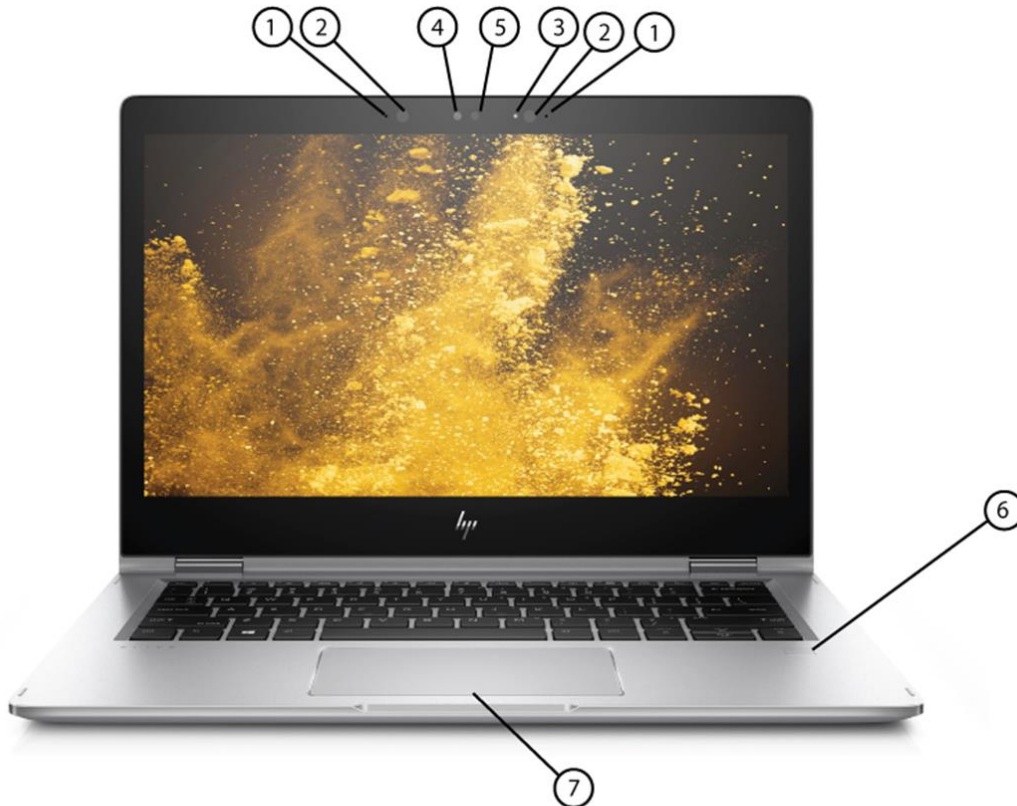


QuickSpecs

Overview

HP EliteBook x360 1030 G2



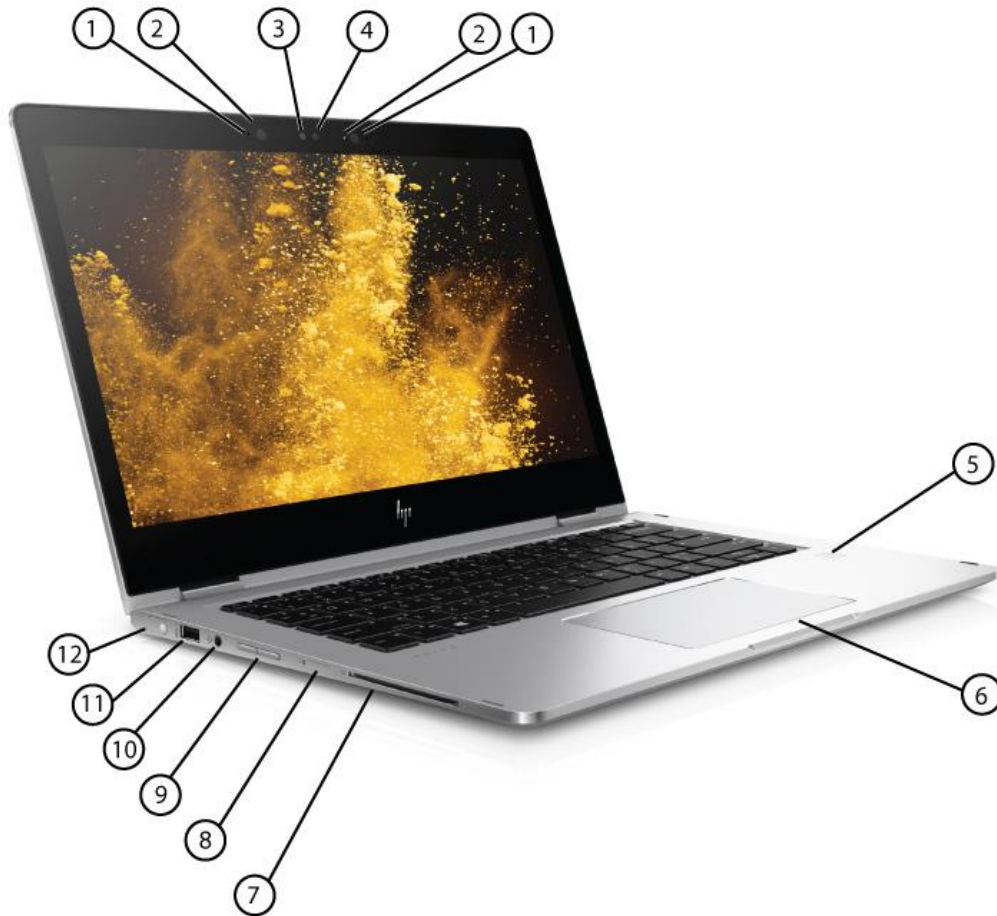
Front

- | | | | |
|----|--------------------------|----|--------------------------|
| 1. | Internal microphones (2) | 5. | IR camera |
| 2. | IR emitters(2) | 6. | Touch Fingerprint sensor |
| 3. | Webcam LED | 7. | Glass Clickpad |
| 4. | Webcam | | |



QuickSpecs

Overview



- 1. Internal microphones (2)
- 2. IR emitters(2)
- 3. Webcam
- 4. IR camera
- 5. Touch Fingerprint sensor
- 6. Glass Clickpad

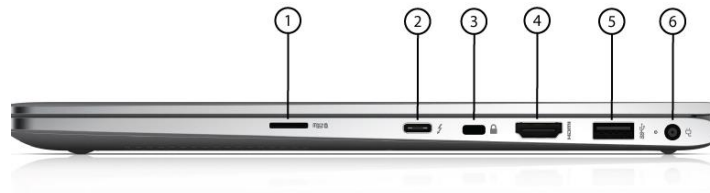
Right

- 7. Smart card reader
- 8. WWAN SIM
- 9. Volume up/ down
- 10. Audio combo jack
- 11. USB 3.1 Gen 1 (charging)
- 12. Power button



QuickSpecs

Overview



1. Micro SD slot
2. USB Type-C™ with Thunderbolt™
3. Security lock slot

Left

4. HDMI port
5. USB 3.1 Gen 1
6. Power connector



Conferencing Keyboard



QuickSpecs

Overview

Stand Mode



QuickSpecs

Overview

At A Glance

- Pre-installed with Windows 10 editions
- All metal CNC Al chassis that is .59 inches (1.49 cm) thin
- Pending MIL STD 810G tests ¹
- Powered by 7th Generation Intel® Core™ processors
- Choice of SSD storage drives up to 1 TB, including PCIe NVMe
- Weight starting at 2.82 lbs (1.28 kg)
- Connect without dongles using full size ports including USB, USB-C™, and HDMI 1.4 for connecting to high-resolution displays
- Large ClickPad with gestures support
- Never forget your password with your choice of simple authentication methods, including the IR camera for face recognition and Touch Fingerprint Sensor for Windows Hello (requires Windows 10), as well as the integrated Smart Card Reader
- Optional full size HP Active Pen with App Launch, designed with Wacom technology
- HP 720p HD webcam, dual array microphones, and integrated premium stereo speakers for video audio and conferencing
- Engage teams, clients, and vendors with the crystal-clear audio by Bang & Olufsen and the high-performance HP Premium Collaboration Keyboard

1. MIL STD 810G testing is pending and is not intended to demonstrate fitness for U.S. Department of Defense contract requirements or for military use. Test results are not a guarantee of future performance under these test conditions. Damage under the MIL STD test conditions or any accidental damage requires an optional HP Accidental Damage Protection Care Pack.

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



Features

PRODUCT NAME

HP EliteBook x360 1030 G2

OPERATING SYSTEM

Preinstalled

Windows 10 Pro 64¹
Windows 10 Pro 64 (National Academic only)²
Windows 10 Home 64¹
Windows 10 Home Single Language 64¹

Web supported

Windows 10 Enterprise 64¹

NOTE: 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>

1. Not all features are available in all editions or versions of Windows 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.

PROCESSORS

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)

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)

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

1. Multicore 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. 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.



Features

CHIPSET

Chipset is integrated with processor

GRAPHICS

Integrated

Intel® HD¹ Graphics 620 with shared video memory

1. HD content required to view HD images.

DISPLAY

Internal

33.8 cm (13.3") diagonal FHD UWVA ultra slim touch screen (1920 x 1080) with Corning® Gorilla® Glass¹
33.8 cm (13.3") diagonal UHD UWVA ultra slim touch screen (3840 x 2160) with Corning® Gorilla® Glass^{1,3}

HP Sure View Integrated Privacy Screen

33.8 cm (13.3") diagonal FHD UWVA ultra slim eDP touch screen (1920 x 1080) with Corning® Gorilla® Glass^{1,4}

External

TBD

HDMI

Port support resolutions up to 4096 x 2304 external resolution @ 60Hz

Displays support

Supports dual display through the dock

Supports 3 independent displays if used with optional HP Elite Thunderbolt 3 dock²

Supports 2 4k independent displays if used with optional HP Elite Thunderbolt 3 dock²

1. HD content required to view HD images.
2. HDMI cable sold separately.
3. Planned to be available in March 2017.
4. Planned to be available in April 2017.

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

Optional Docking Solutions¹

HP Elite Thunderbolt 3 Dock

HP Executive Travel Hub

1. Sold separately or as an optional feature.

STORAGE AND DRIVES



Features

Primary Storage¹

1TB PCIe Gen3x4 NVMe Solid State TLC
Supports M.2 SS/DS 2280 Solid State Drive
128 GB SATA-3 Value Solid State Drive
256 GB SATA-3 Solid State Drive TLC (Opal2)
360 GB Solid State Drive PCIe NVMe (Planned to be available March 2017)
512 GB SATA-3 Solid State Drive TLC (FIPS) (Planned to be available March 2017)
256 GB PCIe Gen3x4 NVMe Solid State Drive TLC
512 GB PCIe Gen3x4 NVMe Solid State Drive TLC

1. For storage drives, GB = 1 billion bytes. TB = 1 trillion bytes. Actual formatted capacity is less. Up to 30 MB (for Windows 10) is reserved for system recovery software.

MEMORY

Standard

Memory soldered down
DDR4 – 2133 (Transfer rates up to 2133 MT/s)
Supports Dual Channel Memory
On board (Customer non-accessible)

Configurations

4 GB (i5 only)
8 GB
16 GB

Maximum

16 GB DDR4-2133 SDRAM

NETWORKING/COMMUNICATIONS

Broadband Wireless (WWAN)^{1,2,3}

HP lt4132 LTE/HSPA+ 4G Mobile Broadband Module
HP hs3210 HSPA Mobile Broadband
HP lt4120 Qualcomm® Snapdragon™ X5 LTE Mobile Broadband Module

Wireless LAN (WLAN)^{1,2}

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

WPAN

Bluetooth® 4.2 supported via Combo card

Communications

Optional Near Field Communication (NFC)²
Compatible with Miracast-certified devices⁴

1. Wireless access point and Internet service required and sold separately. 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.



Features

2. Sold separately or as an optional feature.
3. Mobile Broadband requires separately purchased service contract and factory configuration. Check with service provider for coverage and availability in your area. Connection speeds will vary due to location, environment, network conditions, and other factors. 4G LTE not available on all products, and in all regions.
4. 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>

AUDIO/MULTIMEDIA

Audio

Audio by Bang & Olufsen
Four integrated premium stereo speakers
Dual microphone array

Camera

IR/RGB camera (standard on all models)
720p HD webcam^{1,2}

1. Internet access required.
2. HD content required to view HD images.

KEYBOARDS/POINTING DEVICES/BUTTONS & FUNCTION KEYS

Keyboard

Full size
HP Premium Collaboration Keyboard
Backlit
DuraKeys
Spill-resistant

Function Keys

F1 - Blank
F2 - Brightness Down
F3 - Brightness Up
F4 - Display Switch
F5 - Speaker Mute
F6 - Volume Down
F7 - Volume Up
F8 - Mic Mute
F9 - Kybd Backlight
F10 - NumLock
F11 - Wireless
F12 - Calendar
>
> Present/Share



Features

- > Call Answer
- > Call End
- > Delete

ClickPad

ClickPad (Glass Cover)
Taps enabled as default
Gestures enabled by default

SOFTWARE AND SECURITY

Preinstalled Software

HP BIOSphere¹
HP Sure Start Gen3¹⁰
HP DriveLock | HP Automatic DriveLock
BIOS Update via Network
Master Boot Record Security
Power On Authentication
Secure Erase²
Pre-boot Authentication

Communication

HP Mobile Connect Pro³
Native Miracast Support⁴

HP Value Add Software

HP ePrint Driver + JetAdvantage⁵
HP Hotkey Support
HP Support Assistant
HP Jumpstart
HP Noise Cancellation Software

Manageability

HP Driver Packs⁶
HP SoftPaq Download Manager (SDM)
HP System Software Manager (SSM)⁶
HP BIOS Config Utility (BCU)⁶
HP Client Catalog⁶
HP Manageability Integration Kit for Microsoft SCCM⁶
HP Image Assistant⁶
LANDESK Management⁷
For more information on HP Client Management Solutions refer to: <http://www.hp.com/go/clientmanagement>.

Microsoft Products

Buy Office
Bing Search
Skype⁸

Security

HP Client Security
- HP Security Manager (including Credential Manager and Password Manager)



Features

- HP Drive Lock
- HP Touch Fingerprint Sensor
- HP Password Manager
- Absolute Persistence Module⁹
- Power On Authentication
- Microsoft Defender
- TPM 1.2/2.0
- Security lock slot¹¹
- Smart Card Reader
- Supports IR "Hello" facial recognition via Windows 10

1. Available only on business PCs with HP BIOS.
2. For the methods outlined in the National Institute of Standards and Technology Special Publication 800-88.
3. HP Mobile Connect is only available on preconfigured devices with WWAN. For geographic availability refer to www.hp.com/go/mobileconnect
4. 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>
5. 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). Requires optional broadband module. Broadband use requires separately purchased service contract. Check with service provider for coverage and availability in your area. Separately purchased data plans or usage fees may apply. Print times and connection speeds may vary.
6. Not preinstalled, however available for download at <http://www.hp.com/go/clientmanagement>
7. Subscription required.
8. Skype is not offered in China.
9. 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: <https://www.absolute.com/en/about/legal/agreements/absolute>. 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.
10. Available on HP EliteBook products equipped with Intel® 7th generation processors
11. Cable not included.

POWER

Power Supply¹

- HP 65W Smart AC adapter
- HP 65W EM Smart AC adapter
- HP 65W Smart USB Type-C™ AC adapter

1. Availability may vary by country.

Primary Battery

- HP Long Life 3 cell, 57 Wh Li-on polymer
- Supports battery fast charge

NOTE: Battery is internal and not replaceable by customer.

Battery life¹

- Up to 16 hours 30 minutes (FHD)



Features

Up to 9 hours 30 minutes (UHD)

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

System Standby Time

250 hours

WEIGHTS & DIMENSIONS

Weight¹

Weight starting at 2.82 lbs (1.28 kg)

1. Weight varies by configuration and components.

Dimensions (w x d x h)

31.69 x 21.85 x 1.49 cm
12.48 x 8.6 x .59 in

PORTS/SLOTS

Ports

1 USB Type-C™ with Thunderbolt™
2 USB 3.1 Gen 1 (1 charging)
1 HDMI 1.4
1 external micro SIM
1 AC power
1 Headphone/microphone combo jack

Slots

Micro-SD Card Reader
Smart Card Reader

NOTE: All cables are sold separately.

SERVICE AND SUPPORT

HP Services offers 3-year and 1-year limited warranties and 90 day software limited warranty options depending on country. Batteries have a default one year limited warranty. 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>.



Features

1. Sold separately or as an optional feature.
2. 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. HP services are governed by the applicable HP terms and conditions of service provided or indicated to Customer at the time of purchase. Customer may have additional statutory rights according to applicable local laws, and such rights are not in any way affected by the HP terms and conditions of service or the HP Limited Warranty provided with your HP Product. 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>.



Technical Specifications

DISPLAYS

Note: All specifications represent the typical specifications provided by HP's component manufacturers; actual performance may vary either higher or lower.

33.8 cm (13.3") diagonal FHD UWVA ultra slim touch screen (1920 x 1080) with Corning® Gorilla® Glass	Outline Dimensions (W x H x D)	300.56 x 187.57 (max.) x 2.2 (max) mm	
	Active Area	293.76 x 165.24 mm	
	Weight	160g max.	
	Diagonal Size	13.3"	
	Surface Treatment	BV	
	Touch enabled	Yes	
	Contrast Ratio	800:1 (typ - BV)	
	Refresh Rate	60Hz	
	Brightness	300 nit typ (Panel Only)	
	Pixel Resolution	Format	1920 x 1080 (FHD)
		Configuration	RGB
	Color Gamut Coverage	72%	
	Interface	eDP 1.3 w/ PSR	
	LCD Mode	IPS/FFS/AHVA	

PPI	166
Viewing Angle	UWVA 85/85/85/85

33.8 cm (13.3") diagonal UHD UWVA ultra slim touch screen (3840 x 2160) with Corning® Gorilla® Glass	Outline Dimensions (W x H x D)	299.76 x 187.17 (max.) x 2.2(max.) mm	
	Active Area	293.76 x 165.24 mm	
	Weight	190g max. (TBD)	
	Diagonal Size	13.3"	
	Surface Treatment	BV	
	Touch enabled	Yes	
	Contrast Ratio	1400:1 (typ) - BV	
	Refresh Rate	60Hz	
	Brightness	340nits typ (Panel Only)	
	Pixel Resolution	Format	3840 x 2160 (UHD)
		Configuration	RGB
	Color Gamut Coverage	72%	
	Interface	eDP 1.3 PSR	
	LCD Mode	IPS/FFS/AHVA	

PPI	331
Viewing Angle	UWVA 85/85/85/85



Technical Specifications

STORAGE AND DRIVES

128 GB SATA-3 Value Solid State Drive	Drive Weight	0.01 lb (6 g) ~ 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	Sequential Read (Up to MB/s)	Sequential Write (Up to MB/s)
		515-535 MB/s	136-515 MB/s
	Logical Blocks	250,069,680	
256 GB SATA-3 TLC Self-Encrypting Solid State Drive (Opal 2)	Drive Weight	M.2 2280	
	Capacity	256 GB	
	Height	0.09 in (2.3 mm)	
	Width	0.87 in (22 mm)	
	Interface	ATA-8, SATA 3.0	
	Performance	Sequential Read (Up to MB/s)	Sequential Write (Up to MB/s)
		515-530 MB/s	490-515 MB/s
	Logical Blocks	500,118,192	
256 GB PCIe Gen3x4 NVMe TLC Solid State Drive	Drive Weight	M.2 2280	
	Capacity	256 GB	
	Height	0.09 in (2.3 mm)	
	Width	0.87 in (22 mm)	
	Interface	PCIe NVMe Gen3X4	
	Performance	Sequential Read (Up to MB/s)	Sequential Write (Up to MB/s)
		1800-2600 MB/s	600-900 MB/s
	Logical Blocks	500,118,192	
	Operating Temperature	32° to 158°F (0° to 70°C) [ambient temp]	
	Features	ATA Security; TRIM; DEVSLP	
	Operating Temperature	32° to 158°F (0° to 70°C) [ambient temp]	
	Features	ATA Security (Option); TRIM; L1.2	

Drive Weight M.2 2280



Technical Specifications

512 GB PCIe Gen3x4 NVMe TLC Solid State Drive	Capacity	512 GB	
	Height	0.09 in (2.3 mm)	
	Width	0.87 in (22 mm)	
	Interface	PCIe NVMe Gen3X4	
	Performance	Sequential Read (Up to MB/s)	Sequential Write (Up to MB/s)
		1580-2600 MB/s	300-1400 MB/s
	Logical Blocks	1,000,215,216	
360 GB SATA-3 TLC Solid State Drive	Operating Temperature	32° to 158°F (0° to 70°C) [ambient temp]	
	Features	ATA Security (Option); TRIM; L1.2	
	Drive Weight	0.02 lb (10 g)	
	Capacity	360 GB	
	Height	0.09 in (2.3 mm)	
	Width	0.87 in (22 mm)	
	Interface	PCIe NVMe Gen3X4	
	Performance	Sequential Read (Up to MB/s)	Sequential Write (Up to MB/s)
512 GB SATA-3 TLS FIPS Solid State Drive		Up to 1,700 MB/s	Up to 600 MB/s
	Logical Blocks	703,282,608	
	Operating Temperature	32° to 158°F (0° to 70°C) [ambient temp]	
	Features	ATA Security; TRIM; L1.2	
	Drive Weight	0.02 lb (10 g)	
	Capacity	512G GB	
	Height	0.09 in (2.3 mm)	
	Width	0.87 in (22 mm)	
	Interface	ACS-3, SATA 3.2	
	Performance	Sequential Read (Up to MB/s)	Sequential Write (Up to MB/s)
512 GB SATA-3 TLS FIPS Solid State Drive		Up To 530 MB/s	Up To 400 MB/s
	Logical Blocks	1,000,215,216	
	Operating Temperature	32° to 158°F (0° to 70°C) [ambient temp]	
	Features	ATA Security; TCG Opal 2.0; FIPS; DIPM; TRIM; DEVSLP	



Technical Specifications

NETWORKING/COMMUNICATIONS

HP It4132 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 $\pm$ 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)



Technical Specifications

Form Factor M.2, 3042-S3 Key B

Weight 6 g

Dimensions 42 x 30 x 2.3 mm
(Length x Width x Thickness)

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

HP hs3210 HSPA+ Mobile Broadband Module*

Technology/Operating bands HSPA+: 2100 (Band 1), 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 1.65 x 8.66 x 0.09 in (42 x 22 x 2.38 mm)
(Length x Width x Thickness)



Technical Specifications

* 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 802.11a/b/g/n/ac (2x2) and Bluetooth® 4.2 Combo

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.
Data Rates	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)
Modulation	802.11b: 1, 2, 5.5, 11 Mbps
	802.11g: 6, 9, 12, 18, 24, 36, 48, 54 Mbps
Security¹	802.11a: 6, 9, 12, 18, 24, 36, 48, 54 Mbps
	802.11n: MCS 0 ~ MCS 15, (20MHz, and 40MHz)
Security¹	802.11ac : MCS0 ~ MCS9, (1SS, and 2SS) (20MHz, 40MHz, and 80MHz)
	Direct Sequence Spread Spectrum
Security¹	BPSK, QPSK, CCK, 16-QAM, 64-QAM, 256-QAM
	IEEE and WiFi compliant 64 / 128 bit WEP encryption for a/b/g mode only
Security¹	AES-CCMP: 128 bit in hardware
	802.1x authentication
Security¹	WPA, WPA2: 802.1x. WPA-PSK, WPA2-PSK, TKIP, and AES.
	WPA2 certification
Security¹	IEEE 802.11i



Technical Specifications

	• Cisco Certified Extensions, all versions through CCX4 and CCX Lite • WAPI
Network Architecture Models	Ad-hoc (Peer to Peer) Infrastructure (Access Point Required)
Roaming	IEEE 802.11 compliant roaming between access points
Output Power²	• 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 Sensitivity³	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



Technical Specifications

	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%	
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



Technical Specifications

	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	<table><tr><th>Modulation</th><th>0.01% BER</th><th>0.001% BER</th></tr><tr><td>GFSK</td><td>-80 dBm</td><td>-70 dBm</td></tr><tr><td>$\pi/4$-DQPSK</td><td>-80 dBm</td><td>-70 dBm</td></tr><tr><td>8DPSK</td><td>-80 dBm</td><td>-70 dBm</td></tr></table>	Modulation	0.01% BER	0.001% BER	GFSK	-80 dBm	-70 dBm	$\pi/4$ -DQPSK	-80 dBm	-70 dBm	8DPSK	-80 dBm	-70 dBm
Modulation	0.01% BER	0.001% BER											
GFSK	-80 dBm	-70 dBm											
$\pi/4$ -DQPSK	-80 dBm	-70 dBm											
8DPSK	-80 dBm	-70 dBm											
Legacy													
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												
Link Topology													
Electrical Interface	Point to Point, Multipoint Pico Nets up to 7 slaves												
Bluetooth Software Supported	Full support of Bluetooth Security Provisions												
Security													
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												



Technical Specifications

Certifications

Low Voltage Directive IEC950

UL, CSA, and CE Mark

Serial Port Profile (SPP)^{1,2}

Service Discovery Application Profile (SDAP)

Dial-Up Networking (DUN)^{1,1}

Generic Object Exchange Profile (GOEP)^{1,2}

Object Push Profile (OPP)^{1,2}

Hard Copy Cable Replacement (HCRP)^{1,2}

Personal Area Networking Profile (PAN)^{1,0}

Human Interface Device Profile (HID)^{1,0}

Hands Free Profile (HFP)^{1.5/1.6}

Advanced Audio Distribution Profile (A2DP)^{1.3}

Audio Video Remote Control Profile (AVRCP)^{1.3/1.4}

Certifications

Bluetooth Profiles Supported

Bluetooth V4.1/V4.2 support V4.1: ESR5/6/7 compliant
feature

V4.2: ESR8 compliant, LE Secure Connection – Basic.

Intel® Dual Band 802.11a/b/g/n/ac (2x2) and Bluetooth® 4.2 Combo

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.



Technical Specifications

	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
Data Rates	Note: Indonesia no support this band) 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	- IEEE and WiFi compliant 64 / 128 bit WEP encryption for a/b/g mode only - AES-CCMP: 128 bit in hardware 802.1x authentication - WPA, WPA2: 802.1x. WPA-PSK, WPA2-PSK, TKIP, and AES. - WPA2 certification - IEEE 802.11i - Cisco Certified Extensions, all versions through CCX4 and CCX Lite - WAPI
Network Architecture Models	Ad-hoc (Peer to Peer) Infrastructure (Access Point Required)
Roaming	IEEE 802.11 compliant roaming between access points
Output Power²	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)



Technical Specifications

	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 Sensitivity³	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%



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	

4. [Check latest software/driver release for updates on supported security features.](#)
5. [Maximum output power may vary by country according to local regulations.](#)
6. [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 \(OFDM modulation\).](#)

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8DPSK	-80 dBm	-70 dBm												
Legacy														
Power Consumption	Peak (Tx) 330 mW Peak (Rx) 230 mW Selective Suspend 17 mW													



Technical Specifications

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
Link Topology	
Electrical Interface	Point to Point, Multipoint Pico Nets up to 7 slaves
Bluetooth Software Supported	Full support of Bluetooth Security Provisions
Security	
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
Certifications	Serial Port Profile (SPP) ^{1,2} Service Discovery Application Profile (SDAP) Dial-Up Networking (DUN) ^{1,1} Generic Object Exchange Profile (GOEP) ^{1,2} Object Push Profile (OPP) ^{1,2} Hard Copy Cable Replacement (HCRP) ^{1,2} Personal Area Networking Profile (PAN) ^{1,0} Human Interface Device Profile (HID) ^{1,0} Hands Free Profile (HFP) ^{1.5/1.6} Advanced Audio Distribution Profile (A2DP) ^{1.3} Audio Video Remote Control Profile (AVRCP) ^{1.3/1.4}
Bluetooth Profiles Supported	



Technical Specifications

Bluetooth feature **V4.1/V4.2** **support V4.1: ESR5/6/7 compliant**

V4.2: ESR8 compliant, LE Secure Connection – Basic.

POWER

HP 65W Smart AC adapter

Dimensions	107.0x47.0x30.0mm
Weight	250g +/- 10g
Input	Input Efficiency 88.0 % at 115 Vac and 89.0 % at 230Vac Input frequency range 47 ~ 63 Hz Input AC current Max. 1.7 A at 90 Vac
Output	Output power 65W DC output 19.5V Hold-up time 5ms at 115 Vac input Output current limit <11.0A
Connector	C6 (3pin/with grounded, with Smart ID DC connector)
Environmental Design	Operating temperature 32°F to 95°F (0°to 35°C) Non-operating (storage) temperature -4°F to 185°F (-20°to 85°C) Altitude 0 to 16,400 ft (0 to 5000m) Humidity 20% to 95% Storage Humidity 10% to 95%
EMI and Safety Certifications	Eg: *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 EM Smart AC adapter

Dimensions	127.0x51.0x30.0mm
Weight	350g +/- 10g
Input	Input Efficiency 88.0 % at 115 Vac and 89.0 % at 230Vac Input frequency range 47 ~ 63 Hz



Technical Specifications

Output	Input AC current	Max. 1.7 A at 90 Vac
	Output power	65W
	DC output	19.5V
	Hold-up time	5ms at 115 Vac input
	Output current limit	<11.0A
Connector	C6 (3pin/with grounded, with Smart ID DC connector)	
Environmental Design	Operating temperature	32°F to 95°F (0° to 35°C)
	Non-operating (storage) temperature	-4°F to 185°F (-20° to 85°C)
	Altitude	0 to 16,400 ft (0 to 5000m)
	Humidity	20% to 95%
	Storage Humidity	10% to 95%
EMI and Safety Certifications	Eg:	
	*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 USB Type-C™ AC adapter	Dimensions	74x74x28.5mm
	Weight	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
Output	Input AC current	1.7 A at 90 VAC and maximum load
	Output power	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	32°F to 95°F (0° to 35°C)
	Non-operating (storage) temperature	-4°F to 185°F (-20° to 85°C)
	Altitude	0 to 16,400 ft (0 to 5000m)
	Humidity	5% to 95%
	Storage Humidity	5% to 95%



Technical Specifications

EMI and Safety Certifications

Eg:

*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 Long Life 3 cell,
57 Wh Li-on polymer**

Dimensions (H x W x L)

6.3mm x 110.05mm x 259.8mm

Weight

250g

Cells/Type

3cell Lithium-Ion

Energy

Voltage

11.55V

Amp-hour capacity

4935mAh

Watt-hour Capacity

57Whr

Temperature

Operating (Charging)

32° to 113° F (0° to 45° C)

Operating (Discharging)

14° to 122° F (-10° to 60° C)

Non-operating

-4° to 122° F (-20° to 60° C)

Battery Re-Charge Time

System in OFF mode or Standby

< 5 hours

System ON

Need system side power/EE confirm

Fuel Gauge LED

No

Optional Travel Battery Available

N/A

ENVIRONMENTAL

Eco-Label Certifications & declarations

This product has received or is in the process of being certified to the following approvals and may be labeled with one or more of these marks:

- IT ECO declaration
- US ENERGY STAR®
- EPEAT® 2019 Silver in U.S. Based on US EPEAT® registration according to IEEE 1680.1-2018 EPEAT®. Status varies by country. Visit <http://www.epeat.net> for more information.

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".



Technical Specifications

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

	115VAC, 50Hz	230VAC, 50Hz	100VAC, 50Hz
Normal Operation (Short idle)	7.50 W	7.33 W	7.38 W
Normal Operation (Long idle)	3.17 W	3.24 W	3.22 W
Sleep	0.46 W	0.48 W	0.46 W
Off	0.25 W	0.28 W	0.25 W

Note:

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

Heat Dissipation*

	115VAC, 50Hz	230VAC, 50Hz	100VAC, 50Hz
Normal Operation (Short idle)	26 BTU/hr	25 BTU/hr	25 BTU/hr
Normal Operation (Long idle)	11 BTU/hr	11 BTU/hr	11 BTU/hr
Sleep	2 BTU/hr	2 BTU/hr	2 BTU/hr
Off	1 BTU/hr	1 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)



Technical Specifications

Typically Configured – Idle	2.5	15
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Fixed Disk – Random writes	3.0	30
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Batteries

This battery(s) in this product comply with EU Directive 2006/66/EC

Batteries used in the product do not contain:

Mercury greater than 1ppm by weight

Cadmium greater than 20ppm by weight

Battery size: CR2032 (coin cell)

Battery type: Lithium

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 1680.1 (EPEAT) standard at the Silver 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 95.0% recycle-able when properly disposed of at end of life.

Packaging Materials

External:	PAPER/Corrugated	363 g
Internal:	PLASTIC/Expanded Polyethylene - EPE	42 g
	PLASTIC/Polyethylene low density - LDPE	15 g
	PLASTIC/Polypropylene - PP	3 g

The plastic packaging material contains at least 0% recycled content.

The corrugated paper packaging materials contains at least 96% 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/gse.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



Technical Specifications

- Nickel – finishes must not be used on the external surface designed to be frequently handled or carried by the user.
- Ozone Depleting Substances
- Polybrominated Biphenyls (PBBs)
- Polybrominated Biphenyl Ethers (PBBEs)
- Polybrominated Biphenyl Oxides (PBBOs)
- Polychlorinated Biphenyl (PCB)
- Polychlorinated Terphenyls (PCT)
- Polyvinyl Chloride (PVC) – except for wires and cables, and certain retail packaging has been voluntarily removed from most applications.
- Radioactive Substances
- Tributyl Tin (TBT), Triphenyl Tin (TPT), Tributyl Tin Oxide (TBTO)

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.

HP, Inc. Corporate Environmental Information

For more information about HP's commitment to the environment:

Global Citizenship Report

<http://www.hp.com/hpinfo/globalcitizenship/gcreport/index.html>

Eco-label certifications

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

ISO 14001 certificates:

<http://h20195.www2.hp.com/V2/GetDocument.aspx?docname=c04755842>

and

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



Technical Specifications

COUNTRY OF ORIGIN

China



Options and Accessories (Sold separately and availability may vary by country.)

Category	Description	Part Number
Cases	HP Business Slim Top Load	H5M91AA
	HP Business Backpack	H5M90AA
Docking	HP USB-C Travel Dock	T0K29AA#xxx
	HP Elite 90W TB3 Dock	1DT93AA#xxx
	HP Hot Desk Stand	W3Z73AA
	HP Hot Desk Stand Monitor Arm	W3Z74AA
Input/Output	HP Active Pen with App Launch	T4Z24AA
	HP USB-C to RJ45	V7W66AA#xxx
	HP USB to Gigabit RJ45 Adapter	N7P47AA#xxx
	HP USB-C to VGA Adapter	N9K76AA
	HP USB-C to HDMI Adapter	N9K77AA
	HP USB-C to DisplayPort Adapter	N9K78AA
	HP Stereo 3.5mm Headset	T1A66AA
	HP Stereo USB Headset	T1A67AA
	HP Comfort Grip Wireless Mouse	H2L63AA
	HP Slim USB Keyboard and Mouse	T6T83AA
	HP Wireless (Link-5) Keyboard	T6U20AA
	HP USB Optical Travel mouse	G2K28AA
Power	HP 65W Smart AC Power Adapter (4.5mm)	H6Y89AA#xxx
Storage	HP External USB Optical Drive	F2B56AA
Security	HP Keyed Cable Lock 10mm	T1A62AA
	HP Dual Head Keyed Cable Lock	T1A64AA
UCC	HP Conferencing Keyboard	K8P74AA#xxx
	HP Speaker Phone	K7V16AA
	HP Wired Headset	K7V17AA
Displays	HP S270c 27" Curved Monitor	K1M38AA#ABA
	HP E230t 23" Touch Monitor	W2Z50AA#ABA



Date of change	Version History		Description of change
January 26, 2017	V1 to V2	Update	Environmental Section updated
February 17, 2017	V2 to V3	Update	Options and Accessories Section updated: removed HP Elite Thunderbolt 3 Dock P5Q54AA#xxx; Added HP Elite 90W TB3 Dock 1DT93AA#xxx
March 9, 2017	V3 to V4	Update	Updated Note in Operating System and Processor sections
April 12, 2017	V4 to V5	Added	Smart Card Reader in Security and Ports/Slots Section
May 1, 2017	V5 to V6	Update	Storage and Drives Section updated
June 19, 2017	V6 to V7	Update	Options and Memory Sections updated
July 31, 2017	V7 to V8	Update	Reference to FreeDos and Linux OS removed
August 15, 2017	V8 to V9	Update	Display section updated
August 22, 2017	V9 to V10	Update	Broadband Module added to the wireless section
September 19, 2017	V10 to V11	Update	2.9 GHz changed to 2.8 GHz on the Intel® Core™ i7-7600U with Intel HD Graphics 620 specs, on processors section
September 28, 2017	V11 to V12	Update	Battery life info updated with new format
October 18, 2017	V12 to V13	Update	Keyboard section updated
January 9, 2018	V13 to V14	Update	1TB PCIe Gen3x4 NVMe Solid State TLC added to primary storage and also included in At A Glance section
February 16, 2018	V14 to V15	Update	Gamut color coverage row added to display panels at 72%
August 23, 2018	V15 to V16	Update	WWAN section
June 4, 2019	V16 to V17	Update	EPEAT

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