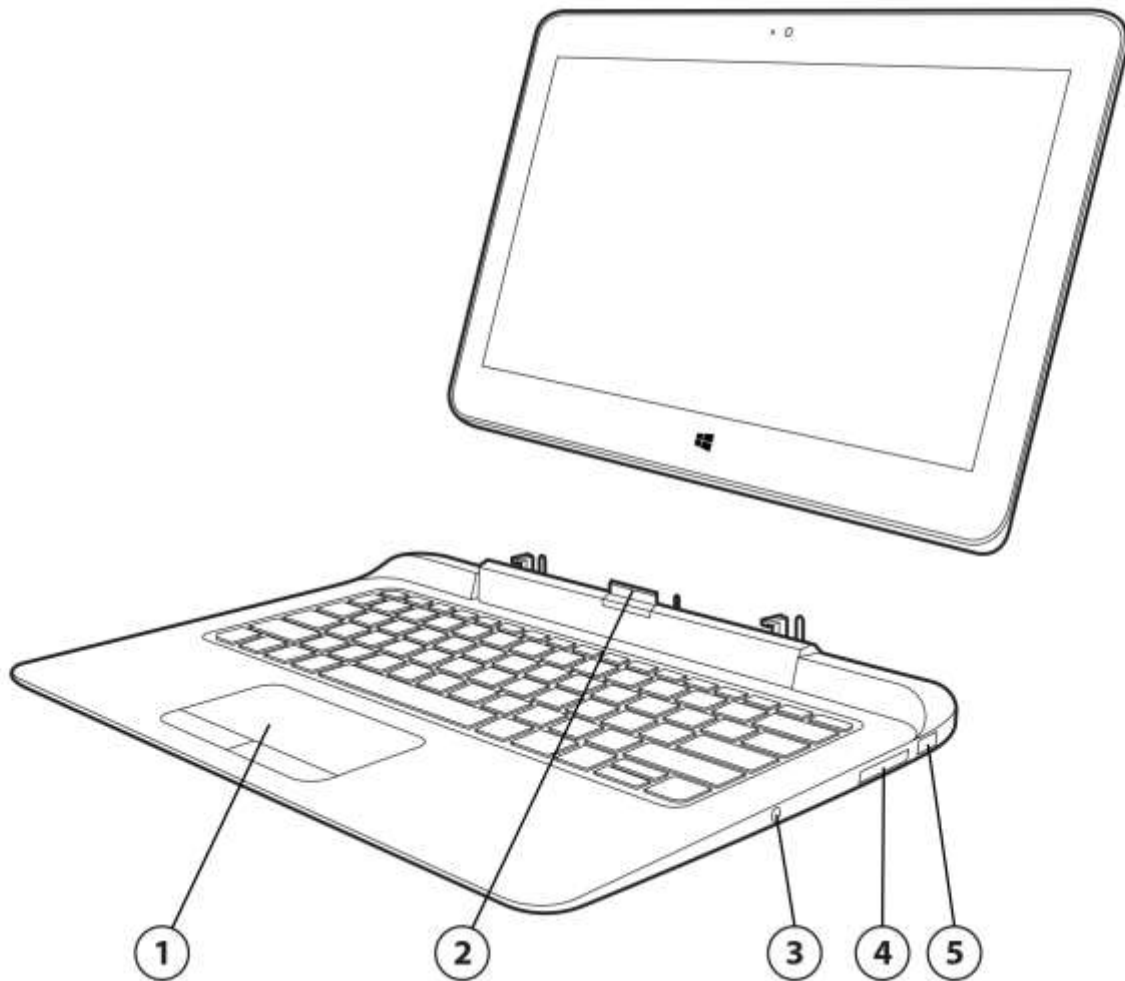
Overview



Tablet Back

- | | |
|--|------------------|
| 1. Smart card reader | 5. Camera flash |
| 2. Fingerprint reader (select models only) | 6. Rotation key |
| 3. Vents (2) | 7. Volume button |
| 4. Webcam (rear) | 8. Power switch |

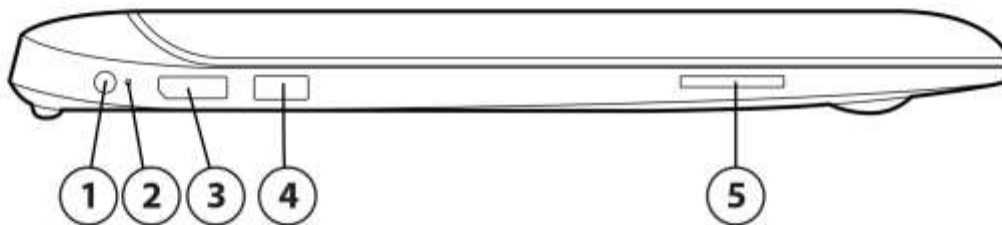
Overview



Tablet with Keyboard (Open Right)

- | | |
|---|----------------------|
| 1. TouchPad | 4. Docking connector |
| 2. Docking connector to tablet | 5. USB 3.0 port |
| 3. Stereo headphone-out/mic-in combo jack | |

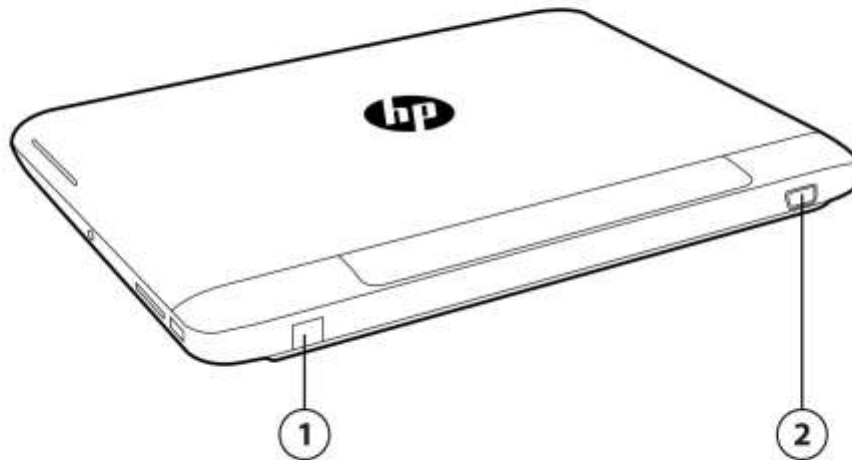
Overview



Tablet with Keyboard (Closed Left)

- | | |
|--------------------|------------------------------------|
| 1. Power connector | 4. USB 3.0 charging (powered) port |
| 2. DC power LED | 5. SD card reader |
| 3. DisplayPort | |

Overview



Tablet with Keyboard (Closed Rear)

1. RJ-45 (Ethernet)

2. VGA port

Overview

At A Glance

- Detachable hybrid tablet combines a super sleek design with key business features and the ability to seamlessly transition between notebook or tablet with one device.
- Windows 10 versions, Windows 8.1 versions, Windows 7 Pro 64 bit (available through downgrade rights from Windows 8.1 Pro), or FreeDOS
- 4th Generation Intel® Celeron 2961Y processor, Pentium 3561Y processor, Core™ i3-4012Y processor, i5-4202Y processor or i5-4302Y processor
- Integrated Intel HD Graphics 4200
- 12.5" diagonal LED HD (1366 x 768) Touchscreen or 12.5" diagonal LED FHD (1920 x 1080) Touchscreen
- 64 GB, 128 GB, 180 GB or 256 GB M.2 SATA-3 (NGFF) Solid State Drives, or 180 or 256 GB M.2 SATA-3 (NGFF) Self Encrypting Drives
- 0.50 inch(12.8mm) tablet thin profile
- Starting weight for Tablet only 2.04 lbs (925g)
- Starting weight for Power Keyboard 2.16 lbs (980g)
- HD Audio with DTS Sound +, integrated stereo speakers, integrated dual microphone array, 2 MP front facing FHD Webcam and 5 MP rear facing FHD Webcam
- 4-cell (29.3 WHr) Long Life Polymer battery on Tablet
- 2-cell polymer (25 WHr) Long Life Polymer battery on Power Keyboard
- 81/82-key island-style, spill-resistant keyboard with drain features on Power Keyboard
- Touchpad with scroll zone, on/off button with LED indicator on Power Keyboard
- Security features including a TPM 1.2 Embedded Security Chip
- Wireless connectivity:
 - Integrated HP Mobile Broadband Modules
 - Integrated HP Qualcomm® Gobi™ 4G Mobile Broadband Modules
 - Intel® Dual Band Wireless-AC 3160 802.11 a/b/g/n/ac (1x1) WiFi + Bluetooth® 4.0 combo
 - Intel® Dual Band Wireless-AC 7260 802.11 ac (2x2) WiFi + BT 4.0 combo
 - Intel® Dual Band Wireless-AC 7260 802.11 ac (2x2) WiFi + BT 4.0 combo non vPro
 - Intel® Dual Band Wireless-N 7260AN 802.11 a/b/g/n (2x2) WiFi + BT 4.0 combo
 - Broadcom 802.11 b/g/n (1x1) wireless LAN module+ Bluetooth 4.0 Combo
- Standard commercial 1 year limited warranty with upgrade available with HP Care Pack

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

Features

PRODUCT NAME

HP Pro x2 612 G1

OPERATING SYSTEM

Preinstalled

Windows 10 Home 64*
 Windows 8.1 Pro 64*
 Windows 8.1 64*
 Windows 7 Professional 64 (available through downgrade rights from Windows 10 Pro)***
 Windows 7 Professional 64 (available through downgrade rights from Windows 8.1 Pro)**
 FreeDOS 2.0

Web-only Support

Windows 10 Pro 64*
 Windows 10 Home 64*
 Windows 10 Home 64*
 Windows 8.1 Pro 64*
 Windows 8.1 64*
 Windows 7 Professional 64 (available through downgrade rights from Windows 10 Pro)***
 Windows 7 Professional 64 (available through downgrade rights from Windows 8.1 Pro)**
 Windows 7 Professional 32*
 Windows 10 Enterprise 64*
 Windows 8.1 Enterprise 64*
 Windows 8 64*
 Windows 8 Pro 64*
 Windows 7 Enterprise 64*
 Windows 7 Enterprise 32*

* Not all features are available in all editions or versions of Windows. Systems may require upgraded and/or separately purchased hardware, drivers, software or BIOS update to take full advantage of Windows functionality. Windows 10 is automatically updated, which is always enabled. ISP fees may apply and additional requirements may apply over time for updates. See <http://www.microsoft.com>

** This system is preinstalled with Windows® 7 Professional 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.

***This system is preinstalled with Windows 7 Professional software and also comes with a license and media for Windows 10 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™ i5-4302Y with Intel HD Graphics 4200 (1.6 GHz, up to 2.3 GHz with Intel Turbo Boost Technology, 3 MB cache, 2 cores, vPro Support)

Intel® Core™ i5-4202Y with Intel HD Graphics 4200 (1.6 GHz, up to 2 GHz with Intel Turbo Boost Technology, 3 MB cache, 2 cores)

Intel® Core™ i3-4012Y with Intel HD Graphics 4200 (1.5 GHz, 3 MB cache, 2 cores)

Intel® Pentium® 3561Y with Intel HD Graphics (1.2 GHz, 2 MB cache, 2 cores);

Intel® Celeron® 2961Y with Intel HD Graphics (1.1 GHz, 2 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 system required. 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

Features

performance varies depending on hardware, software and overall system configuration. See www.intel.com/technology/turboboost for more information.

CHIPSET

Integrated SoC PCH

GRAPHICS

Intel® HD Graphics 4200 integrated on Intel® Core™ Processors

- Support HD Decode, DX11.1, OpenCL 1.2, OpenGL 4.0, and DisplayPort 1.2 (HBR only)

Intel® HD Graphics integrated on Intel® Celeron® or Intel® Pentium® Processors

- Support HD Decode, DX11.1, OpenCL 1.2, OpenGL 4.0, and DisplayPort 1.2 (HBR only)

DISPLAY

Internal

12.5" diagonal HD* UWVA LED eDP 1.2 (1366 x 768) Touchscreen*

- Ultra- Wide-viewing angle
- Ultra-slim (2.85mm)
- 300 nits
- Touchscreen*, Multi-touch enabled (10-finger support)

12.5" diagonal FHD* UWVA LED eDP 1.3 (1920 x 1080) Touchscreen*

- Ultra- Wide-viewing angle
- Ultra-slim (2.85mm)
- 300 nits
- Touchscreen*, Multi-touch enabled (10-finger support)

External

Up to 2880x1620@60Hz, or 3840x2160@30hz for a single display (DisplayPort), lower with additional displays connected (system VGA or DP ports on the docking station)

24-bit + 8 bit alpha channel (standard)

Up to 30-bit per pixel color depth (Wide Color Gamut)

* HD content required to view HD images. * Touch panel has chemically-strengthened Corning® Gorilla® Glass 3 top cover

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

Features

STORAGE AND DRIVES

Internal Storage Device*

64/128/180/256 GB M.2 SATA-3 (NGFF) Solid State

180/256 GB M.2 SATA-3 SED (NGFF) Solid State

* For SSD's, GB=1 billion bytes. TB=1 trillion bytes. Actual formatted capacity is less. Up to 16 GB (for Windows 7) and up to 30 GB (for Windows 8 and 10) of system disk is reserved for system recovery software.

MEMORY

DDR3L-1600 (Transfer rates up to 1600 MT/s)

On-board

Standard 4096 MB memory or 8192 MB memory

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 is supported via combo card.

Wireless WAN (WWAN)

HP hs3110 HSPA+ Mobile Broadband Module*

HP lt4211 LTE/EV-DO/HSPA+ Qualcomm® Gobi™ 4G Module (US)*, **

HP lt4112 LTE/HSPA+ Qualcomm® Gobi™ 4G Module (EMEA, APJ) *, **

Wireless LAN (WLAN)

Intel Dual Band Wireless-AC 3160 802.11 a/b/g/n/ac (1x1) WiFi + Bluetooth 4.0 combo***

Intel Dual Band Wireless-AC 7260 802.11 ac (2x2) WiFi + BT 4.0 combo non vPro ***

Broadcom 802.11 b/g/n (1x1) wireless LAN module+ Bluetooth 4.0 Combo Adaptor

Intel Dual Band Wireless-AC 7260 802.11 ac (2x2) WiFi + BT 4.0 combo***

Intel Dual Band Wireless-N 7260AN 802.11 a/b/g/n (2x2) WiFi + BT 4.0 combo***

Communications

Intel NIC (10/100/1000)

* WWAN is an optional feature and requires factory configuration. WWAN 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, and in all regions.

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

AUDIO/MULTIMEDIA

Audio

HD Audio with DTS Sound +

Dual speakers (front facing)

Dual microphone array with echo cancellation, noise suppression

Formats: MP3, AAC, AAC+, EAAC+ OGG, MIDI

Features

Headphone/Line-out and Mic-in (combo)

Webcams (Front and Back)

Front

Integrated HP Full HD* Camera

- FHD*/1080p format for video
- 2.0MP for still capture
- Supports videoconferencing** and still image capture
- High quality fixed focus lens
- Video capture at various resolutions up to 1920x1080 resolution (1080p) and up to 30 fps
- 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.

Back

Integrated HP 5 MP Camera

- FHD*/1080p format for video
- 5.0MP for still capture
- Supports videoconferencing** and still image capture
- High quality auto focus lens
- Video capture at various resolutions up to 1920x1080 resolution (1080p) and up to 30fps
- M-JPEG compression supports higher frame rates for video capture and videoconferencing**
- Improved low light sensitivity
- Improved dynamic range

*FHD content required to view FHD video.

** Internet access required.

KEYBOARDS/POINTING DEVICES/BUTTONS & FUNCTION KEYS

Power Keyboard

The 81/82-key island-style, spill-resistant keyboard with backlit option and drain features a full-pitch key layout with desktop keyboard features, such as editing keys, both left and right control and alt keys, and function keys. US and International key layouts are available.

Pointing Devices

Touchpad with scroll zone, on/off button with LED indicator, two-way scroll, two pick buttons

Buttons

Power, Volume Up, Volume Down, Windows Start/Home and Rotation key

Function keys provide control of features including: Standby mode, WLAN on/off, speaker mute, display brightness, external display, microphone mute, volume down, and volume up.

Sensors

Ambient Light Sensor (ALS)

Optional Travel Keyboard*

HP Pro x2 612 G1 Travel Keyboard G8X14AA

Work smarter on the go, get a true notebook keyboard experience, and help protect your HP Pro x2 612 G1 Tablet—a case

Features

and keyboard in one that folds out so you can get to work fast.

- Thin keyboard folio with retaining flap
- ClickPad (87 x 49 mm) with image sensor, multi-touch gestures enabled, on/off function and LED indicator
- Foldable kickstand; 120° viewing angle
- Weight 715 gm (1.57 lbs)
- Dimension 22.6 x 31.4 x 0.6 cm _ 8.89 x 12.38 x 0.23 inch
- Docking connector to tablet
- USB 3.0 port
- Combo audio jackDC-in (4.5mm)
- **Full size** 81/82-key island-style backlit keyboard with full row of function keys and LED indicators*Sold separately or as an optional feature.

SOFTWARE AND SECURITY

Software Included Security

Windows 8.1

Absolute Data Protect¹
Absolute Persistence Module²
Device Access Manager with Just In Time Authentication
Drive Encryption³
HP File Sanitizer⁴
HP Client Security⁵
HP SpareKey
Microsoft Defender
HP SureStart¹⁰

Windows 7

Absolute Persistence Module²
Device Access Manager with Just In Time Authentication
Drive Encryption³
HP File Sanitizer⁴
HP Client Security⁵
HP SpareKey
Microsoft Security Essentials⁶
HP SureStart¹⁰

Multimedia

Cyberlink PowerDVD

Cyberlink PowerDVD
Cyberlink YouCam BE

HP Value Add Software

HP ePrint Driver⁷
HP Hotkey
HP Manageability (Activation Required)
HP PageLift App
HP Support Assistant

HP ePrint Driver⁷
HP Hotkey
HP Manageability (Activation Required)
HP PageLift for Win 7
HP Recovery Manager
HP Support Assistant
HP Recovery Disc Creator (HPRDC)

3rd party

Box Application⁸
Buy Office
Foxit PhantomPDF Express
Netflix Application
Skype⁹
Internet Explorer 11 (Native W8.1)
Internet Explorer 10

Box 50GB Offer⁸
Buy Office
Foxit PhantomPDF Express
Skype⁹
Internet Explorer 10
Intel WiDi Software¹¹

¹Absolute Data Protect agent is shipped turned off, and must be activated by customers. 90 day subscription included. Subscription and internet access required for updates after the 90 day period. 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>.

²The Absolute Persistence agent is shipped turned off, and will be activated when customers activate a purchased subscription. Subscriptions can be purchased for terms ranging multiple years. Service is limited, check with Absolute for availability outside the U.S. The Absolute Recovery Guarantee is a limited warranty. Certain conditions apply. For full details

Features

visit: <http://www.absolute.com/company/legal/agreements/computrace-agreement>. Data Delete is an optional service provided by Absolute Software. If utilized, the Recovery Guarantee is null and void. In order to use the Data Delete service, customers must first sign a Pre-Authorization Agreement and either obtain a PIN or purchase one or more RSA SecurID tokens from Absolute Software.

³ Requires Windows. Data is protected prior to Drive Encryption login. Turning the PC off or into hibernate logs out of Drive Encryption and prevents data access.

⁴ For the use cases outlined in the DOD 5220.22-M Supplement. Does not support Solid State Drives (SSDs). Initial setup required. Web history deleted only in Internet Explorer and Firefox browsers and must be user enabled.

⁵ Not all features are remotely manageable.

⁶ Opt in and internet connection required for updates.

⁷ ePrint requires an Internet connection to HP web-enabled printer. HP ePrint account registration required. For a list of eligible printers, supported documents and image types, and for complete details, see www.hp.com/eprint

⁸ Offer available on new 2013 and 2014 HP Business Desktops, Notebooks, and Tablets. Requires Box registration. Offer available to new Box users only. Offer subject to change without notice. Box app requires Windows 8 or 8.1.

⁹ Not offered in China.

¹⁰ HP SureStart is the first and only self-healing technology solution created to protect against Malware and Security attacks aimed at the BIOS.

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.

Security

Standard

TPM 1.2 (Infineon; soldered down)

Integrated Smart Card Reader (Active)

Full volume encryption

Preboot Authentication (Password, Smart Card)

Configurable

Fingerprint Reader

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

POWER

Power Supply

45W Smart RC AC Adapter (Not available for ASIA, INDIA, JPN2, JPN/ENG, PR)

45W 2-pin AC Adapter (Available for JPN2, JPN/ENG)

65W Smart EM AC Adapter (Available for ASIA, PRC, INDIA)

65W Slim AC Adapter (Available for AUST, JPN2, JPN/ENG includes DC Cable)

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

*2-wire plug - 1.0m available for JPN2, JPN/ENG, 3-wire plug - 1m and 3-wire plug - 1.8m not available for JPN2, JPN/ENG)

Primary Battery (Tablet)

HP 4-cell polymer (29.3 WHr)

Primary Battery (Base)

HP 2-cell polymer (25 WHr)

Battery Life*

Features

Tablet only

1) Windows 7 battery time (Tablet only):

“Up to 8 hours, 15 minutes**”

* Windows 7 MM07 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.

2) Windows 7 MM07 battery time (Tablet with Power Keyboard):

“Up to 15 hours and 15 minutes with optional power keyboard**”

*Requires separately purchased power keyboard with battery. Windows 7 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.

3) Windows 8 battery time (Tablet only):

“Up to 6 hours **”

* 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.

4) Windows 8 battery time (Tablet with Power Keyboard)

“Up to 10 hours and 45 minutes with optional power keyboard**”

*Requires separately purchased power keyboard with battery. 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

Up to 215 hours*

* Standby life will vary depending on various factors including battery, Memory, CPU, EC and LAN chip. The maximum capacity of the battery will naturally decrease with time and usage.

ENVIRONMENTAL

Environmental Data

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.

WEIGHTS & DIMENSIONS

Weight

Tablet lightest possible configuration (HD, 4GB Memory, 64GB SSD, No FPR, No WWAN, No Digital Pen) at 2.04 lbs (0.92 kg)

Non-backlit power keyboard lightest possible configuration at 2.16 lbs (0.98 kg)

Features

	Tablet only	Power Keyboard (non-backlit)	Travel Keyboard
No Digitizer No Pen	925.7 g (2.04 lbs)	980.5 g (2.16 lbs)	715 g (1.57 lbs)
Digitizer with Pen	958.7 g (2.11 lbs)	980.5 g (2.16 lbs)	715 g (1.57 lbs)

Dimensions – Tablet only

(w x d x h)

12.48 x 8.25 x 0.5 in

307 x 209.5 x 12.8 mm

Dimensions – Tablet with Power Keyboard

(w x d x h)

12.48 x 9.43 x 0.92 in

317 x 239.5 x 23.3 mm

NOTE: Height varies depending upon where on the notebook the measurement is made. Weight varies by configuration and components.

PORTS/SLOTS

Ports

Power Keyboard

USB 3.0 – One

USB 3.0 Charging Port – One

DisplayPort 1.2 – One

VGA – One

Stereo headphone-out/mic-in combo jack – One

Docking connector to tablet – One

Side docking connector -one

4.5mm Multi-Pin AC Port – One

RJ-45 (Ethernet) – One

Tablet

USB 3.0 – One

Stereo headphone-out/mic-in combo jack – One

Docking connector to base – One

Smart Card Reader – One

4.5mm Multi-Pin AC Port – One

Expansion Slots

SD card reader on the power keyboard supports SD, SDHC, SDXC

Micro SIM on the tablet

Micro SD card reader on the tablet supports SD, SDHC, SDXC

SERVICE AND SUPPORT

HP Services offers a 1 year standard commercial limited warranty; 1 year limited warranty on primary battery. On-site service and optional* HP Care Pack Services** are available to extend your protection beyond the standard limited warranty. For

Features

more details visit: <http://www.hp.com/go/cpc>.

*Sold separately or as an optional feature.

** Service levels and response times for HP Care Packs may vary depending on your geographic location. Service starts on date of hardware purchase. Restrictions and limitations apply. Consult the HP Customer Support Center for details.
<http://www.hp.com/go/cpc>.

Technical Specifications

SYSTEM UNIT

Stand-Alone Power Requirements (AC Power)	Nominal Operating Voltage	19.5 V
	Average Operating Power	13.6W
	Max Operating Power	< 65 W
Temperature	Operating	32° to 95° F (0° to 35° C) (not writing optical) 41° to 95° F (5° to 35° C) (writing optical)
	Non-operating	-4° to 140° F (-20° to 60° C)
Relative Humidity	Operating	10% to 90%, non-condensing
	Non-operating	5% to 95%, 101.6° F (38.7° C) maximum wet bulb temperature
Shock	Operating	40 G, 2 ms, half-sine
	Non-operating	200 G, 2 ms, half-sine
Random Vibration	Operating	0.75 grms
	Non-operating	1.50 grms
Altitude (unpressurized)	Operating	-50 to 10,000 ft (-15.24 to 3,048 m)
	Non-operating	-50 to 40,000 ft (-15.24 to 12,192 m)
Planned Industry Standard Certifications(TBD)	UL	TBD
	CSA	TBD
	FCC Compliance	TBD
	EPEAT®	Gold*
	ICES	TBD
	Australia / NZ A-Tick Compliance	TBD
	CCC	TBD
	Japan VCCI Compliance	TBD
	KC	TBD
	BSMI	TBD
	CE Marking Compliance	TBD
	BNCI or BELUS	TBD
	CIT	TBD
	GOST	TBD
	Saudi Arabian Compliance (ICCP)	TBD
	SABS	TBD
	UKRSERTCOMPUTER	TBD

* EPEAT® registered where applicable. EPEAT registration varies by country. See www.epeat.net for registration status by country.

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

DISPLAYS

12.5" diagonal LED-	Outline Dimensions	11.44 x 6.72 x 0.11 in (29.05 x17.07 x 0.285 cm)
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Technical Specifications

backlit HD UWVA Ultralim (1366 x 768)	(W x H x D)		
	Active Area	10.85 x 6.1 in (27.559 x 15.494 cm)	
	Weight	0.57 lb (260g) (max)	
	Diagonal Size	12.5 in (35.75 cm)	
	Surface Treatment	Anti-glare	
	Contrast Ratio	400:1 (min)	
	Refresh Rate	60 Hz	
	Brightness	300 nit (typical)	
	Pixel Resolution	Format	1366 x 768 (HD)
		Configuration	RGB Stripe
	Interface	eDP 1.2 (1 lane)	
	LCD Mode	IPS	
	PPI	125 ppi	
	Viewing Angle	UWVA 85/85/85/85 (Left/Right/Down/Up)	
12.5" diagonal LED- backlit FHD UWVA Ultra slim (1920 x 1080)	Outline Dimensions (W x H x D)	11.44 x 6.72 x 0.11 in (29.05 x 17.07 x 0.285 cm)	
	Active Area	10.89 x 6.12 in (27.648 x 15.552 cm)	
	Weight	0.61 lb (280g) (max)	
	Diagonal Size	12.5 in (35.75 cm)	
	Surface Treatment	Anti-glare	
	Contrast Ratio	400:1 (min)	
	Refresh Rate	60 Hz	
	Brightness	300 nit (typical)	
	Pixel Resolution	Format	1920 x 1080 (FHD)
		Configuration	RGB Stripe
	Interface	eDP 1.3 (2 lane)	
	LCD Mode	IPS	
	PPI	176 ppi	
	Viewing Angle	UWVA 85/85/85/85 (Left/Right/Down/Up)	

STORAGE AND DRIVES

Internal Storage

64 GB* M.2 Solid State Drive	Drive Weight	10 grams	
	Capacity	64 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 510 MB/s	Up to 160 MB/s
	Logical Blocks	125,045,424	
	Operating Temperature	32° to 158°F (0° to 70°C) [case temp]	
	Features	ATA Security; ATA-8; SATA 3.0; DIPM; TRIM; DEVSLP	

Technical Specifications

128 GB* M.2 Solid State Drive	Drive Weight	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 510 MB/s	Up to 310 MB/s
	Logical Blocks	250,069,680	
	Operating Temperature	32° to 158°F (0° to 70°C) [case temp]	
180 GB* M.2 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 Gen 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]	
256 GB* M.2 Solid State Drive	Drive Weight	10 grams	
	Capacity	256 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 440 MB/s
	Logical Blocks	500,118,192	
	Operating Temperature	32° to 158°F (0° to 70°C) [case temp]	
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 Gen 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]	
256 GB* M.2 SED Solid	Drive Weight	10 grams	
	Features	ATA Security; ATA-8, SATA 3.0; DIPM; TRIM; DEVSLP;	

Technical Specifications

State Drive	Capacity	256 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 520 MB/s	Up to 300 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; 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.

SECURITY

HP Fingerprint Reader (optional)	Mobile Voltage Operation	3.0V-3.6V	
	Operating Temperature	14° – 167°F (-10° – 75°C)	
	Current Consumption	36 mA peak	
	Image		
	Low Latency Wait for Finger	950 uA	
	Capture Rate	30 cm/sec	
	ESD Resistance	IEC 61000-4-2 4B (±15KV)	
	Detection Matrix	200*1 (plus another secondary line) 508 dpi 12*3 mm sensor area	
Smart Card Reader	Smart card standard	PC/SC 2.0 for Windows smart card standard	
	Dimensions (L x W x H)	0.41x 0.08 x 0.32 in (10.5 x 2 x 8.2 mm)	
	Smart Card support	ISO 7816 Class A, B and C (5V/3V/1.8V) card	
	Smart Card Interface	Smart Card Interface with T = 0 and T = 1 support Support I2C memory card, SLE4418, SLE4428, SLE4432, SLE4442, SLE4436, SLE5536, SLE6636, AT88SC1608, AT45D041 card and AT45DB041 card via external EEPROM	
	Operating systems	No driver is required for this device. Native support is provided by the operating system.	
	Power	Normal Mode	With card present, before being suspended: 40.9 mA Without card present, before being suspended: 33.16 mA After being suspended with smart card present: 380 uA After being suspended without smart card present: 380 uA
		Power Saving Mode	With card present, before being suspended: 40.6 mA Without card present: 380 uA After being suspended with smart card present: 380 uA

Technical Specifications

Features

- Support single slot
- Support T0, T1 protocol
- Support I2C memory card, SLE4418, SLE4428, SLE4432, SLE4442, SLE4436, SLE5536, SLE6636, AT88SC1608, AT45D041 card and AT45DB041 card via external EEPROM
- Support ISO7816 Class A, B and C (5V/3V/1.8V) card
- Implemented as an USB full speed device with bulk transfer endpoint, mass storage endpoint
- Built-in PLL for USB and Smart Card clocks requirement
- Support EEPROM for USB descriptors customization (PID/VID/iManufacturer/iProduct/Serial Number), Direct Web Page Link, and accessing memory card module.
- EEPROM programmable via USB interface
- Support software update for memory card module
- Support Direct Web Page Link via configuration in external EEPROM
- Support short APDU and extended APDU
- Compatible with Microsoft USB-CCID driver
- Support remote wake up through inserting card/removing card
- Support USB selective suspend
- Support Power Saving Mode (Using one pin to select between Normal/PWR Saving Mode)
- Support card power over current protection mechanism
- Built in resonator.
- Support USB LPM (Link Power Management) features.
- Embedded clock source.

NETWORKING/COMMUNICATIONS

HP hs3110/3114 HSPA+ 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
 E-GPRS: Class B, Multi-slot class 33, coding schemes CS1 - CS4 and MSC1 - MSC9.
 UMTS/WCDMA: Release 99 and Release 7

Wireless protocol standards

GPS

Standalone, A-GPS

GPS bands

1575.42 MHz \pm 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

Technical Specifications

HP Lt4211 LTE/EVDO/HSPA+ Qualcomm® Gobi™ 4G Module*	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.	
	Technology/Operating bands	LTE: 1900 (Band 2), 1700 (Band 4), 850 (Band 5), 700 (Band 13), 700 (Band 17), 1900 (Band 25) MHz HSPA+: 2100 (Band 1), 1900 (Band 2), 1700 (Band 4), 850 (Band 5), 800 (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 9 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
	GPS bands	1575.42 MHz, GLONASS 1602 MHz
	Maximum data rates	LTE: 100 Mbps (Download), 50Mbps (Upload) DC-HSPA+: 42 Mbps (Download), 5.76 Mbps (Upload) HSPA+: 21.6 Mbps (Download), 5.76 Mbps (Upload) WCDMA PS: 384 kbs (Download), 384 kbs (Upload) WCDMA CS: 64 kbs (Download), 64 kbs (Upload) E-GPRS: 236.8 kbps (Download), 236.8 kbps (Upload) GPRS: 85.6 kbps(Download), 85.6 kbps (Upload) EV-DO Rev.B: 14.7 Mbps (Download), 5.4 Mbps (Upload) EV-DO Rev.A: 3.1 Mbps (Download), 1.8 Mbps (Upload)
	Maximum output power	LTE: 23 dBm HSPA+: 24 dBm E-GPRS Band 1800/1900: 25 dBm E-GPRS Band 850/900: 26 dBm GPRS 1800/1900 : 30 dBm GPRS 850/900: 32 dBm EV-DO: 24 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); 500 mA (average) EV-DO: 1000 mA (peak); 700 mA (average)
	Form Factor	M.2, 3042-S3 Key B
HP Lt4112 LTE/HSPA+	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.	
	Technology/Operating	LTE: 2100 (Band 1), 1900 (Band 2), 1800 (Band 3), 850 (Band 5), 2600

Technical Specifications

Qualcomm® Gobi™ 4G Module*	bands	(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
	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 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.

Intel Dual Band Wireless-AC 3160 802.11 ac (1x1) WiFi and Bluetooth 4.0 Combo* Adaptor	General	Dimensions (H x W x D)	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
		Diversity	No diversity support
		Radio ON/OFF Control	Supported in both hardware and software
		Connector interface	Half Mini Card form factor, based on PCIe electrical interface Next Generation Form Factor, A-SD electrical interface definition support
		LED Output	On/Off
		Operating Temperature (Adapter Shield)	0° to +80° C

Technical Specifications

Security	Humidity Non-Operating	50% to 90% RH non-condensing (at temperatures of 25°C to 35°C)
	Operating Systems	Microsoft Windows 7, Microsoft Windows 8, Linux
	Wi-Fi Alliance	Wi-Fi CERTIFIED for 802.11ac, Wi-Fi CERTIFIED a/b/g, Wi-Fi CERTIFIED n, WMM, WPA, WPA2, and WPS, WPS 2.0, Protected Management Frames, Wi-Fi Direct for peer to peer device connections
	Microsoft WHQL	Yes
	IEEE WLAN Standard	IEEE 802.11abgn, 802.11ac, 802.11d, 802.11e, 802.11i, 802.11h, 802.11w
	Architecture	Infrastructure and SoftAP; Supports simultaneous Client and SoftAP modes in 2.4 GHz or 5GHz
	Roaming¹	ACPI and PCI Express compliant power management 802.11 compliant power saving mode
	Authentication	WPA and WPA2, 802.1X (EAP-TLS, TTLS, PEAP, LEAP, EAP-FAST), EAP-SIM, EAP-AKA
	Authentication Protocols	PAP, CHAP, TLS, GTC, MS-CHAP, MS-CHAPv2
	Encryption	64-bit and 128-bit WEP, AES-CCMP, TKIP
Compliance	Wi-Fi Direct Encryption and Authentication	WPA2, AES-CCMP
	Product Safety	UL, C-UL, CB (IEC 60950-1)
	Management Frame Protection	802.11w (WFA- Protected Management Frames)
	Retail (Credit Card Processing)	PCI, CISP
	Government	FIPS ² , FISMA

1. Roaming is supported only within each respective band and mode of access points.

2. Microsoft Windows 7 only.

HP Integrated Module with Bluetooth 4.0+EDR Wireless Technology

Bluetooth Specification	Dual Mode Bluetooth* 2.1, 2.1+EDR, 3.0, 3.0+HS, 4.0 (BLE)
Dimensions	4.75 x 26.8 x 30 mm
Weight	3.1g
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	-1.5 dBm to 4 dBm (Bluetooth Class II)
Receiver Sensitivity	Better than -20 dBm at 0.1 % raw bit error rate
Power Consumption	Peak (Tx) 264 mW Peak (Rx) 231 mW Sleep <1 mW

Technical Specifications

Antenna	Internally integrated within module	
Range	Up 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	
Temperature	Operating	-14° to 158° F (-10° to 70° C)
	Non-operating	-40° to 212° F (-40° to 100° C)
Humidity	Operating	0% to 90%
	Non-operating	0% to 95%
Altitude	Operating	15,000 ft (4,572 m)
	Non-operating	40,000 ft (12,192 m)
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. The specifications for the 802.11ac WLAN are draft specifications and are not final. If the final specifications differ from the draft specifications, it may affect the ability of the notebook to communicate with other 802.11ac WLAN devices.

Broadcom 802.11 b/g/n (1x1) wireless LAN **Wireless LAN Standards** IEEE 802.11b
IEEE 802.11g



Technical Specifications

module+ Bluetooth 4.0 Combo Adaptor

Interoperability

IEEE 802.11n

Wi-Fi certified

Cisco Compatible Extensions Program compliant with Microsoft Windows 7(details at: <http://www.hp.com/go/notebooks/WLAN>)

Frequency Band

802.11b/g/n 2.402 - 2.482 GHz

Antenna Structure

1 transmit;1 receive (1x1)

Data Rates

802.11b: 1, 2, 5.5, 11 Mbps

802.11g: 6, 9, 12, 18, 24, 36, 48, 54 Mbps

802.11n: MCS 0 ~ MCS 7, (20MHz)

Modulation

Direct Sequence Spread Spectrum

CCK, BPSK, QPSK, 16-QAM, 64-QAM

Security¹

- 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 CC-5
- WAPI

Sub-channels

Multinational support with frequency bands and channels compliant to local regulations.

Network Architecture Models

Ad-hoc (Peer to Peer) on Windows 7

Infrastructure (Access Point Required)

Roaming

IEEE 802.11 compliant roaming between band Access Points

Output Power²

- 2.4G: +13.5dBm minimum

Power Consumption

Transmit: 2.0 Watts

Receive: 1.6 Watts

Idle mode³: 170 mW (WLAN Associated)

Idle mode: 40 mW (WLAN unassociated)

Radio off: 20 mW

Power Management

ACPI and PCI Express compliant power management

802.11 compliant power saving mode

Receiver Sensitivity⁴

802.11g:-82 dBm (6 Mbps), -65 dBm (54 Mbps)

802.11b:-96 dBm (1 Mbps), --88 dBm (11 Mbps)

Antenna Connections

802.11n:-64 dBm (72 Mbps),

Form Factor

2 U.FL type connectors (output impedance of 50 ± 2 ohms)

Dimensions

PCI-Express Half-MiniCard

Weight

1.5 x 16.5 x 30.0 mm

Operating Voltage

3.1g

Temperature

3.3v +/- 10%

Operating 14° to 158° F (-10° to 70° C)

Non-operating -40° to 176° F (-35° to 85° C)

Humidity

Operating 0% to 95% (non-condensing)

Non-operating 0% 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.

Technical Specifications

	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 may also be compatible with certain third-party software supplicants. WLAN supplier IHV extensions required for Cisco Compatible Extensions support for Microsoft Windows 7, 8.1.
HP Integrated Module with Bluetooth 4.0+EDR Wireless Technology	
Bluetooth Specification	4.0+EDR Compliant
Dimensions	TBD
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	-1.5 dBm to 4 dBm (Bluetooth Class II)
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) Hard Copy Cable Replacement (HCRP) ^{1,2} Personal Area Networking Profile (PAN) ^{1,2} Human Interface Device Profile (HID) ^{1,2} Headset Profile (HSP) Hands Free Profile (HFP) Advanced Audio Distribution Profile (A2DP)
Wireless LAN Standards	IEEE 802.11a IEEE 802.11b IEEE 802.11g IEEE 802.11n IEEE 802.11ac
Interoperability	Wi-Fi certified
Frequency Band	802.11b/g/n • 2.402 – 2.482 GHz

**Intel Dual Band
Wireless-AC 7260
802.11 ac (2x2) WiFi +
BT 4.0 combo**

Technical Specifications

	802.11a/n
	<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 2.402 – 2.482 GHz
Data Rates	<ul style="list-style-type: none"> 802.11b: 1, 2, 5.5, 11 Mbps 802.11g: 6, 9, 12, 18, 24, 36, 48, 54 Mbps 802.11a: 6, 9, 12, 18, 24, 36, 48, 54 Mbps 802.11n: MCS 0 ~ MCS 15, (20MHz, and 40MHz) 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	Ad-hoc (Peer to Peer)
Models	Infrastructure (Access Point Required)
Roaming	IEEE 802.11 compliant roaming between access points
Output Power²	<ul style="list-style-type: none"> 2.4G: +13.5dBm minimum 5G: +12dBm minimum Maximum output power must be able to achieve modular regulatory certification with notebooks that have antennas >20cm from the user and peak gain of +3dBi at 2.4GHz and +4dBi at 5GHz
Power Consumption	Transmit: 2.0 W (max) Receive: 1.6 W (max) Idle mode (PSP): 250 mW (WLAN Associated) Idle mode: 100 mW (WLAN unassociated) Radio disabled: 75 mW
Power Management	ACPI and PCI Express compliant power management
	802.11 compliant power saving mode
Receiver Sensitivity³	802.11b:-95 dBm (1 Mbps), -93 dBm (2 Mbps), -91 dBm (5.5 Mbps), -88 dBm (11 Mbps)
	802.11a/g:-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 (72.2 Mbps), -66 dBm (300 Mbps)
	802.11ac: -83 dBm (65Mbps), -79 dBm (195Mbps), -73 dBm (390Mbps), -66 dBm (650Mbps), -60 dBm (867Mbps)
Antenna type	High efficiency antenna with spatial diversity, mounted in the display

Technical Specifications

	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	TBD
Weight	TBD
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
	<ol style="list-style-type: none"> 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).
Bluetooth Specification	V4.0 High Speed, V2.1+EDR, backwards compatible with V1.1, 1.2 and 2.0
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	–6 dBm to 4 dBm (Bluetooth Class II)
Receiver Sensitivity	Better than –80 dBm at 0.1 % raw bit error rate
Power Consumption	Peak (Tx) 330 mW Peak (Rx) 230 mW Sleep 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
Link Topology	Microsoft Windows Bluetooth Software 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	Generic Access Profile (GAP) Service Discovery Application Profile (SDAP) Serial Port Profile (SPP) Dial_Up Networking Profile (DUN) Generic Object Exchange Profile (GOEP) Object Push Profile (OPP)

Technical Specifications

Intel Dual Band Wireless-N 7260AN 802.11 a/b/g/n (2x2) WiFi + Bluetooth 4.0 Combo Adaptor	Wireless LAN Standards	File Transfer Profile (FTP) Synchronization Profile (SYNC) Hard Copy Cable Replacement (HCRP) Personal Area Networking Profile (PAN) Human Interface Device Profile (HID) Generic Audio/Video Distribution Profile (GAVDP) Advanced Audio/Video Distribution Profile (A2DP) FAX Profile (FAX) Basic Imaging Profile (BIP) Headset Profile (HSP) Hands Free Profile (HFP) Basic Printing Profile (BPP) VDP (Video Distribution Profile) AVRCP (Audio Video Remote Control Profile)
		IEEE 802.11a IEEE 802.11b IEEE 802.11g IEEE 802.11n
		Wi-Fi certified Cisco Compatible Extensions Program compliant with Microsoft Windows 7, Windows Vista and XP (details at: http://www.hp.com/go/notebooks/WLAN)
		Frequency Band
		802.11b/g/n 2.402 - 2.482 GHz 802.11a/n 4.9 - 4.95 GHz (Japan) 5.15 - 5.25 GHz 5.25 - 5.35 GHz 5.47 - 5.725 GHz 5.825 - 5.850 GHz
		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
	Security¹	Direct Sequence Spread Spectrum CKK, BPSK, QPSK, 16-QAM, 64-QAM
		<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"> 2.4G: +13.5dBm minimum 5G: +12dBm minimum
	Power Consumption	Transmit: 2.0 Watts
		Receive: 1.6 Watts

Technical Specifications

	Idle mode ³ : 250 mW (WLAN Associated) Idle mode: 100 mW (WLAN unassociated) Radio off: 75 mW
Power Management	ACPI and PCI Express compliant power management 802.11 compliant power saving mode
Receiver Sensitivity ⁴	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 Connections	2 U.FL type connectors (output impedance of 50 ± 2 ohms)
Form Factor	PCI-Express Half-MiniCard
Dimensions	TBD
Weight	TBD
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
<ol style="list-style-type: none"> 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
Dimensions	TBD
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	-1.5 dBm to 4 dBm (Bluetooth Class II)
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

Technical Specifications

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)

AUDIO/MULTIMEDIA

Hardware	Implementation	B Realtek ALC3228 High Definition CODEC
	Function Key Volume Controls	Volume up, volume down, and mute
	Full Duplex	Yes
	Microphone In	Stereo
	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

Technical Specifications

Internal Stereo Speaker	Power Rating	1.5Watt
	Impedance	8 ohms

POWER

HP 45W Smart AC Adapter non-slim	Dimensions (H x W x D)	95.0 x 40.0 x 26.5mm	
		90 to 265 VAC	
		Input Efficiency	88% min at 115 VAC / 89% min at 230VAC
	Input	Input frequency range	47 to 63 Hz
		Input AC current	1.4 A at 90 VAC and maximum load
		Output	
	Output	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 4.5mm 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%
		Storage Humidity	0% to 95%
	EMI and Safety Certifications	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 45W Smart AC Adapter non-slim 2 prong	Dimensions (H x W x D)	95.0 x 40.0 x 26.5mm	
		90 to 265 VAC	
		Input Efficiency	88% min at 115 VAC / 89% min at 230VAC
	Input	Input frequency range	47 to 63 Hz
		Input AC current	1.4 A at 90 VAC and maximum load
		Output	
	Output	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	2 pin/non-grounded, mates with 4.5mm 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%
		Storage Humidity	0% to 95%
	EMI and Safety	CE Mark - full compliance with LVD and EMC directives; Worldwide safety	

Technical Specifications

HP 65W EM Smart AC Adapter	Certifications	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.	
	Dimensions	126.0 x 50.0 x 30.0 mm	
	Weight	300 g	
	Input	90 to 265 VAC	
	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
		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 4.5mm barrel type Smart ID DC connector	
	Environmental Design	Operating temperature	32° to 95° F (0° to 35° C)
		Non-operating (storage) temperature	-4° to 185° F (-20° to 85° C)
		Altitude	0 to 16,405 ft (0 to 5,000 m)
		Humidity	20% to 95%
		Storage Humidity	10% to 95%
	EMI and Safety Certifications	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.	
HP 65W Smart Travel AC Adapter	Dimensions	120.0 x 57.6 x 16.7 mm	
	Weight	250 g	
	Input	90 to 265 VAC	
	Output	Input Efficiency	88% min at 115 VAC / 89% min at 230VAC
		Input frequency range	47 to 63 Hz
		Input AC current	1.7 A at 90 VAC
		Output power	65W
		DC output	18.5V
		Hold-up time	5 msec at 115 VAC input
		Output current limit	<11A, Over voltage protection- 29V max automatic shutdown
	Connector	3 pin/grounded, mates with interchangeable cords	
	Environmental Design	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%

Technical Specifications

EMI and Safety Certifications		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.	
HP 2-cell Polymer Battery Cells/Type (25 WHr)	Watt-hour capacity	2-cell Polymer 25WHr	
	Temperature	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)
	Warranty	3 year limited	
HP 4-cell Polymer Battery Cells/Type (29.3 WHr)	Watt-hour capacity	4-cell Polymer 29.3 WHr	
	Temperature	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)
	Warranty	3 year limited	

COUNTRY OF ORIGIN

China

ENVIRONMENTAL

Environmental Data	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: <ul style="list-style-type: none"> 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 (Short idle)	6.1 W	6.2 W	6.2 W
Normal Operation (Long idle)	2.3 W	2.8 W	2.5 W
Sleep	0.7 W	0.8 W	0.7 W
Off	0.4 W	0.5 W	0.4 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.

Technical Specifications

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 Dissipation*	115VAC, 60Hz	230VAC, 50Hz	100VAC, 60Hz
Normal Operation (Short idle)	21 BTU/hr	21 BTU/hr	21 BTU/hr
Normal Operation (Long idle)	8 BTU/hr	10 BTU/hr	9 BTU/hr
Sleep	2 BTU/hr	3 BTU/hr	2 BTU/hr
Off	1 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 ISO 7779 and ISO 9296)	Sound Power (L _{WAd} , bels)	Sound Pressure (L _{pAm} , decibels)
Typically Configured – Idle	2.5	14.8
Fixed Disk – Random writes	2.9	22.7

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??

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 the1ppm by weight
- Cadmium greater than 20ppm by weight

Battery size: ML1220 (coin cell)

Battery type: Lithium

Battery size: 4-cell high capacity Lithium-Ion battery (optional 2 cell available)

Battery type: Lithium

Technical Specifications

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 0% post-consumer recycled plastic (by wt.)
- This product is 97.1% recycle-able when properly disposed of at end of life.

Packaging Materials

External: PAPER/Corrugated

Internal: PLASTIC/EPE -- Expanded Polyethylene
PLASTIC/Polyethylene low density

The plastic packaging material contains at least 50% recycled content.

The corrugated paper packaging materials contains at least 70% 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 (PBEBs)
- 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)

Technical Specifications

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>

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

Type	Description	Part #
Cases	HP Essential Top Load Case (up to 15.6")	H2W17AA
	HP Business Backpack	H5M90AA
	HP Essential Backpack (up to 15.6")	H1D24AA
	HP Slim Ultrabook Top Load (up to 15.6" x .88"/22/5mm)	F3W15AA
	HP Slim Ultrabook Backpack (up to 15.6" x .88"/22/5mm)	F3W16AA
Expansion Base	HP Pro x2 612 G1 BL Power Keyboard	K3T47AA
	HP Pro x2 612 G1 Travel Keyboard	G8X14AA
Input/Output – Mice	HP Comfort Grip Wireless Mouse	H2L63AA
	HP 3-button USB Laser Mouse	H4B81AA
Input/Output – Keyboards	HP 2.4GHz Keyboard and Mouse	G1K29AA
Adapter	HP Display port to HDMI 1.4 Adapter	F3W43AA
	HP Displayport to VGA adapter	F7W97AA
Monitors	HP ProDisplay P231 23-inch LED Backlit Monitor	E4S07AA
	HP UltraSlim Docking Station	D9Y32AA

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Summary of Changes

Date of change:	Version History:		Description of change:
June 13, 2014	From v1 to v2	Changed	Change log
July 7, 2014	From v2 to v3	Changed	Weight specs
July 24, 2014	From v3 to v4	Changed	Weight specs
July 28, 2014	From v4 to V5	Added	HP Pro x2 612 Travel Keyboard and battery life
August 8, 2014	From v5 to v6	Changed	Various specs throughout the document
August 13, 2014	From v6 to v7	Added	Dimensions/weights for WLAN modules
August 13, 2014	From v7 to v8	Changed	Battery life spec
August 20, 2014	From v8 to v9	Changed	Support for the SD ports
October 24, 2014	From v9 to v10	Changed	Battery life specs on page 13
December 2, 2014	From v10 to v11	Added	Environmental specs and added vPro support to the Intel® Core™ i5-4302Y with Intel HD Graphics 4200 processor
December 4, 2014	From v11 to v12	Added	Intel WiDi Software for Windows 7 on page 11
January 9, 2015	From v12 to v13	Updated	At a glance, Environmental and weight.
January 15, 2015	From v13 to v14	Updated	Removed MHz from memory
February 2, 2015	From v14 to v15	Updated	TPM Security Chip on pages 7, 12
February 19, 2015	From v15 to v16	Updated	External Display information
April 14, 2015	From v16 to v17	Added	Web supported Operating Systems
		Updated	Memory description
April 27, 2015	From v17 to v18	Removed	HP 2013 UltraSlim Docking Station D9Y32AA
April 29, 2015	From v18 to v19	Added	HP UltraSlim Docking Station D9Y32AA
June 29, 2015	From 19 to v20	Added	Windows 10 added to Overview on page 7, OS list and footnotes on pages 8, 10.