Overview

HP Elite x2 1012 G2

1. Infrared camera
2. Infrared camera light
3. Audio-out/Audio-in combo jack
4. USB-A 3.0
5. Power LED
6. USB Type-C™ with Thunderbolt
7. Micro SIM Card Slot*
8. Kickstand
9. Application Launch Button (Default OneNote)

10. Clip
11. Select
12. Erase
13. Tip
14. Keyboard guide pins
15. Webcam light
16. Webcam
17. Microphones
18. Front-firing speakers

*only available on configurations with WWAN enabled

Overview

1. Power
2. Volume Up/Volume down
3. Micro SD Memory Card Slot
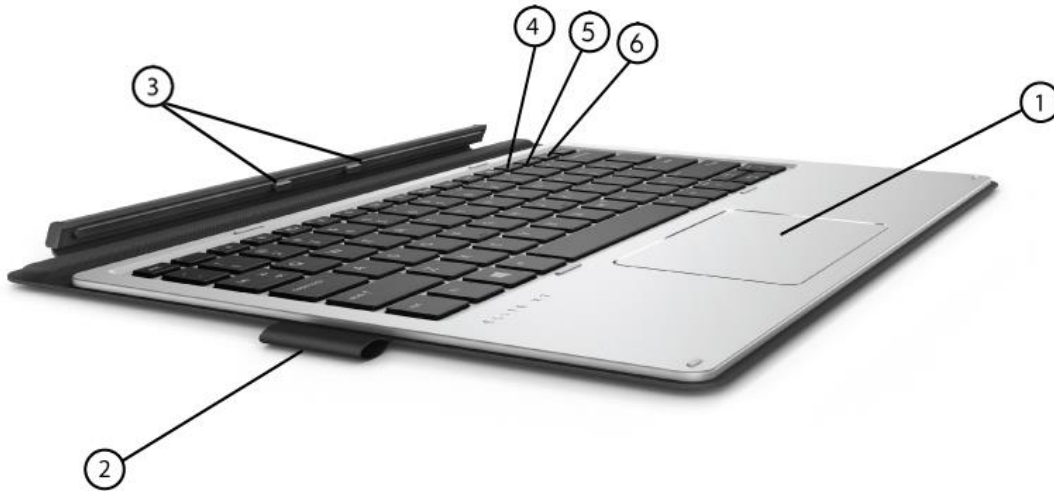4. Security Cable Slot
5. Pen Lanyard Slots

Not all configuration components are available in all regions/countries.
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Overview

1. Camera
2. Camera Flash

3. Fingerprint Sensor (optional)

Not all configuration components are available in all regions/countries.
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Overview

HP Elite x2 1012 G2 Collaboration Keyboard

1. ClickPad	2. Pen Holder	3. Guide Pins	**Collaboration Keys:**
			4. Present
			5. Call answer/initiate
			6. Call end

Collaboration Keys Detail
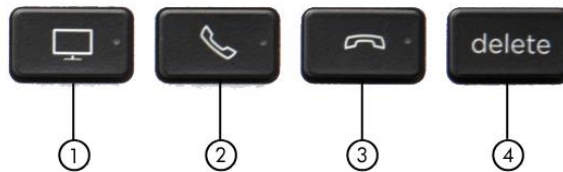
1. Present   2. Call answer/initiate   3. Call end   4. Delete

HP Elite x2 1012 G1 Advanced Keyboard

1. ClickPad/NFC Area   2. Smart card Slot   3. Guide Pins

Not all configuration components are available in all regions/countries.
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Technical Specifications

At A Glance

- Designed for excellent mobility, this stylish and thin 2-in-1 design is built to the standards of Elite durability
- The quiet design and up to 10 hours and 15 minutes of battery life[1] lets you work, surf, and connect with colleagues
- Windows 10 versions
- 7th Generation Intel® Core™ (U-series) processors, some with vPro™ support[2]
- 12.3" diagonal ultra-slim LED-backlit better than QHD (2736 x 1824) Multi-Touch Display
- Solid State Drives up to 512GB including FIPS 140.2 (CIS only);OPAL 2 drives support up to 256GB PCLe NVMe drives support up to 1024GB
- Weight starting at 803g for Tablet
- Height starting at 8.05mm for Tablet
- Passed MIL-STD 810G testing:
    - MIL-STD is not intended to demonstrate fitness for U.S. Department of Defense contract requirements or for military use. MIL-STD test results are not a guarantee of future performance under these test conditions. Damage from drops requires separately purchase Accidental Damage Protection HP Care Pack.
- Audio by Bang & Olufsen
- Optional IR camera
- Dual microphone array with HP Advanced Noise Reduction Software
- Front and Back facing camera and webcam
- Supports a broad range of wireless broadband and Wi-Fi options for connectivity on the go
- Optimized security using industry standard technologies such as TPM2.0, optional integrated fingerprint reader and an optional smart card reader in the optional Advanced keyboard
- Passed EN 60601-1-2:2007 and IEC 60601-1-2:2014 tests
- ENERGY STAR® certified. EPEAT® Gold registered where applicable/supported. Registration may vary by country. See www.epeat.net for registration status by country.
- Protect your device and data using the latest HP security technology solutions: HP Sure Start, HP BIOSphere and HP Client Security.
- Standard commercial 1 year limited warranty with extended service available with optional HP Care Packs.

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

[1] Windows 10 MM14 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] vPro™ support not available on all configurations.

Not all configuration components are available in all regions/countries.

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QuickSpecs

HP Elite x2 1012 G2

Technical Specifications

PRODUCT NAME

HP Elite x2 1012 G2

OPERATING SYSTEM

Preinstalled	Windows 10 Pro 64[1]
	Windows 10 Pro 64 (National Academic License)[2]
	Windows 10 Home 64[1]
	Windows 10 Home Single Language 64[1]
Web-only Support	Windows 10 Enterprise 64

1. 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.windows.com.

2. Some devices for academic use will automatically be updated to Windows 10 Pro Education with the Windows 10 Anniversary Update. Features vary; see https://aka.ms/ProEducation for Windows 10 Pro Education feature information.

NOTE: Your product does not support Windows 8 or Windows 7

In accordance with Microsoft's support policy, HP does not support the Windows® 8 or Windows 7 operating system on products configured with Intel and AMD 7th generation and forward processors or provide any Windows® 8 or Windows 7 drivers on http://www.support.hp.com

PROCESSOR*

7th Generation Intel® Core™ i3, i5 and i7 Processors:

Intel® Core™ i3-7100U with Intel® HD Graphics 620
(2.4 GHz, 3 MB cache, 2 cores)

Intel® Core™ i5-7200U with Intel® HD Graphics 620
(2.5 GHz, up to 3.1 GHz with Intel® Turbo Boost Technology**, 3 MB cache, 2 cores)

Intel® Core™ i5-7300U with Intel® HD Graphics 620
(2.6 GHz, up to 3.5 GHz with Intel® Turbo Boost Technology**, 3 MB cache, 2 cores), vPro™ Support

Intel® Core™ i7-7600U with Intel® HD Graphics 620
(2.8 GHz, up to 3.9 GHz with Intel® Turbo Boost Technology**, 4 MB cache, 2 cores), vPro™ Support

* 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.. Performance and clock frequency will vary depending on application workload and 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 http://www.intel.com/technology/turboboost for more information.

CHIPSET

Integrated with processor

GRAPHICS

Intel® HD Graphics 620

DISPLAY

Internal

Touch screen

12.3" diagonal BrightView LED-backlit better than QHD* UWVA eDP 1.3 Ultra-slim (2736 x 1824) Touch screen Chemically-strengthened Corning® Gorilla® Glass 4 top cover directly bonded to display

Refresh Rate	60 Hz	
Brightness	450 nits (maximum)	
Pixel Resolution	Format	2736 x 1824 (better than QHD)
	Configuration	RGB Stripe
Interface	eDP 1.3	
LCD Mode	IPS	
PPI	268 ppi	
Viewing Angle	UWVA 85/85/85/85 (Left/Right/Down/Up)	

External

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

STORAGE AND DRIVES

Internal Storage* - supports M.2 SSD SS 2280

- 128 GB SATA-3 SS VALUE SSD
- 256GB 2280 M2 PCIe-3x4 SS NVMe TLC
- 256GB 2280 M2 SATA-3 Self Encrypted OPAL2 TLC
- 256GB 2280 PCIe NVMe Value
- 360GB 2280 PCIe-3x4 NVMe TLC
- 512GB 2280 M2 PCIe-3x4 SS NVMe TLC
- 512GB 2280 PCIe NVMe Value
- 512GB 2280 M2 SATA-3 Three Layer Cell Federal Information Processing Standard (FIPS 140.2 available via CIS only)
- 1024 GB 2280 PCIe-3x4 NVMe TLC

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

Expansion Storage

Micro SD Media Reader Slot - Supports microSD, microSDHC, microSDXC, supporting expansion up to 2TB

Not all configuration components are available in all regions/countries.
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Technical Specifications

MEMORY

LPDDR3-1866 (Transfer rates up to 1866 MT/s)
Supports Dual Channel Memory
Soldered Down

Standard
4 GB Total System Memory
8 GB Total System Memory

Maximum
Up to 16 GB

NETWORKING/COMMUNICATIONS

Wireless
Support for a broad range of secure, integrated wireless LAN/Bluetooth 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 factory-only configurable feature only. Standalone GPS is also available (factory configurable only) and is supported via combo card.

Wireless WAN (WWAN)*

HP lt4132 LTE/HSPA+ 4G Mobile Broadband Module
HP lt4120 Qualcomm® Snapdragon™ X5 LTE Mobile Broadband Module
HP lt4225 LTE/EV-DO Gobi™ 4G Mobile Broadband Module
HP lt4226 LTE/HSPA+ Gobi™ 4G Mobile Broadband Module HP hs3210 HSPA+ Mobile Broadband Module

Wireless LAN (WLAN)**

Intel® Dual Band Wireless-AC 8265 802.11a/b/g/n/ac (2x2) WiFi and Bluetooth® 4.2 Combo (vPro)
Intel® Dual Band Wireless-AC 8265 802.11a/b/g/n/ac (2x2) WiFi and Bluetooth® 4.2 Combo (non-vPro)

Standalone GPS***
HP Graff GNSS Module

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

***Standalone GPS is an optional feature and requires factory configuration. GPS and WWAN are mutually exclusive.

Not all configuration components are available in all regions/countries.
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AUDIO/MULTIMEDIA

Audio
Audio by Bang & Olufsen
Dual speakers (front facing)
Dual microphone array with echo cancellation, noise suppression
Headphone line-out and microphone-in (combo)
HP Advanced Noise Reduction Software

Camera – Front
Integrated 5 MP (1080p)

- 1080p format for video
- 5 MP 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

Camera – Back
Integrated 8 MP with flash (1080p)

- 1080p format for video
- 8 MP 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

IR Camera Integrated VGA IR camera w/ IR LED emitters that meets Microsoft Hello face recognition certification for secure authentication.

* Internet access required.

ACTIVE PEN

HP Active Pen with Bluetooth® App Launch

Pen Technology	Wacom AES
Digitizer	N/A, shared with touch
Dimensions	147.4 x 9.5 mm
Weight	17.5 g
Power	AAAA battery and 319 coin cell x2
System Requirements	Windows 10
Tip Diameter	1 mm
Pen Tips	Three extra elastomer pen tips for replacement
Pressure Sensitivity (Y/N)	Yes (2048 levels)
Buttons (Y/N)	Yes, 3
Resolution	2540 ppi
Report rate	133hz
Hover Capability (Y/N)	Yes

Not all configuration components are available in all regions/countries.

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Technical Specifications

Hover Height (mm)	10mm+
Palm Rejection (Y/N)	Yes
Tilt Angle (Y/N)	>60 degrees from vertical
Battery Life Based on	
Continuous Usage	7.5 month+

OPTIONAL KEYBOARDS

Optional HP Elite x2 1012 G2 Collaboration Keyboard*

Kit contents	HP Elite x2 1012 G2 Collaboration Keyboard and documentation
Weight	.78 lb (353 g)

Optional HP Elite x2 1012 G1 Advanced Keyboard*

Kit contents	HP Elite x2 1012 G1 Advanced Keyboard and documentation
Key Features	Smart card reader FIPS-201 compliant.
	Security - Near Field Communications (NFC) Module
Weight	.992 lb (450 g)

*Sold as an optional feature

Keyboard Features (Advanced Keyboards)

- Backlit
- HP DuraKeys
- 1.3mm key travel
- 18.4mm pitch
- ClickPad™ (91 x 51 mm) with image sensor, multi-touch gestures enabled, on/off function and LED indicator
- 165° max opening angle
- Docking connector to tablet
- Full size 81/82-key island-style backlit keyboard with full row of function keys and LED indicators

ClickPad

Glass with chemical etched surface
Supports 2-way scroll
Taps enabled as default
Gestures enabled by default - 2 Finger Scrolling, 2 Finger Zoom (Pinch)

Keyboard Features (Collaboration Keyboard only)

F1 – Display Switching
F2 - Blank
F3 – Brightness Down
F4 - Brightness Up
F5 - Speaker Mute
F6 - Volume Down
F7 - Volume Up
F8 - Mic Mute
F9 - Backlight Toggle
F10 – Number Lock
F11 – Wireless On/Off
F12 – Calendar

Not all configuration components are available in all regions/countries.
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Technical Specifications

Dedicated Skype for
Business keys:

Present
Call answer/initiate
Call end
Delete

Keyboard Features (Advanced Keyboard only)

Function Keys   F1 - Blank
F2 - Blank
F3 - Sleep
F4 - Display Switching
F5 – Speaker Mute
F6 - Volume Down
F7 - Volume Up
F8 - Mic Mute
F9 - Brightness Down
F10 - Brightness Up
F11 - Backlight Toggle
F12 - Wireless On/Off

SOFTWARE AND SECURITY

Preinstalled Software with Windows Operating System

HP BIOS
HP BIOSphere Gen3[1]
HP Sure Start Gen3[2]
HP DriveLock | HP Automatic DriveLock
BIOS Update via Network
Master Boot Record Security
Power On Authentication
Secure Erase[3]
Absolute Persistence Module[4]
Pre-boot Authentication

Communication / Connectivity
HP Mobile Connect Pro[5]
Native Miracast Support[6]
HP LAN-WLAN Protection
HP MAC Address Manager (select models only)
HP SureConnect
HP Velocity

HP Value Add Software
HP ePrint Driver + JetAdvantage[7]
HP Hotkey Support - CMIT
HP Jumpstart
HP Support Assistant
HP Noise Cancellation Software

Not all configuration components are available in all regions/countries.
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Technical Specifications

Microsoft Products

Buy Office
Bing Search
Skype[8]

Manageability

HP Driver Packs[9]
HP SoftPaq Download Manager (SDM)
HP System Software Manager (SSM)[9]
HP BIOS Config Utility (BCU)[9]
HP Client Catalog[9]
HP MIK for Microsoft SCCM[9]
LANDESK Management[10]

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

Client Security Software

HP Client Security

- HP Security Manager (including Credential Manager and Password Manager)
- HP Drive Lock
- HP Fingerprint Sensor
- HP Password Manager
- Absolute Persistence Module
- Power On Authentication
- Microsoft Defender[11]
- HP Workwise[12]

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

Security Hardware

TPM 2.0 Embedded Security Chip (Common Criteria EAL4+ Certified)
HP Fingerprint Reader (selectd models)
Integrated VGA IR camera with IR LED emitters that meets Microsoft Hello face recognition certification for secure authentication (select models)

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

1. BIOSphere Gen3 requires Intel® or AMD® 7th generation processors.
2. Available on HP Elite products equipped with Intel® 7th generation processors as well as the HP Pro x2 612 G2.
3. For the methods outlined in the National Institute of Standards and Technology Special Publication 800-88.
4. Absolute 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 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.
5. HP Mobile Connect Pro is only available on preconfigured devices with WWAN. For geographic availability refer to www.hp.com/go/mobileconnect
6. 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
7. 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/eprintcenter).

Technical Specifications

8. Skype is not offered in China.
9. Not preinstalled, however available for download at http://www.hp.com/go/clientmanagement
10. Subscription required.
11. Opt in and internet connection required for updates.
12. HP Workwise smartphone app is available as a free download on the App Store and Google Play. See requirements at http://www.hp.com/go/workwise

POWER

Power Supply
HP 45 W USB Type-C™ AC adapter
HP 65 W USB Type-C™ AC adapter
- USB Type-C™ DC integrated cord (1.8m)
- AC Power cord (1m)
- AC Adapter Weight: 245g +/- 10g

Tablet – Battery
4-cell Long Life Polymer 47Whr (3055mAhr/cell)
- Voltage – 7.7 V
- Supports HP Fast Battery Charging*

Battery Life**
Windows 10 battery time:
Up to 10 hours and 15 minutes *
* Units enabled with 65w adapters or higher can support fast charging of the battery from 0-50% in 30 minutes while the system is off.
**Windows 10 MM14 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.

WEIGHTS & DIMENSIONS

Weight*
Tablet only
Starting at 1.77 lbs (803 g)

Tablet with Travel Keyboard
2.55 lbs (1156 g)

Tablet with Advanced Keyboard
2.94 lbs (1333 g)

Dimensions - (w x d x h)*
Tablet
11.8 x 8.4 x 0.3 in (300 x 213.85 x 8.05 mm)

Tablet with Travel Keyboard
11.8 x 8.63 x 0.53 in (300 x 219.3 x 13.55 mm)

Tablet with Advanced Keyboard
11.8 x 8.6 x 0.6 in (300 x 219.3 x 16.65 mm)

Technical Specifications

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

*Values are preliminary and may be updated before product launch.

PORTS/SLOTS

Tablet

Ports

1 USB Type-C™, supporting USB 3.1 (supports Thunderbolt™ 3)

1 USB Type-A, supporting USB 3.0

1 Headphone /microphone combo

NOTE: For optimal performance, the HP x2 1012 G2 should charge from a USB Power Delivery, v2 compatible adapter or power source that offers 12V @ 3A.

Slots

1 Micro SIM drawer (optional)

1 Micro SD Media Reader Drawer -supports microSD, microSDHC, microSDXC

1 Lock slot

Advanced Keyboard

Ports

Slots

1 Smart card reader

SENSORS

Accelerometer

Magnetometer

Gyro

ALS (Ambient Light Sensor)

Proximity (SAR for WWAN)

Hall Sensor

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.

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. For details, visit www.hp.com/go/cpc.

Not all configuration components are available in all regions/countries.
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QuickSpecs

Technical Specifications

SYSTEM UNIT

Stand-Alone Power Requirements (AC Power)	**Nominal Operating Voltage**	15 V
	Nominal Operating Amperage	4.33A
	Average Operating Power	7.21 W (non-charging)
	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	240 G, 2 ms, half-sine
Random Vibration	**Operating**	1.043 grms
	Non-operating	3.50 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)

STORAGE AND DRIVES

128 GB SATA-3 SS VALUE SSD	**Drive Weight**	0.02 lb (10 g)	
	Capacity	128 GB	
	Height	0.09 in (2.3 mm)	
	Width	0.87 in (22 mm)	
	Interface	ATA-8, SATA 3.0	
	Performance	**Maximum Sequential Read**	**Maximum Sequential Write**
		535 MB/s	515 MB/s
	Logical Blocks	250,069,680	
	Operating Temperature	32° to 158°F (0° to 70°C) [ambient temp]	
	Features	ATA Security; DIPM; TRIM; DEVSLP	
256GB 2280 M2 PCIe-3x4 SS NVMe TLC	**Drive Weight**	0.02 lb (10 g)	
	Capacity	256 GB	
	Height	0.09 in (2.3 mm)	
	Width	0.87 in (22 mm)	
	Interface	PCIe NVMe Gen3X4	
	Performance	**Maximum Sequential Read**	**Maximum Sequential Write**
		2600 MB/s	900 MB/s
	Logical Blocks	500,118,192	
	Operating Temperature	32° to 158°F (0° to 70°C) [ambient temp]	
	Features	ATA Security (Option)	

Technical Specifications

<table>
<tr><td></td><td></td><td>TRIM; L1.2</td><td></td></tr>
<tr><td rowspan="11">**256GB 2280 M2 SATA-3 Self Encrypted OPAL2 TLC**</td><td>**Drive Weight**</td><td>0.02 lb (10 g)</td><td></td></tr>
<tr><td>**Capacity**</td><td>256 GB</td><td></td></tr>
<tr><td>**Height**</td><td>0.09 in (2.3 mm)</td><td></td></tr>
<tr><td>**Width**</td><td>0.87 in (22 mm)</td><td></td></tr>
<tr><td>**Interface**</td><td>ATA-8, SATA 3.0</td><td></td></tr>
<tr><td>**Performance**</td><td>**Maximum Sequential Read**</td><td>**Maximum Sequential Write**</td></tr>
<tr><td></td><td>530 MB/s</td><td>515 MB/s</td></tr>
<tr><td>**Logical Blocks**</td><td>500,118,192</td><td></td></tr>
<tr><td>**Operating Temperature**</td><td>32° to 158°F (0° to 70°C) [ambient temp]</td><td></td></tr>
<tr><td>**Features**</td><td>ATA Security; TCG Opal 2.0 DIPM; TRIM; DEVSLP</td><td></td></tr>
<tr><td rowspan="10">**256GB 2280 PCIe NVMe Value**</td><td>**Drive Weight**</td><td>0.02 lb (10 g)</td><td></td></tr>
<tr><td>**Capacity**</td><td>256 GB</td><td></td></tr>
<tr><td>**Height**</td><td>0.09 in (2.3 mm)</td><td></td></tr>
<tr><td>**Width**</td><td>0.87 in (22 mm)</td><td></td></tr>
<tr><td>**Interface**</td><td>PCIe NVMe Gen3X4</td><td></td></tr>
<tr><td>**Performance**</td><td>**Maximum Sequential Read**</td><td>**Maximum Sequential Write**</td></tr>
<tr><td></td><td>1700 MB/s</td><td>600 MB/s</td></tr>
<tr><td>**Logical Blocks**</td><td>500,118,192</td><td></td></tr>
<tr><td>**Operating Temperature**</td><td>32° to 158°F (0° to 70°C) [ambient temp]</td><td></td></tr>
<tr><td>**Features**</td><td>ATA Security; TCG Opal 2.0 ; FIPS; TRIM; L1.2</td><td></td></tr>
<tr><td rowspan="10">**360GB 2280 PCIe-3x4 NVMe TLC**</td><td>**Drive Weight**</td><td>0.02 lb (10 g)</td><td></td></tr>
<tr><td>**Capacity**</td><td>360GB</td><td></td></tr>
<tr><td>**Height**</td><td>0.09 in (2.3 mm)</td><td></td></tr>
<tr><td>**Width**</td><td>0.87 in (22 mm)</td><td></td></tr>
<tr><td>**Interface**</td><td>PCIe NVMe Gen3X4</td><td></td></tr>
<tr><td>**Performance**</td><td>**Maximum Sequential Read**</td><td>**Maximum Sequential Write**</td></tr>
<tr><td></td><td>1700 MB/s</td><td>600 MB/s</td></tr>
<tr><td>**Logical Blocks**</td><td>703,282,608</td><td></td></tr>
<tr><td>**Operating Temperature**</td><td>32° to 158°F (0° to 70°C) [ambient temp]</td><td></td></tr>
<tr><td>**Features**</td><td>ATA Security (Option); TRIM; L1.2</td><td></td></tr>
<tr><td rowspan="6">**512GB 2280 M2 PCIe-3x4 SS NVMe TLC**</td><td>**Drive Weight**</td><td>0.02 lb (10 g)</td><td></td></tr>
<tr><td>**Capacity**</td><td>512 GB</td><td></td></tr>
<tr><td>**Height**</td><td>0.09 in (2.3 mm)</td><td></td></tr>
<tr><td>**Width**</td><td>0.87 in (22 mm)</td><td></td></tr>
<tr><td>**Interface**</td><td>PCIe NVMe Gen3X4</td><td></td></tr>
<tr><td>**Performance**</td><td>**Maximum Sequential Read**</td><td>**Maximum Sequential Write**</td></tr>
<tr><td></td><td></td><td>2600 MB/s</td><td>1400 MB/s</td></tr>
</table>

Not all configuration components are available in all regions/countries.
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Technical Specifications

Logical Blocks	1,000,215,216	
Operating Temperature	32° to 158°F (0° to 70°C) [ambient temp]	
Features	ATA Security; TRIM; L1.2	

512GB 2280 PCIe NVMe Value

Drive Weight	0.02 lb (10 g)	
Capacity	512 GB	
Height	0.09 in (2.3 mm)	
Width	0.87 in (22 mm)	
Interface	PCIe NVMe Gen3X4	
Performance	**Maximum Sequential Read**	**Maximum Sequential Write**
	1700 MB/s	600 MB/s
Logical Blocks	1,000,215,216	
Operating Temperature	32° to 158°F (0° to 70°C) [ambient temp]	
Features	ATA Security; TCG Opal 2.0 ; FIPS; TRIM; L1.2	

512GB 2280 M2 SATA-3 Three Layer Cell Federal Information Processing Standard

Drive Weight	0.02 lb (10 g)	
Capacity	512 GB	
Height	0.09 in (2.3 mm)	
Width	0.87 in (22 mm)	
Interface	PCIe NVMe Gen3X4	
Performance	**Maximum Sequential Read**	**Maximum Sequential Write**
	530 MB/s	500 MB/s
Logical Blocks	1,000,215,216	
Operating Temperature	32° to 158°F (0° to 70°C) [ambient temp]	
Features	ATA Security; TCG Opal 2.0 ; FIPS; TRIM; L1.2	

1024 GB 2280 PCIe-3x4 NVMe TLC

Drive Weight	0.02 lb (10 g)	
Capacity	512 GB	
Height	0.14 in (3.65 mm)	
Width	0.87 in (22 mm)	
Interface	PCIe NVMe Gen3X4	
Performance	**Maximum Sequential Read**	**Maximum Sequential Write**
	1500 MB/s	980 MB/s
Logical Blocks	2,000,409,264	
Operating Temperature	32° to 158°F (0° to 70°C) [ambient temp]	
Features	ATA Security (Option); TRIM; L1.2	

SECURITY

HP Fingerprint Reader

(Optional – available on the Tablet)

Mobile Voltage Operation	3.0V-3.6V
Operating Temperature	14° – 167°F (-10° – 75°C)
Current Consumption Image	36 mA peak

Not all configuration components are available in all regions/countries.

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QuickSpecs

Technical Specifications

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 10 mm sensor area

NETWORKING/COMMUNICATIONS

WWAN Modules

HP lt4132 LTE/HSPA+ 4G Mobile Broadband Module

Technology/Operating bands	LTE: 2100 (Band 1), 1900 (Band 2), 1800 (Band 3) MHz, 850 (Band 5), 2600 (Band 7), 900 (Band 8) MHz, 800 (Band 20), 700 (Band 28) 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 10 LTE Specification CAT.4, 20MHz BW WCDMA R99, 3GPP Release 5, 6, 7 and 8 UMTS Specification E-GPRS: Class B, Multi-slot class 12, coding schemes CS1 - CS4 and MSC1 - MSC9
GPS	Standalone, A-GPS (MS-B and LTO)
GPS bands	1575.42 MHz ± 1.023 MHz, GLONASS 1596-1607MHz
Maximum data rates	LTE: 150 Mbps (Download), 50 Mbps (Upload) DC-HSPA+: 42 Mbps (Download), 5.76 Mbps (Upload) HSPA+: 21Mbps (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 dBm E-GPRS 900/850: 27 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: 2,600 mA (peak); 500 mA (average)
Form Factor	M.2, 3042-S3 Key B
Weight	6 g
Dimensions (Length x Width x Thickness)	42 x 30 x 2.3 mm

* Mobile Broadband is an optional feature and requires factory configuration. 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.

Technical Specifications

HP hs3210 HSPA+ Mobile Broadband Module*

Technology/Operating bands	HSPA+: 2100 (Band1), 1900 (Band 2), 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	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
Maximum data rates	HSPA+: 21.6 Mbps (Download), 5.76 Mbps (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	HSPA+: 1,100 mA (peak); 800 mA (average) E-GPRS: 2,800 mA (peak); 700 mA (average)
Form Factor	M.2, 2242-S3 Key B
Weight	6 g
Dimensions (Length x Width x Thickness)	1.65 x 8.66 x 0.09 in (42 x 22 x 2.38 mm)

* Mobile Broadband is an optional feature and requires factory configuration. 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 lt4225 LTE/EV-DO Gobi™ 4G Mobile Broadband Module*

Technology/Operating bands	LTE: 1400 (Band 11), 800 (Band 18, Japan 800 lower) EV-DO: 800 (BC0), 2100 (BC6) MHz
Wireless protocol standards	3GPP Release 8 LTE Specification EVDO Release 0 and Release A
GPS	Standalone
GPS bands	1575.42 MHz ± 1.023 MHz, GLONASS 1596-1607MHz
Maximum data rates	LTE: 100 Mbps (Download), 50 Mbps (Upload) CDMA 1x: 153.6 kbps (Download), 153.6 kbps (Upload) EVDO Rev.A: 3.1 Mbps (Download), 1.8 Mbps (Upload)
Maximum output power	LTE: 23 dBm CDMA/EVDO: 24dBm
Maximum power consumption	LTE: 1,200 mA (peak); 900 mA (average) EVDO: 900mA (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 and requires factory configuration. 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.

Not all configuration components are available in all regions/countries.
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Technical Specifications

HP lt4226 LTE/HSPA+ Gobi 4G Module*

Technology/Operating bands	LTE: 2100 (Band 1), 800 (Band 19, Japan 800 upper), 1450 (Band 21) HSPA+: 2100 (Band 1), 800 (Band 6), 800 (Band 19) MHz
Wireless protocol standards	3GPP Release 8 LTE Specification WCDMA R99, 3GPP Release 5, 6 and 7 UMTS Specification
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)
Maximum output power	LTE: 23 dBm HSPA+: 23.5 dBm
Maximum power consumption	LTE: 1,200 mA (peak); 900 mA (average) HSPA+: 1,100 mA (peak); 800 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)

HP hs3210 WW HSPA+ w/o GPS

Technology/Operating bands	LTE: 2100 (Band 1), 800 (Band 19, Japan 800 upper), 1450 (Band 21) HSPA+: 2100 (Band 1), 800 (Band 6), 800 (Band 19) MHz
Wireless protocol standards	3GPP Release 8 LTE Specification WCDMA R99, 3GPP Release 5, 6 and 7 UMTS Specification
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)
Maximum output power	LTE: 23 dBM HSPA+: 23.5 dBm
Maximum power consumption	LTE: 1,200 mA (peak); 900 mA (average) HSPA+: 1,100 mA (peak); 800 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 and requires factory configuration. 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 GPS

Technology	Standalone GPS, GLONASS
Operating bands	GPS L1 1575.42 MHz ± 1.023 MHz, GLONASS 1596-1607MHz

Not all configuration components are available in all regions/countries.
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Maximum power consumption	Active mode (continuous): 67 mA (peak); 26 mA (average)
Form Factor	M.2, 3042-S3 Key B
Weight	4.3 g
Dimensions (Length x Width x Thickness)	42 x 30 x 2.3 mm

WLAN MODULES

Intel® Dual band wireless-AC 8265 802.11AC 2x2 WiFi + BT 4.2 Combo Adaptor (non-vPro™)

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

  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.

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

  Note: Indonesia no support this band)

Data Rates	

- 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
Security[1]	

- 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.

Not all configuration components are available in all regions/countries.

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Technical Specifications

	• 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 Power[2]	• 802.11b : +16dBm minimum
	• 802.11g : +14dBm minimum
	• 802.11a : +14dBm minimum
	• 802.11n HT20(2.4GHz) : +14dBm minimum
	• 802.11n HT40(2.4GHz) : +12dBm minimum
	• 802.11n HT20(5GHz) : +14dBm 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: 50 mW (WLAN unassociated) Connect Standby: 10 mW (WLAN+BT) Radio disabled: 5 mW
Power Management	ACPI and PCI Express compliant power management 802.11 compliant power saving mode
Receiver Sensitivity[3]	802.11b, 1Mbps : -94dBm maximum 802.11b, 11Mbps : -86dBm maximum 802.11g, 6Mbps : -88dBm maximum 802.11g, 54Mbps : -74dBm maximum 802.11a, 6Mbps : -88dBm maximum 802.11a, 54Mbps : -74dBm maximum 802.11n, MCS07 : -69dBm maximum 802.11n, MCS15 : -66dBm maximum 802.11ac, 1SS, MCS-0 : -86dBm maximum 802.11ac, 1SS, MCS-9 : -61dBm maximum 802.11ac, 2SS, MCS-0 : -83dBm maximum 802.11ac, 2SS, MCS-9 : -58dBm 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 communications 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%

Not all configuration components are available in all regions/countries.
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Technical Specifications

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 4.0/4.1/4.2 Wireless Technology

Bluetooth Specification	4.0/4.1/4.2 Compliant
Frequency Band	2402 to 2480 MHz
Number of Available Channels	Legacy : 0~79 (1 MHz/CH) BLE : 0~39 (2 MHz/CH)
Data Rates and Throughput	Legacy : 3 Mbps data rate; throughput up to 2.17 Mbps BLE : 1 Mbps data rate; throughput up to 0.2 Mbps Legacy : Synchronous Connection Oriented links up to 3, 64 kbps, voice channels Legacy : Asynchronous Connection Less links 2178.1 kbps/177.1 kbps asymmetric (3-DH5) or 864 kbps symmetric (3-EV5)
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.

Receiver Sensitivity Legacy

Modulation	0.01% BER	0.001% BER
GFSK	-80 dBm	-70 dBm
π/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
Range	Legacy Up to 33 ft (10 m) BLE Up to 99 ft (30 m)
Electrical Interface	USB 2.0 compliant
Bluetooth Software Supported Link Topology	Microsoft Windows Bluetooth Software
Electrical Interface Bluetooth Software Supported Security	Point to Point, Multipoint Pico Nets up to 7 slaves
	Full support of Bluetooth Security Provisions
Power Management Certifications	Microsoft Windows ACPI, and USB Bus Support
	Self-configurable to optimize power conservation in all operating modes, including Standby, Hold, Park, and Sniff
Security Certifications Bluetooth Profiles Supported	All necessary regulatory approvals for supported countries, including: FCC (47 CFR) Part 15C, Section 15.247 & 15.249
Power Management	ETS 300 328, ETS 300 826

Not all configuration components are available in all regions/countries.
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Technical Specifications

Certifications	Low Voltage Directive IEC950
	UL, CSA, and CE Mark
	Serial Port Profile (SPP)[1]
	Service Discovery Application Profile (SDAP)
	Dial-Up Networking (DUN)[1,2]
Certifications	Generic Object Exchange Profile (GOEP)[1,2]
Bluetooth Profiles Supported	Object Push Profile (OPP)[1,2]
	Hard Copy Cable Replacement (HCRP)[1,2]
	Personal Area Networking Profile (PAN)[1,2]
	Human Interface Device Profile (HID)[1,2]
	Hands Free Profile (HFP)
	Advanced Audio Distribution Profile (A2DP)
	Audio Video Remote Control Profile (AVRCP)
Bluetooth V4.1/V4.2 support feature	V4.1: ESR5/6/7 compliant
	V4.2: ESR8 compliant, LE Secure Connection – Basic.

* 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.

Intel® Dual band wireless-AC 8265 802.11AC 2x2 WiFi + BT 4.2 Combo Adaptor (VPro)

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

    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.

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

    Note: Indonesia no support this band)

Data Rates	• 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

Not all configuration components are available in all regions/countries.
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Technical Specifications

- 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
Security[1]	- 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 Power[2]	802.11b : +16dBm minimum 802.11g : +14dBm minimum 802.11a : +14dBm minimum 802.11n HT20(2.4GHz) : +14dBm minimum 802.11n HT40(2.4GHz) : +12dBm minimum 802.11n HT20(5GHz) : +14dBm 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: 50 mW (WLAN unassociated) Connect Standby: 10 mW (WLAN+BT) Radio disabled: 5 mW
Power Management	ACPI and PCI Express compliant power management 802.11 compliant power saving mode
Receiver Sensitivity[3]	802.11b, 1Mbps : -94dBm maximum 802.11b, 11Mbps : -86dBm maximum 802.11g, 6Mbps : -88dBm maximum 802.11g, 54Mbps : -74dBm maximum 802.11a, 6Mbps : -88dBm maximum 802.11a, 54Mbps : -74dBm maximum 802.11n, MCS07 : -69dBm maximum 802.11n, MCS15 : -66dBm maximum 802.11ac, 1SS, MCS-0 : -86dBm maximum 802.11ac, 1SS, MCS-9 : -61dBm maximum 802.11ac, 2SS, MCS-0 : -83dBm maximum 802.11ac, 2SS, MCS-9 : -58dBm maximum

Technical Specifications

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 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. 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 4.0/4.1/4.2 Wireless Technology

Bluetooth Specification	4.0/4.1/4.2 Compliant
Frequency Band	2402 to 2480 MHz
Number of Available Channels	Legacy : 0~79 (1 MHz/CH) BLE : 0~39 (2 MHz/CH)
Data Rates and Throughput	Legacy : 3 Mbps data rate; throughput up to 2.17 Mbps BLE : 1 Mbps data rate; throughput up to 0.2 Mbps Legacy : Synchronous Connection Oriented links up to 3, 64 kbps, voice channels Legacy : Asynchronous Connection Less links 2178.1 kbps/177.1 kbps asymmetric (3-DH5) or 864 kbps symmetric (3-EV5)
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.

Receiver Sensitivity
Legacy

Modulation	0.01% BER	0.001% BER
GFSK	-80 dBm	-70 dBm
π/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
Range	Legacy Up to 33 ft (10 m) BLE Up to 99 ft (30 m)
Electrical Interface	USB 2.0 compliant
Bluetooth Software Supported	Microsoft Windows Bluetooth Software

Not all configuration components are available in all regions/countries.
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Technical Specifications

Link Topology		
Electrical Interface	Point to Point, Multipoint Pico Nets up to 7 slaves	
Bluetooth Software Supported		
Security		
	Full support of Bluetooth Security Provisions	
Power Management	Microsoft Windows ACPI, and USB Bus Support	
Certifications		
	Self-configurable to optimize power conservation in all operating modes, including Standby, Hold, Park, and Sniff	
Security	All necessary regulatory approvals for supported countries, including:	
Certifications	FCC (47 CFR) Part 15C, Section 15.247 & 15.249	
Bluetooth Profiles Supported		
Power Management	ETS 300 328, ETS 300 826	
Certifications	Low Voltage Directive IEC950	
	UL, CSA, and CE Mark	
	Serial Port Profile (SPP)[1]	
	Service Discovery Application Profile (SDAP)	
	Dial-Up Networking (DUN)[1,2]	
Certifications	Generic Object Exchange Profile (GOEP)[1,2]	
Bluetooth Profiles Supported	Object Push Profile (OPP)[1,2]	
	Hard Copy Cable Replacement (HCRP)[1,2]	
	Personal Area Networking Profile (PAN)[1,2]	
	Human Interface Device Profile (HID)[1,2]	
	Hands Free Profile (HFP)	
	Advanced Audio Distribution Profile (A2DP)	
	Audio Video Remote Control Profile (AVRCP)	
Bluetooth V4.1/V4.2 support feature	V4.1: ESR5/6/7 compliant	
	V4.2: ESR8 compliant, LE Secure Connection – Basic	

* 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.

POWER

HP 45 W USB Type-C™ AC adapter	**Dimensions**	62.0x62.0x28.5mm
	Weight	unit: 220g +/- 10g
	Input	

Input Efficiency
Average Efficiency of 25%, 50%, 75%, 100% load
condition with 115Vac/230Vac Spec:
5V : 81.5%
9V : 86.7%
10V : 87.5%
12V : 87.8%
15V : 87.8%
20V : 87.8%

Input frequency range
47 ~ 63 Hz

Input AC current

Not all configuration components are available in all regions/countries.

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Technical Specifications

		Max. 1.4 A at 90 Vac
	Output	**Output power** 5V/15W 9V/27W 10V/37.5W 12V/45W 15V/45W 20V/45W
		DC output 5V/9V/10V/12V/15V/20V
		Hold-up time 5ms at 115 Vac input
		Output current limit <5.0A
	Connector	USB Type-C
	Environmental Design	**Operating temperature** 32oFto 95oF (0oto 35oC)
		Non-operating (storage) temperature -4oFto 185oF (-20oto 85oC)
		Altitude 0 to 16,400 ft (0 to 5000m)
		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 65 W USB Type-C™ AC adapter	**Dimensions**	74x74x28.5mm
	Weight	unit: 245g +/- 10g
	Input	
		Input Efficiency 81.5% min at 115 Vac/ 230Vac @ 5V/3A 86.7% min at 115 Vac/ 230Vac @ 9V/3A 88% min at 115 Vac/ 230Vac @ 10V/5A 88% min at 115 Vac/ 230Vac @ 12V/5A 89% min at 115 Vac/ 230Vac @ 15V/4.33A 89% min at 115 Vac/ 230Vac @ 20V/3.25A
		Input frequency range 47 ~ 63 Hz
		Input AC current 1.7 A at 90 VAC and maximum load
	Output	**Output power**

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	65W	
	DC output 5V/9V/10V/12V/15V/20V	
	Hold-up time 5ms at 115 Vac input	
	Output current limit <8.0A	
Connector	USB Type C	
Environmental Design	**Operating temperature** 32oFto 95oF (0oto 35oC)	
	Non-operating (storage) temperature -4oFto 185oF (-20oto 85oC)	
	Altitude 0 to 16,400 ft (0 to 5000m)	
	Humidity 5% to 95%	
	Storage Humidity 5% 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 100,000 hours at 25°C ambient condition.	

HP 4-cell Polymer Battery (47 WHr)	**Dimensions (H x W x L)**	4.46 x 265.6 x 81.15 mm 0.18 x 10.45 x 3.2 inch	
	Weight	0.195 kg/0.88 lb	
	Cells/Type	Li-ion/Polymer cell	
	Energy	Voltage : 7.7V Amp-hour capacity: 6.11Ah Watt-hour capacity: 47 WHr	
	Watt-hour capacity		
	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)
	Battery recharge time	System in OFF or Standby Mode <3 hours	
	Fuel Gauge LED	No	
	Optional travel battery available	No	

COUNTRY OF ORIGIN

China

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CLEANING

The following cleaning solutions, if used as instructed in the user guide, will not harm the surface of the HP Elite x2 1012 G2 Collaboration Keyboard:

- Alcohol-free glass-cleaning fluid
- Solution of mild soap and water
- Dry microfiber cleaning cloth or a chamois (static-free cloth without oil)
- Static-free cloth wipes

Please refer to the user guide that came with your product for detailed instructions about how to clean your HP Elite x2 1012 G2 using these solutions.

The following cleaning solutions, if used as instructed in the user guide, will not harm the surface of HP Elite x2 1012 Travel Keyboard and the HP Elite x2 1012 Advanced Keyboard:

Surface side of the keyboards:

- Alcohol-free glass-cleaning fluid
- Solution of mild soap and water
- Dry microfiber cleaning cloth or a chamois (static-free cloth without oil)
- Static-free cloth wipes

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

Category	Description	Part number
Cases	HP Elite Top Load Colombian Leather Case	T9H72AA
	HP Elite Top Load Herringbone Nylon Case	T9H73AA
	HP Elite x2 1012 G2 Protective Case	1HM07AA
Docking		
	HP Elite 90W Thunderbolt 3 Dock	1DT93AA
	HP Elite USB-C Desk Dock G2	Z9R42AA
	HP Elite USB-C Docking Station	X7W54AA
	HP USB-C Travel HUB	Z9G82AA
Input Devices	HP Elite x2 1012 G2 Collaboration Keyboard	1FV39A
	HP Active Pen with Bluetooth App Launch Button	T4Z24AA
	HP USB Type-C to VGA Adapter	N9K76AA
	HP USB Type-C to HDMI Adapter	N9K77AA
	HP USB Type-C to DisplayPort Adapter	N9K78AA
	HP USB Type-C to Gigabit Ethernet Adapter	V8Y76AA
Power	HP 45W USB-C Auto Adapter	Z3Q87AA
Security	HP Nano Keyed Cable Lock	1AJ39AA
	HP Nano Master Keyed Cable Lock	1AJ40AA
	HP Nano Dual Head Keyed Cable Lock	1AJ41AA

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Summary of Changes

Date of change:	Version History:	Description of change:
	V1 to v2	
May 16, 2017	V2 to V3	Weight changed, one mention of battery life was 10 hrs instead of 10 hr 15 min and some of the cleaning solutions needed to be deleted.
May 18, 2017	V3 to V4	Removed Wigig references. Keyboard features updated
Septmeber 7, 2017	V4 to V5	Changed "IPS/FSS/VA" to "IPS" on LCD Mode on display section of tech specs
September 19, 2017	V5 to V6	Touchpoint manager removed

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