

Overview

HP EliteBook x360 830 G5 Notebook PC



Left

- | | |
|------------------------------------|---------------------------------|
| 1. HD and IR Camera (Optional) | 7. Glass Clickpad |
| 2. IR camera LEDs (Optional) | 8. Smartcard reader (Optional) |
| 3. Internal microphones | 9. Volume Up/Down |
| 4. Camera Shutter | 10. Vents |
| 5. HD Camera LED | 11. Power Button |
| 6. Ambient light sensor (Optional) | 12. USB 3.1 Gen 1 charging port |

Overview



Right

- | | |
|-----------------------------------|--|
| 1. Power connector | 6. Audio Combo Jack |
| 2. USB 3.1 Gen 1 | 7. Security lock slot (Lock sold separately) |
| 3. HDMI port (Cable not included) | 8. SIM card tray ¹ |
| 4. USB Type-C™ with Thunderbolt™ | 9. Touch fingerprint sensor (Optional) |
| 5. USB Type-C™ with Thunderbolt™ | |

1. All units have a SIM card stray but units that do not support WWAN are shipped with a non-removable SIM slot plug

Overview

At a Glance

- Eye catching, Aluminum x360 design with four usage modes that is 0.66 inches (1.69 cm) thin and with a starting weight of 2.97 lbs. (1.35 Kgs)
- Choice of 8th Generation Intel® Core™ i3, i5, or i7 Processors
- Optional ultrabright, anti-glare touch displays with ambient light sensor
- Choice of displays:
 - 33.8 cm (13.3") diagonal FHD IPS LED-backlit BrightView touch with Corning® Gorilla® Glass 5, 220 cd/m², 45%
 - 33.8 cm (13.3") diagonal FHD IPS LED-backlit BrightView touch with Corning® Gorilla® Glass 5, 400 cd/m², 72%
 - 33.8 cm (13.3") diagonal FHD IPS LED-backlit Anti-Glare glass touch with Corning® Gorilla® Glass 5, 400 cd/m², 72%
 - 33.8 cm (13.3") diagonal FHD IPS LED-backlit BrightView touch with Corning® Gorilla® Glass 5 with HP Sure View (Available Q2 2019)
 - 33.8 cm (13.3") diagonal FHD IPS LED-backlit Anti-Glare glass touch with Corning® Gorilla® Glass 5 with HP Sure View (Available Q2 2019)
- Enterprise grade security with HP SureStart Gen4, HP Privacy Camera, HP Sure View Gen3², HP Sure Run, HP Sure Recover with Embedded Reimaging², HP Sure Click, SmartCard Reader² and optional Touch Fingerprint reader²
- New optional HP Rechargeable Active Pen
- Ultimate connectivity with optional CAT16 4G/LTE WWAN, and Thunderbolt™ Docking (Dock sold separately)
- Preinstalled with Windows 10 versions or FreeDOS
- Choice of solid state drives up to 2TB and DDR4 memory up to 32GB
- Supports fast charging (50% in 30 minutes) with no impact on battery recharge cycles³
- Featuring HP Collaboration Keyboard with Clickpad to manage most commonly used conferencing functions with a single keystroke
- Innovative world-facing third mic improves inbound ambient noise cancellation
- Battery Life Up to 19 hours 30 mins⁴
- Passed 19 MIL-STD 810G tests⁵

2. Sold separately or as an optional feature.

3. Recharges your battery up to 50% within 30 minutes when the system is off or in standby mode. Power adapter with a minimum capacity of 65 watts is required. After charging has reached 50% capacity, charging will return to normal. Charging time may vary +/-10% due to system tolerance.

4. 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 <http://www.bapco.com> for additional details.

5. MIL STD 810G testing 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. 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.



Technical Specifications

PRODUCT NAME

HP EliteBook x360 830 G5 Notebook PC

OPERATING SYSTEMS

Preinstalled	Windows 10 Pro 64 ⁵ Windows 10 Pro 64 (National Academic Only) ⁶ Windows 10 Home 64 ⁵ Windows 10 Home Single Language 64 ⁵ FreeDOS 3.0
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5. 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/>

6. 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™ i3-8130U with Intel® UHD graphics 620 (2.2 GHz base frequency, up to 3.4 GHz with Intel® Turbo Boost Technology, 4 MB cache, 2 cores)^{7,8,9,10}

Intel® Core™ i5-8250U with Intel® UHD Graphics 620 (1.6 GHz base frequency, up to 3.4 GHz with Intel® Turbo Boost Technology, 6 MB cache, 4 cores)^{7,8,9,10}

Intel® Core™ i5-8350U vPro™ processor with Intel® UHD Graphics 620 (1.7 GHz base frequency, up to 3.6 GHz with Intel® Turbo Boost Technology, 6 MB cache, 4 cores)^{7,8,9,10}

Intel® Core™ i7-8550U with Intel® UHD graphics 620 (1.8 GHz base frequency, up to 4 GHz with Intel® Turbo Boost Technology, 8 MB cache, 4 cores)^{7,8,9,10}

Intel® Core™ i7-8650U vPro™ processor with Intel® UHD graphics 620 (1.9 GHz base frequency, up to 4.2 GHz with Intel® Turbo Boost Technology, 8 MB cache, 4 cores)^{7,8,9,10}

Processor Family

8th Generation Intel® Core™ i3 processor (i3-8130U model)

8th Generation Intel® Core™ i5 processor (i5-8350U, i5-8250U models)

8th Generation Intel® Core™ i7 processor (i7-8650U, i7-8550U models)

7. 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, branding and/or naming is not a measurement of higher performance.

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

9. Intel® Turbo Boost performance varies depending on hardware, software and overall system configuration. See <http://www.intel.com/technology/turboboost> for more information.



Technical Specifications

10. 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>.

CHIPSET

Chipset is integrated with processor

GRAPHICS

Integrated

Intel® UHD Graphics 620¹¹

Supports

Support HD decode, DX12, HDMI 1.4b¹², HDCP 2.2

11. HD content required to view HD images.

12. HDMI cable sold separately.

DISPLAY

Touch

33.8 cm (13.3") diagonal FHD IPS BrightView LED-backlit touch screen with Corning® Gorilla® Glass 5, 220 cd/m², 45% with HD camera (1920 x 1080) ^{11,13,14}

33.8 cm (13.3") diagonal FHD IPS BrightView LED-backlit touch screen with Corning® Gorilla® Glass 5, 220 cd/m², 45% with HD camera for WWAN (1920 x 1080) ^{11,13,14}

33.8 cm (13.3") diagonal FHD IPS BrightView LED-backlit touch screen with Corning® Gorilla® Glass 5, 400 cd/m², 72% with Ambient Light Sensor and HD IR camera (1920 x 1080) ^{11,13,14}

33.8 cm (13.3") diagonal FHD IPS BrightView LED-backlit touch screen with Corning® Gorilla® Glass 5, 400 cd/m², 72% with Ambient Light Sensor and HD IR camera for WWAN (1920 x 1080) ^{11,13,14}

33.8 cm (13.3") diagonal FHD IPS Anti-Glare LED-backlit touch screen with Corning® Gorilla® Glass 5, 400 cd/m², 72% with Ambient Light Sensor and HD IR camera for WWAN (1920 x 1080) ^{11,13,14}

HP Sure View Integrated Privacy Screen 33.8 cm (13.3") diagonal FHD IPS BrightView LED-backlit touch screen with Corning® Gorilla® Glass 5 with Ambient Light Sensor and HD IR webcam (1920 x 1080) ^{11,13,14,15} (Available 2Q 2019)

HP Sure View Integrated Privacy Screen 33.8 cm (13.3") diagonal FHD IPS BrightView LED-backlit touch screen with Corning® Gorilla® Glass 5 with Ambient Light Sensor and HD IR webcam for WWAN (1920 x 1080) ^{11,13,14,15} (Available 2Q 2019)

HP Sure View Integrated Privacy Screen 33.8 cm (13.3") diagonal FHD IPS Anti-Glare LED-backlit touch screen with Corning® Gorilla® Glass 5 with Ambient Light Sensor and HD IR webcam for WWAN (1920 x 1080) ^{11,13,14,15} (Available 2Q 2019)

HDMI 1.4b

Supports resolution up to 4k @ 30Hz

11. HD content required to view HD images.

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

14. Sold separately or as an optional feature.

15. HP Sure View integrated privacy screen is an optional feature that must be configured at purchase and functions in landscape orientation.



Technical Specifications

Docking station model	Total number of supported displays (incl. the notebook display)	Max. resolutions supported	Dock Connectors	Technical limitations
HP Thunderbolt Dock G2	3	Dual 4K @ 60Hz	2xDP, 1xVGA, 1xTB, 1xUSB-C alt-mode	Dual 4k only with one display in to DP + TB port or USB-C alt mode + TB port
HP Elite USB-C Dock G4	3	Dual 2K @ 60Hz Single 4K	1xHDMI, 2xDP	
HP USB-C Universal Dock	3	Dual 4K @ 60Hz Single 5K @ 60Hz	2xDP	
HP USB-C Travel Dock	2	Single 2K @ 60Hz	1xHDMI, 1xVGA	Single external display Only HDMI or VGA at the time
HP USB-C Mini Dock	2	Single 4K @ 30Hz	1xHDMI, 1xVGA	Single external display Only HDMI or VGA at the time

STORAGE AND DRIVES

Primary M.2 Storage

- 128 GB M.2 SATA-3 SS TLC¹⁶
- 256 GB PCIe® NVMe™ M.2 SS Value¹⁶
- 256 GB PCIe® Gen3x4 NVMe™ M.2 SS TLC¹⁶
- 256 GB M.2 SATA-3 SED SS TLC (Opal 2)¹⁶
- 512 GB PCIe® Gen3x4 NVMe™ M.2 SS TLC¹⁶
- 512 GB PCIe® Gen3x4 NVMe™ M.2 SED SS TLC (OPAL 2)¹⁶
- 512 GB M.2 SATA-3 SS TLC (FIPS 140-2)¹⁶
- 1 TB PCIe® Gen3x4 NVMe™ M.2 SS TLC¹⁶
- 2 TB PCIe® Gen3x4 NVMe™ M.2 SS TLC¹⁶

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

MEMORY

Maximum Memory

32 GB DDR4-2400 SDRAM¹⁷

Memory

- 32 GB DDR4-2400 SDRAM (2 x 16 GB)¹⁷
- 16 GB DDR4-2400 SDRAM (1 x 16 GB)
- 16 GB DDR4-2400 SDRAM (2 x 8 GB)¹⁷
- 8 GB DDR4-2400 SDRAM (1 x 8 GB)
- 8 GB DDR4-2400 SDRAM (2 x 4 GB)¹⁷
- 4 GB DDR4-2400 SDRAM (1 x 4 GB)

Memory Slots

2 SODIMM



Technical Specifications

Both slots are upgradeable
System runs at 2400 for Intel 8th generation processors
Supports Dual Channel Memory

17. Due to the non-industry standard nature of some third-party memory modules, we recommend HP branded memory to ensure compatibility. If you mix memory speeds, the system will perform at the lower memory speed.

NETWORKING/COMMUNICATIONS

WLAN

Intel® Dual Band Wireless-AC 8265 802.11a/b/g/n/ac (2x2) WLAN and Bluetooth® 4.2 Combo, vPro™^{14,18}
Intel® Dual Band Wireless-AC 8265 802.11a/b/g/n/ac (2x2) WLAN and Bluetooth® 4.2 Combo, non-vPro™^{14,18}

WWAN

Intel® XMM™ 7262 LTE-Advanced CAT 6¹⁹
Intel® XMM™ 7360 LTE-Advanced CAT 9¹⁹
Intel® XMM™ 7560 LTE-Advanced Pro CAT 16²¹

NFC

NXP NPC300 Near Field Communication Module¹⁴

Miracast

Native Miracast Support²⁰

14. Sold separately or as an optional feature.

18. Wireless access point and Internet service required and sold separately. Availability of public wireless access points limited.

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

20. Miracast is a wireless technology your PC can use to project your screen to TVs, projectors, and streaming.

21. Gigabit class 4G LTE module is optional and must be configured at the factory. Module designed for up to 1 Gbps download speeds as carriers deploy 5 carrier aggregation and 100Mhz channel bandwidth, requires activation and separately purchased service contract. Backwards compatible to HSPA 3G technologies. Check with service provider for coverage and availability in your area. Connection, upload and download speeds will vary due to network, location, environment, network conditions, and other factors. 4G LTE not available on all products, in all regions.

AUDIO/MULTIMEDIA

Audio

Audio by Bang & Olufsen
Integrated 3 Multi Array Microphone
2 Integrated Stereo Speakers (74 Db)

Camera

HD camera¹¹
HD IR camera¹¹

11. HD content required to view HD images.

KEYBOARDS/POINTING DEVICES/BUTTONS & FUNCTION KEYS



Technical Specifications

Keyboard

HP Premium Collaboration Keyboard, backlit and spill resistant with drain

Pointing Device

Clickpad with multi-touch gestures enabled, taps enabled as default
Microsoft Precision Touchpad Default Gestures Support

Function Keys

F1 - Display Switching
F2 - Blank or Privacy
F3 - Brightness Down
F4 - Brightness Up
F5 - Audio Mute
F6 - Volume Down
F7 - Volume Up
F8 - Mic Mute
F9 - Backlit Toggle
F10 - numlk
F11 - Wireless
F12 - Calendar
Share/Present
Call Answer
Call End

Hidden Function Keys

Fn+R - Break
Fn+S - Sys Rq
Fn+C - Scroll Lock
Fn+E - Insert
Fn+W - Pause

SOFTWARE AND SECURITY

Preinstalled Software

HP BIOSphere Gen4²²

HP Drive Lock & Automatic Drive Lock²³
BIOS Update via Network
Master Boot Record Security
Power On Authentication
Secure Erase²⁴
Absolute Persistence Module²⁵
Pre-boot Authentication
HP Wireless Wakeup

Software

HP Native Miracast Support²⁰
HP LAN-Wireless Protection
HP Connection Optimizer
HP Hotkey Support
HP Jumpstart
HP Support Assistant²⁶
HP Noise Cancellation Software
Buy Office (Sold separately)



Technical Specifications

Manageability Features

HP Driver Packs²⁷
HP System Software Manager (SSM)
HP BIOS Config Utility (BCU)
HP Client Catalog
HP Manageability Integration Kit Gen2²⁸
Ivanti Management Suite²⁹
HP Power Manager

Client Security Software

HP Client Security Suite Gen4 including:³⁰
HP Security Manager (including Credential Manager, HP Password Manager³¹, HP Spare Key)
Power On Authentication
HP Fingerprint Sensor³²
HP Device Access Manager
HP Power On Authentication
Windows Defender³³

Security Management

Pre-boot Authentication
TPM 2.0 Embedded Security Chip shipped with Windows 10 (Common Criteria EAL4+ Certified)
SATA 0,1 port disablement (viaBIOS)
Serial, USB enable/disable (viaBIOS)
Power-on password (viaBIOS)
Setup password (viaBIOS)
Support for chassis padlocks and cable lock devices
HP Sure Click³⁴
HP Sure Start Gen4³⁵
HP Sure Run³⁶
HP Sure Recover³⁷

TPM

Model: Infineon SLB9670
Version: 7.85
Revision: TPM 2.0
FIPS 140-2 Compliant: Yes

Fingerprint Reader

Model: Synaptics Validity VFS7552 touch sensor
Mobile Voltage Operation: 3.0V to 3.6V
Operating Temperature: -20° to -75°C
Power Consumption: 10mA peak
USB Suspend: 220 uA
Frame Rate: 30ms
ESD Resistance: IEC 61000-4-2 4B (+15KV)
Detection Matrix: 363 dpi
FRR (False Reject Rate) / FAR (False Acceptance Rate): FRR ~ 1% @ 1:50K FAR

Smartcard Reader

Model number: Alcor AU9560
FIPS 201 Compliant: Yes



Technical Specifications

IPv6 Certification

Yes

MD5 Hash: Please follow the instructions below to access MD5 Hash.

Log-on to <http://hp.com/support>, enter your product name, select software and drivers, select OS, select driver. After selecting the driver, click on "Associated files" and then click on "Download". When opening the file, under "Purpose" you should see the appropriate "SOFTPAQ MD5:" Field

Is the BIOS on this notebook ISO/IEC 19678:2015 (formerly NIST 800-147) compliant?:

Yes

UEFI version: 2.5

- 20. Miracast is a wireless technology your PC can use to project your screen to TVs, projectors, and streaming.
- 22. HP BIOSphere Gen4 requires Intel® or AMD 8th Gen processors. Features may vary depending on the platform and configurations.
- 23. HP Drive Lock & Automatic Drive Lock is not supported on NVMe drives
- 24. HP Secure Erase for the methods outlined in the National Institute of Standards and Technology Special Publication 800-88 "Clear" sanitation method.
- 25. 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> 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.
- 26. HP Support Assistant requires Windows and Internet access.
- 27. HP Driver Packs not preinstalled, however available for download at <http://www.hp.com/go/clientmanagement>.
- 28. HP Manageability Integration Kit can be downloaded from <http://www.hp.com/go/clientmanagement>.
- 29. Ivanti Management Suite subscription required.
- 30. HP Client Security Suite Gen 4 requires Windows and Intel® or AMD 8th generation processors.
- 31. HP Password Manager requires Internet Explorer or Chrome or Firefox. Some websites and applications may not be supported. User may need to enable or allow the add-on / extension in the internet browser.
- 32. HP Fingerprint Sensor sold separately or as an optional feature.
- 33. Windows Defender Opt in and internet connection required for updates.
- 34. HP Sure Click is available on most HP PCs and supports Microsoft® Internet Explorer and Chromium™. Supported attachments include Microsoft Office (Word, Excel, PowerPoint) and PDF files in read only mode, when Microsoft Office or Adobe Acrobat are installed.
- 35. HP Sure Start Gen4 is available on HP EliteBook products equipped with Intel® 8th generation processors
- 36. HP Sure Run is available on HP Elite products equipped with 8th generation Intel® or AMD® processors.
- 37. HP Sure Recover is available on HP Elite PCs with 8th generation Intel® or AMD processors and requires an open, wired network connection. Not available on platforms with multiple internal storage drives, Intel® Optane™. You must back up important files, data, photos, videos, etc. before use to avoid loss of data.



Technical Specifications

POWER

Power Supply

HP Smart 45 W USB-C External AC power adapter³⁸

HP Smart 65 W External AC power adapter³⁸

HP Smart 65 W USB-C External AC power adapter³⁸

HP 45 W USB Type-C™ adapter³⁸

HP 65 W USB Type-C™ adapter³⁸

Primary Battery

HP Long Life 4-cell, 53 Wh Li-ion³⁹

Battery Life

Up to 19 hours 30 mins (Intel® 8th Generation CPU and 4-cell 53 WHr battery)⁴⁰

Power Cord

3-wire plug - 1 m³⁸

3-wire plug - 1.8 m³⁸

Duckhead power cord - 1 m³⁸

Duckhead power cord - 1.8 m³⁸

38. Availability may vary by country.

39. Battery is internal and not replaceable by customer. Serviceable by warranty.

40. 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 <http://www.bapco.com> for additional details.

Technical Specifications

WEIGHTS & DIMENSIONS

Product Weight

Starting at 2.97 lbs⁴¹

Starting at 1.35 kg⁴¹

Starting weight configuration: FHD 400 nits BrightView Touch, 53 Wh battery, 4GB, 128GB SSD, HD + IR camera, NO FPS, with WWAN Antenna, No NFC, No Pen

Mainstream weight: 3.13 lb⁴¹

Mainstream weight: 1.42 kg⁴¹

Mainstream weight configuration: FHD 220 nits BrightView Touch, 53 Wh battery, 4GB, 128GB SSD, HD Camera, No FPS, with WWAN Antenna, No NFC, No Pen

Product Dimensions (w x d x h)

12.07 x 8.47 x 0.66 in

30.66 x 21.52 x 1.69 cm

41. Weight will vary by configuration.

PORTS/SLOTS

2 USB 3.1 Type-C™ with Thunderbolt™ support

2 USB 3.1 Gen 1 (1 charging)

1 HDMI 1.4b¹²

1 External Nano SIM tray (Optional)

1 Headphone/Microphone Combo

1 Smartcard Reader (Optional)

1 AC power

12. HDMI cable sold separately.

SERVICE AND SUPPORT

HP 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 except for Long Life batteries which will have same 1-year or 3-year limited warranty as the platform. Refer to <http://www.hp.com/support/batterywarranty/> for additional battery information. 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>.⁴²

42. HP Care Packs are sold separately. 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 <http://www.hp.com/go/cpc>. 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.

Technical Specifications

ENVIRONMENTAL & INDUSTRY

Eco-Label Certifications & declarations	This product has received or is in the process of being certified to the following approvals and may be labeled with one or more of these marks: <ul style="list-style-type: none"> •IT ECO declaration •US ENERGY STAR® •EPEAT® Gold registered in the United States. See http://www.epeat.net for registration status in your country. •TCO or TCO Certified Edge 		
System Configuration	The configuration used for the Energy Consumption and Declared Noise Emissions data for the Notebook model is based on a Typically Configured Notebook.		
Energy Consumption (in accordance with US ENERGY STAR® test method)	115VAC, 60Hz	230VAC, 50Hz	100VAC, 60Hz
Normal Operation (Short idle)	3.88 W	4.06 W	3.82 W
Normal Operation (Long idle)	2.21 W	2.18 W	2.89 W
Sleep	1.14 W	1.07 W	1.09 W
Off	0.46 W	0.44 W	0.44 W
	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, 60Hz	230VAC, 50Hz	100VAC, 60Hz
Normal Operation (Short idle)	13 BTU/hr	14 BTU/hr	13 BTU/hr
Normal Operation (Long idle)	8 BTU/hr	7 BTU/hr	10 BTU/hr
Sleep	4 BTU/hr	4 BTU/hr	4 BTU/hr
Off	2 BTU/hr	2 BTU/hr	2 BTU/hr
	Heat dissipation is calculated based on the measured watts, assuming the service level is attained for one hour.		
Declared Noise Emissions (in accordance with ISO 7779 and ISO 9296)	Sound Power (L _{WAd} , bels)		Sound Pressure (L _{pAm} , decibels)
Typically Configured – Idle	2.5		14.6
Fixed Disk – Random writes	2.6		15.2
Longevity and Upgrading	This product can be upgraded, possibly extending its useful life by several years. Upgradeable features and/or components contained in the product may include: <ul style="list-style-type: none"> • 3 USB ports • 1 PC card slot (type I/II) • 1 ExpressCard/54 slot • 1 IEEE 1394 Port • 2 SODIMM memory slots • Optional expansion base docking station • 1 multi-bay II storage port • Interchangeable HDD 		



Technical Specifications

	Spare parts are available throughout the warranty period and or for up to “5” years after the end of production.		
Batteries	<p>This battery(s) in this product comply with EU Directive 2006/66/EC</p> <p>Batteries used in the product do not contain: Mercury greater the 1ppm by weight Cadmium greater than 20ppm by weight</p> <p>Battery size: CR2032 (coin cell) Battery type: lithium/manganese dioxide</p>		
Additional Information	<ul style="list-style-type: none"> • This product is in compliance with the Restrictions of Hazardous Substances (RoHS) directive - 2011/65/EC. • This HP product is designed to comply with the Waste Electrical and Electronic Equipment (WEEE) Directive – 2002/96/EC. • This product is in compliance with California Proposition 65 (State of California; Safe Drinking Water and Toxic Enforcement Act of 1986). • This product is in compliance with the IEEE 1680 (EPEAT) standard at the Gold level, see http://www.epeat.net • Plastics parts weighing over 25 grams used in the product are marked per ISO11469 and ISO1043. • This product contains 3% post-consumer recycled plastic (by wt.) • This product is 94.5% recycle-able when properly disposed of at end of life. 		
Packaging Materials	External:	PAPER/Corrugated	264 g
	Internal:	PLASTIC/EPE (Expanded Polyethylene)	47 g
		PLASTIC/Polyethylene low density	14 g
		PLASTIC/Polypropylene - PP	3 g
Material Usage	<p>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):</p> <ul style="list-style-type: none"> • Asbestos • Certain Azo Colorants • Certain Brominated Flame Retardants – may not be used as flame retardants in plastics • Cadmium • Chlorinated Hydrocarbons • Chlorinated Paraffins • Formaldehyde • Halogenated Diphenyl Methanes • Lead carbonates and sulfates • Lead and Lead compounds • Mercuric Oxide Batteries • Nickel – finishes must not be used on the external surface designed to be frequently handled or carried by the user. • Ozone Depleting Substances • Polybrominated Biphenyls (PBBs) • Polybrominated Biphenyl Ethers (PBBEs) • Polybrominated Biphenyl Oxides (PBBOs) • Polychlorinated Biphenyl (PCB) • Polychlorinated Terphenyls (PCT) • Polyvinyl Chloride (PVC) – except for wires and cables, and certain retail packaging has been voluntarily removed from most applications. • Radioactive Substances • Tributyl Tin (TBT), Triphenyl Tin (TPT), Tributyl Tin Oxide (TBTO) 		



Technical Specifications

Packaging Usage	<p>HP follows these guidelines to decrease the environmental impact of product packaging:</p> <ul style="list-style-type: none"> • 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	<p>HP Inc. 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.</p> <p>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.</p>
HP Inc. Corporate Environmental Information	<p>For more information about HP's commitment to the environment:</p> <p>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://www.hp.com/hpinfo/globalcitizenship/environment/pdf/PC_GBU_Product_Design_ISO_14K_Certificate.pdf and http://www.hp.com/hpinfo/globalcitizenship/environment/pdf/cert.pdf</p>

SYSTEM UNIT

Stand-Alone Power Requirements (AC Power)	Nominal Operating Voltage	AC 19V
	Average Operating Power	Win10
	Integrated Graphics	Yes
	Max Operating Power	UMA < 65W
Temperature	Operating	32° to 95° F (0° to 35° C) (not writing optical)
	Non-operating	41° to 95° F (5° to 35° C) (writing optical)
Relative Humidity	Operating	10% to 90%, non-condensing
	Non-operating	5% to 95%, 101.6° F (38.7° C) maximum wet bulb temperature
Shock	Operating	40 G, 2 ms, half-sine
	Non-operating	200 G, 2 ms, half-sine
Random Vibration	Operating	0.75 grms
	Non-operating	1.50 grms
Altitude (unpressurized)	Operating	-50 to 10,000 ft (-15.24 to 3,048 m)



Technical Specifications

Planned Industry Standard Certifications	Non-operating	-50 to 40,000 ft (-15.24 to 12,192 m)
	UL	Yes
	CSA	Yes
	FCC Compliance	Yes
	ENERGY STAR® qualified	Yes ⁴³
	EPEAT®	Yes ⁴⁴
	ICES	Yes
	Australia	Yes
	NZ A-Tick Compliance	Yes
	CCC	Yes
	Japan VCCI Compliance	Yes
	KC	Yes
	BSMI	Yes
	CE Marking Compliance	Yes
	BNCI or BELUS	Yes
	CIT	Yes
	GOST	Yes
Saudi Arabian Compliance (ICCP)	Yes	
SABS	Yes	

43. Configurations of the HP EliteBook x360 830 G5 that are ENERGY STAR® certified are identified as HP EliteBook x360 830 G5 ENERGY STAR® on HP websites and on <http://www.energystar.gov>.

44. EPEAT® registered where applicable. EPEAT registration varies by country. See <http://www.epeat.net> for registration status by country. Search keyword generator on HP's 3rd party option store for solar generator accessories at <http://www.hp.com/go/options>.

DISPLAYS

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

Panel LCD 13.3 inch diagonal FHD WLED BrightView touch UWVA 45 percent cg 220 nits eDP slim	Outline Dimensions (W x H x D)	300.56 x 187.77 max. (w/ PCB & w/o bracket)
	Active Area	293.76 x 165.24 typ.
	Weight	<260 max. (panel only)
	Diagonal Size	13.3"
	Thickness	3.0mm max.
	Interface	eDP 1.2 (2 lane)
	Surface Treatment	BrightView Glass
	Touch Enabled	Yes
	Contrast Ratio	600:1 (typ)
	Refresh Rate	60Hz



Technical Specifications

Brightness	220 nit typ
Pixel Resolution	1920 x 1080 (FHD)
Backlight	WLED
Color Gamut Coverage	45%
Color Depth	6 bit
Viewing Angle	UWVA 85/85/85/85

Panel LCD 13.3 inch diagonal FHD WLED BrightView touch UWVA 72 percent cg 400 nits eDP 1.4+PSR2 ultraslim

Outline Dimensions (W x H x D)	299.06 x 185.54 (max.)
Active Area	293.76 x 165.24
Weight	170g max. (panel only)
Diagonal Size	13.3"
Thickness	2.0mm
Interface	eDP 1.4 w/ PSR2 (2 lane)
Surface Treatment	BrightView Glass
Touch Enabled	Yes
Contrast Ratio	1500:1 (typical)
Refresh Rate	60Hz
Brightness	400nits typ.
Pixel Resolution	1920 x 1080 (FHD)
Backlight	WLED
Color Gamut Coverage	72%
Color Depth	8 bit
Viewing Angle	UWVA 85/85/85/85



QuickSpecs

Technical Specifications

Panel LCD 13.3 inch diagonal FHD WLED	Outline Dimensions (W x H x D)	299.06 x 185.54 (max.)
Anti-Glare glass UWVA	Active Area	293.76 x 165.24
72percent cg 400nits eDP	Weight	170g max. (panel only)
1.4+PSR2 ultraslim	Diagonal Size	13.3"
	Thickness	2.0mm
	Interface	eDP 1.4 w/ PSR2 (2 lane)
	Surface Treatment	Anti-glare Glass
	Touch Enabled	Yes
	Contrast Ratio	1500:1 (typical)
	Refresh Rate	60Hz
	Brightness	400nits typ.
	Pixel Resolution	1920 x 1080 (FHD)
	Backlight	WLED
	Color Gamut Coverage	72%
	Color Depth	8 bit
	Viewing Angle	UWVA 85/85/85/85



QuickSpecs

Technical Specifications

STORAGE AND DRIVES

SSD 128 GB 2280 M2 SATA-3 TLC	Form Factor	M.2 2280
	Capacity	128 GB
	NAND Type	TLC
	Height	0.09 in (2.3 mm)
	Width	0.87 in (22 mm)
	Weight	0.02 lb (10 g)
	Interface	ATA-8, SATA 3.0
	Maximum Sequential Read	Up To 520 MB/s
	Maximum Sequential Write	Up To 450 MB/s
	Logical Blocks	250,069,680
	Operating Temperature	32° to 158°F (0° to 70°C) [ambient temp]
	Features	DIPM; TRIM; DEVSLP
SSD 256 GB 2280 M2 PCIe-3x4 SS NVMe TLC	Form Factor	0.02 lb (10 g)
	Capacity	256GB
	NAND Type	0.09 in (2.3 mm)
	Height	0.87 in (22 mm)
	Width	PCIe NVMe Gen3X4
	Interface	Up To 2600 MB/s
	Maximum Sequential Read	Up To 900 MB/s
	Maximum Sequential Write	500,118,192
	Logical Blocks	32° to 158°F (0° to 70°C) [ambient temp]
	Operating Temperature	TRIM; L1.2
SSD 256 GB 2280 M2 SATA-3 Self Encrypted OPAL2 TLC	Form Factor	M.2 2280
	Capacity	256GB
	NAND Type	TLC
	Height	0.09 in (2.3 mm)
	Width	0.87 in (22 mm)
	Interface	ATA-8, SATA 3.0
	Maximum Sequential Read	Up To 530 MB/s
	Maximum Sequential Write	Up To 515 MB/s
	Logical Blocks	500,118,192
	Operating Temperature	32° to 158°F (0° to 70°C) [ambient temp]
	Features	DIPM; TRIM; DEVSLP



QuickSpecs

Technical Specifications

256 GB 2280 PCIe NVMe Value Solid State Drive	Form Factor	M.2 2280
	Capacity	256GB
	NAND Type	TLC
	Height	0.09 in (2.3 mm)
	Width	0.87 in (22 mm)
	Weight	0.02 lb (10 g)
	Interface	PCIe NVMe Gen3X4
	Maximum Sequential Read	Up To 1700 MB/s
	Maximum Sequential Write	Up To 600 MB/s
	Logical Blocks	500,118,192
	Operating Temperature	32° to 158°F (0° to 70°C) [ambient temp]
	Features	TRIM; L1.2

SSD 512 GB 2280 M2 PCIe-3x4 SS NVMe TLC	Form Factor	M.2 2280
	Capacity	512GB
	NAND Type	MLC
	Height	0.09 in (2.3 mm)
	Width	0.87 in (22 mm)
	Interface	PCIe NVMe Gen3X4
	Maximum Sequential Read	Up To 2600 MB/s
	Maximum Sequential Write	Up To 1400 MB/s
	Logical Blocks	1,000,215,216
	Operating Temperature	32° to 158°F (0° to 70°C) [ambient temp]
	Features	TRIM; L1.2

SSD 512 GB 2280 M2 SATA-3 TLC FIPS	Form Factor	M.2 2280
	Capacity	512GB
	NAND Type	TLC
	Height	0.09 in (2.3 mm)
	Width	0.87 in (22 mm)
	Interface	ACS-3, SATA 3.2
	Maximum Sequential Read	Up To 530 MB/s
	Maximum Sequential Write	Up To 400 MB/s
	Logical Blocks	1,000,215,216
	Operating Temperature	32° to 158°F (0° to 70°C) [ambient temp]
	Features	DIPM; TRIM; DEVSLP



QuickSpecs

Technical Specifications

SSD 512 GB 2280 PCIe-3x4 NVMe Self Encrypted OPAL2 TLC	Form Factor	M.2 2280
	Capacity	512GB
	NAND Type	TLC
	Height	0.09 in (2.3 mm)
	Width	0.87 in (22 mm)
	Weight	0.02 lb (10 g)
	Interface	PCIe NVMe Gen3X4
	Maximum Sequential Read	Up To 2900 MB/s
	Maximum Sequential Write	Up To 1400 MB/s
	Logical Blocks	1,000,215,215
	Operating Temperature	32° to 158°F (0° to 70°C) [ambient temp]
	Features	TRIM; L1.2

SSD 1 TB 2280 PCIe-3x4 NVMe TLC SS	Form Factor	M.2 2280
	Capacity	1TB
	NAND Type	TLC
	Height	0.09 in (2.3 mm)
	Width	0.87 in (22 mm)
	Interface	PCIe NVMe Gen3X4
	Maximum Sequential Read	Up to 3480 MB/s
	Maximum Sequential Write	Up to 2800 MB/s
	Logical Blocks	2,000,409,264
	Operating Temperature	32° to 158°F (0° to 70°C) [ambient temp]
	Features	TRIM; L1.2

SSD 2 TB 2280 PCIe-3x4 NVMe TLC SS	Form Factor	M.2 2280
	Capacity	2TB
	NAND Type	TLC
	Height	0.09 in (2.3 mm)
	Width	0.87 in (22 mm)
	Interface	PCIe NVMe Gen3X4
	Maximum Sequential Read	Up to 3000 MB/s
	Maximum Sequential Write	Up to 2100 MB/s
	Logical Blocks	3,907,029,168
	Operating Temperature	32° to 158°F (0° to 70°C) [ambient temp]
	Features	TRIM; L1.2



QuickSpecs

Technical Specifications

NETWORKING/COMMUNICATIONS

Intel® 802.11a/b/g/n/ac (2x2) WiFi® and Bluetooth® 4.2 Combo¹ 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 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	•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
	Security³	•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: +14dBm minimum • 802.11g: +12dBm minimum • 802.11a: +12dBm minimum • 802.11n HT20(2.4GHz): +12dBm minimum • 802.11n HT40(2.4GHz): +12dBm minimum • 802.11n HT20(5GHz): +10dBm minimum • 802.11n HT40(5GHz): +10dBm minimum • 802.11ac VHT80(5GHz): +10dBm minimum
	Power Consumption	•Transmit mode 2.0 W •Receive mode 1.6 W •Idle mode (PSP) 180 mW (WLAN Associated) •Idle mode 50 mW (WLAN unassociated) •Connected Standby 10mW •Radio disabled 8 mW
	Power Management	ACPI and PCI Express compliant power management



QuickSpecs

Technical Specifications

Receiver Sensitivity ³	802.11 compliant power saving mode 802.11b, 1Mbps: -93.5dBm maximum 802.11b, 11Mbps: -84dBm maximum 802.11a/g, 6Mbps: -86dBm maximum 802.11a/g, 54Mbps: -72dBm maximum 802.11n, MCS07: -67dBm maximum 802.11n, MCS15: -64dBm maximum 802.11ac, MCS0: -84dBm maximum 802.11ac, MCS9: -59dBm 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
Weight	Type 2230: 2.8g
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)
Signaling Data Rate	Legacy: 3 Mbps signaling data rate ¹ 2.17 Mbps BLE: 1 Mbps signaling data rate ¹ 0.2 Mbps 1. Actual throughput may vary.
Transmit Power	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) The Bluetooth component shall operate as a Class II Bluetooth device with a maximum transmit power of + 4 dBm for BR and EDR.
Power Consumption	Peak (Tx) 330 mW Peak (Rx) 230 mW Selective Suspend 17 mW



QuickSpecs

Technical Specifications

	Electrical Interface	USB 2.0 compliant
	Bluetooth Software Supported Link Topology	Microsoft Windows Bluetooth Software
	Power Management Certifications	Microsoft Windows ACPI, and USB Bus Support
	Power Management Certifications	FCC (47 CFR) Part 15C, Section 15.247 & 15.249
	Bluetooth Profiles Supported	ETS 300 328, ETS 300 826 Low Voltage Directive IEC950 UL, CSA, and CE Mark
		BT4.1-ESR 5/6/7 Compliance LE Link Layer Ping LE Dual Mode LE Link Layer LE Low Duty Cycle Directed Advertising LE L2CAP Connection Oriented Channels Train Nudging & Interlaced Scan BT4.2 ESR08 Compliance LE Secure Connection- Basic/Full LE Privacy 1.2 –Link Layer Privacy LE Privacy 1.2 –Extended Scanner Filter Policies LE Data Packet Length Extension FAX Profile (FAX) Basic Imaging Profile (BIP)2 Headset Profile (HSP) Hands Free Profile (HFP) Advanced Audio Distribution Profile (A2DP)
	Security & Manageability	Intel® vPro™ support with appropriate Intel® chipset components
Intel® 802.11a/b/g/n/ac (2x2) WiFi® and Bluetooth® 4.2 Combo¹ 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 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	•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
	Security³	•IEEE and WiFi compliant 64 / 128 bit WEP encryption for a/b/g mode only



QuickSpecs

Technical Specifications

	<ul style="list-style-type: none"> •AES-CCMP: 128 bit in hardware •802.1x authentication •WPA, WPA2: 802.1x. WPA-PSK, WPA2-PSK, TKIP, and AES. •WPA2 certification •IEEE 802.11i •Cisco Certified Extensions, all versions through CCX4 and CCX Lite •WAPI
Network Architecture Models	Ad-hoc (Peer to Peer) Infrastructure (Access Point Required)
Roaming	IEEE 802.11 compliant roaming between access points
Output Power²	<ul style="list-style-type: none"> • 802.11b: +14dBm minimum • 802.11g: +12dBm minimum • 802.11a: +12dBm minimum • 802.11n HT20(2.4GHz): +12dBm minimum • 802.11n HT40(2.4GHz): +12dBm minimum • 802.11n HT20(5GHz): +10dBm minimum • 802.11n HT40(5GHz): +10dBm minimum • 802.11ac VHT80(5GHz): +10dBm minimum
Power Consumption	<ul style="list-style-type: none"> •Transmit mode 2.0 W •Receive mode 1.6 W •Idle mode (PSP) 180 mW (WLAN Associated) •Idle mode 50 mW (WLAN unassociated) •Connected Standby 10mW •Radio disabled 8 mW
Power Management	ACPI and PCI Express compliant power management 802.11 compliant power saving mode
Receiver Sensitivity³	802.11b, 1Mbps: -93.5dBm maximum 802.11b, 11Mbps: -84dBm maximum 802.11a/g, 6Mbps: -86dBm maximum 802.11a/g, 54Mbps: -72dBm maximum 802.11n, MCS07: -67dBm maximum 802.11n, MCS15: -64dBm maximum 802.11ac, MCS0: -84dBm maximum 802.11ac, MCS9: -59dBm 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
Weight	Type 2230: 2.8g
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)



QuickSpecs

Technical Specifications

LED Activity LED Amber – Radio OFF; LED White – Radio ON

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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

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Signaling Data Rate	Legacy: 3 Mbps signaling data rate ¹ 2.17 Mbps BLE: 1 Mbps signaling data rate ¹ 0.2 Mbps 1. Actual throughput may vary.
	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.
Power Consumption	Peak (Tx) 330 mW Peak (Rx) 230 mW Selective Suspend 17 mW
Electrical Interface	USB 2.0 compliant
Bluetooth Software Supported	BT4.1-ESR 5/6/7 Compliance LE Link Layer Ping LE Dual Mode LE Link Layer LE Low Duty Cycle Directed Advertising LE L2CAP Connection Oriented Channels Train Nudging & Interlaced Scan BT4.2 ESR08 Compliance LE Secure Connection- Basic/Full LE Privacy 1.2 –Link Layer Privacy LE Privacy 1.2 –Extended Scanner Filter Policies LE Data Packet Length Extension FAX Profile (FAX) Basic Imaging Profile (BIP) ² Headset Profile (HSP) Hands Free Profile (HFP) Advanced Audio Distribution Profile (A2DP)

Intel® XMM™ 7360 LTE-Advanced CAT9¹

Technology/Operating bands FDD LTE: 2100 (Band 1), 1900 (Band 2), 1800 (Band 3), 1700/2100 (Band 4), 850 (Band 5), 2600 (Band 7), 900 (Band 8), 1400 (Band 11), 700 (Band 12 lower), 700 (Band 13 upper), 700 (Band 17 lower), 850 (Band 18 lower), 850 (Band 19 upper), 800 (Band 20), 1400 (Band 21),



QuickSpecs

Technical Specifications

	850 (Band 26), 700 (Band 28), 700 (Band 29 RX only), 2300 (Band 30), 1700/2100 (Band 66). TDD LTE: 2600 (Band 38), 1900 (Band 39), 2400 (Band 40), 2500 (Band 41). HSPA+: 2100 (Band 1), 1900 (Band 2), 1700/2100 (Band 4), 850 (Band 5), 900 (Band 8) MHz
Wireless protocol standards	3GPP Release 11 LTE Specification CAT.9, DL 60MHz BW throughput up to 450Mbps; UL 20MHz throughput up to 50Mbps WCDMA R99, 3GPP Release 5, 6, 7 and 8 UMTS Specification
GPS	Standalone, A-GPS (MS-A, MS-B)
GPS bands	1575.42 MHz ± 1.023 MHz, GLONASS 1596-1607MHz, Beidou 1561.098 MHz
Maximum data rates	LTE: 450 Mbps (Download), 50 Mbps (Upload) DC-HSPA+: 42 Mbps (Download), 5.76 Mbps (Upload) HSPA+: 21Mbps (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	5.8 g
Dimensions (Length x Width x Thickness)	42 x 30 x 2.3 mm

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

Intel® XMM™ 7560 LTE-Advanced Pro DL CAT16¹	Technology/Operating bands	FDD LTE: 2100 (Band 1), 1900 (Band 2), 1800 (Band 3), 1700/2100 (Band 4), 850 (Band 5), 2600 (Band 7), 900 (Band 8), 700 (Band 12 lower), 700 (Band 13 upper), 700 (Band 14 upper), 700 (Band 17 lower), 850 (Band 18 lower), 850 (Band 19 upper), 800 (Band 20), 1900 (Band 25), 850 (Band 26), 700 (Band 28), 700 (Band 29 RX only), 2300 (Band 30), 1700/2100 (Band 66). TDD LTE: 2600 (Band 38), 1900 (Band 39), 2400 (Band 40), 2500 (Band 41), 3500 (Band 42), 5200 (Band 46 RX only) HSPA+: 2100 (Band 1), 1900 (Band 2), 1700/2100 (Band 4), 850 (Band 5), 900 (Band 8) MHz
	Wireless protocol standards	3GPP Release 12 LTE Specification DL-CAT.16, DL 100MHz BW throughput up to 978Mbps; UL-CAT.7 20MHz throughput up to 75Mbps WCDMA R99, 3GPP Release 5, 6, 7 and 8 UMTS Specification
	GPS	Standalone, A-GPS (MS-A, MS-B)
	GPS bands	1575.42 MHz ± 1.023 MHz, GLONASS 1596-1607MHz, Beidou 1561.098 MHz
	Maximum data rates	LTE: 978 Mbps (Download), 75 Mbps (Upload) DC-HSPA+: 42 Mbps (Download), 5.76 Mbps (Upload) HSPA+: 21Mbps (Download), 5.76 Mbps (Upload)



QuickSpecs

Technical Specifications

Maximum output power	LTE: 23 dBm in all band except B41 LTE B41 HPUE = 26dBm 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)	42 x 30 x 2.3 mm

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

Intel® XMM 7262 LTE-Advanced CAT6¹

Technology/Operating bands	FDD LTE: 2100 (Band 1), 1800 (Band 3), 850 (Band 5), 2600 (Band 7), 900 (Band 8), 800 (Band 20), 700 (Band 28), HSPA+: 2100 (Band 1), 850 (Band 5), 900 (Band 8)
Wireless protocol standards	3GPP Release 11 LTE Specification CAT.6, DL 40MHz BW throughput up to 300Mbps; UL 20MHz throughput up to 50Mbps WCDMA R99, 3GPP Release 5, 6, 7 and 8 UMTS Specification
GPS	Standalone, A-GPS (MS-A, MS-B and XTRA)
GPS bands	1575.42 MHz ± 1.023 MHz, GLONASS 1596-1607MHz
Maximum data rates	LTE: 300 Mbps (Download), 50 Mbps (Upload) DC-HSPA+: 42 Mbps (Download), 5.76 Mbps (Upload) UMT: 384 kbps (Download), 384 kbps (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)	42 x 30 x 2.3 mm

1. 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.

Near Field Communications Controller (optional)

Dimensions (L x W x H)	Module 25 mm by 10 mm by 2.0 mm
Chipset	NPC100
System interface	I2C
NFC RF standards	ISO/IEC 14443 A



QuickSpecs

Technical Specifications

	ISO/IEC 14443 B
	ISO/IEC 15693
	ISO/IEC 18092
	ECMA-340 NFCIP-1 Target and Initiator
	ECMA-320 NFCIP-2
NFC Forum Support	Tag Type 1, Type 2, Type3 and Type 4, NFCIP-1 and NFCIP-2
Reader (PCD-VCD) Mode (1)	ISO/IEC 14443 A
	ISO/IEC 14443 B
	ISO/IEC 15693
	MIFARE 1K
	MIFARE 4K
	MIFARE DESFire
	FeliCa
	Jewel and Topaz cards
Card Emulation (PICC-VICC) Mode (1)	ISO/IEC 14443 A
	ISO/IEC 14443 B and B'
	MIFARE
	FeliCa
Frequency	13.56 MHz
NFC Modes Supported	Reader/Writer, Peer-to-Peer
Raw RF Data Rates	106, 212, 424, 848 kbps
Operating temperature	0°C to 70°C
Storage temperature	-20°C to 125°C
Humidity	10-90% operating 5-95% non-operating
Supply Operating voltage	4.35 to 5.25 Volts
I/O Voltage	1.8V or 3.3V
Power Consumption (Booster enable, VBAT= 3.3V, VCC_BOOST = 5V)	Mode Power Consumption, Typical
	Polling 7.3 mA
	Detected Test Tag Type 1 Total 283.8 mA Net Module 236.8 mA
	Detected Test Tag Type 2 Total 288.8 mA Net Module 241.8 mA
	Detected Test Tag Type 3 Total 287.7 mA Net Module 240.7 mA
	Detected Test Tag Type 4 Total 282.3 mA Net Module 235.3 mA
	Antenna Antenna connector, 0.5mm pitch, 7 connector FPC. Antenna matching is external to module.



QuickSpecs

Technical Specifications

POWER

HP 65W Smart AC adapter	Dimensions (H x W x D)	107.0 x 47.0 x 30.0mm	
	Weight	250g +/- 10g	
	Input	Input Efficiency	88.0 % at 115 Vac and 89.0 % at 230Vac
		Input frequency range	47 ~ 63 Hz
	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	4.5mm Barrel Type	
	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%
EMI and Safety Certifications	Storage Humidity	10% to 95%	
	CE Mark - full compliance with LVD and EMC directives		
	Worldwide safety standards - IEC60950, EN60950, UL60950, Class1, SELV; Agency approvals - C-UL-US, NORDICS, DENAN, EN55022 Class B, FCC Class B, CISPR22 Class B, CCC, NOM-1 NYCE. MTBF - over 200,000 hours at 25°C ambient condition.		

HP 45W Smart AC adapter	Dimensions (H x W x D)	3.74 x 1.57 x 1.04 in (9.5 x 4.0 x 2.65 cm)	
	Weight	0.386 lb (175g) max	
	Input	Input	90 to 265 VAC
		Input Efficiency	87.74% at 115Vac and 88.4% at 230Vac
	Output	Input frequency range	47 to 63 Hz
		Input AC current	1.4 A at 90 VAC
		Output power	45W
		DC output	19.5V
		Hold-up time	5 msec at 115 VAC input
	Connector	Output current limit	<8.0A
		4.5mm Barrel Type, 3 pin/grounded, mates with interchangeable cords	
		Environmental Design	Operating temperature



QuickSpecs

Technical Specifications

	Non-operating (storage) temperature	-4° 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	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.



QuickSpecs

Technical Specifications

HP 65W EM Smart AC adapter	Dimensions (H x W x D)	102 x 55 x 30mm	
	Weight	270g +/- 10g	
	Input	Input Efficiency	87% min at 115V/230V
		Input frequency range	47 to 63 Hz
		Input AC current	1.7 A at 90 VAC and maximum load
	Output	DC output	65W(19.5V/3.33A)
		Hold-up time	5 msec at 115 VAC input
		Output current limit	<11A, Over voltage protection- 29V max automatic shutdown
		Connector	4.5mm Barrel Type, 3 pin/grounded, mates with interchangeable cords
	Environmental Design	Operating temperature	0° to 35° C
		Non-operating (storage) temperature	-20° to 85° C
		Altitude	0 to 5,000 m
		Humidity	0% to 95%
		Storage Humidity	0% to 95%
EMI and Safety Certifications	CE Mark - EMC directives; Worldwide safety standards -IEC60950, EN60950, UL60950, Class1, SELV; Agency approvals - C-UL-US, NORDICS, DENAN, EN55022 Class B, FCC Class B, CISPR22 Class B, CCC, NOM-1 NYCE; Reliability - failure rate of less than 0.1% annually within the first three years of operation.		

AC Adapter 45 Watt nPFC USB type C™	Dimensions (H x W x D)	62.0 x 62.0 x 28.5mm	
	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 ~ 63Hz
		Input AC current	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™



QuickSpecs

Technical Specifications

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)

AC Adapter 65 Watt nPFC USB type C™	Dimensions (H x W x D)	74 x 74 x 28.5mm		
	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	65W
			DC output	5V/9V/10V/12V/15V/20V
			Hold-up time	5ms at 115 Vac input
			Output current limit	<8.0A
		Connector	Duck head / duck head power cord, without 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	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 WHr 53 Long Life -PL Fast Charge	Dimensions (H x W x D)	5.58mm * 80.62mm * 269.2mm	
	Weight	243g	
	Cells/Type	3-cell; Polymer	
	Energy	Voltage	7.7V
		Amp-hour capacity	6.9Ah
		Watt-hour capacity	53.2Wh



QuickSpecs

Technical Specifications

Temperature	Operating (Charging)	0°C ~ 45°C
	Operating (Discharging)	14° to 122°F (-10° to 60°C)
	Optional Travel Battery Available	No

Country of Origin

China



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

Type	Description	Part Number
Cases	HP Essential Top Load Case	H2W17AA
	HP Basic Backpack	H1D24AA
	HP Slim Top Load	F3W15AA
Docking	HP Thunderbolt Dock 120W G2	2UK37AA
	HP Thunderbolt Dock 120W G2 TAA	2UK37AA
	HP Elite 90W Thunderbolt 3 Dock	1DT93AA
	HP USB-C Dock G4	3FF69AA
	HP USB-C Mini Dock	1PM64AA
	HP USB-C Travel Dock	TOK29AA
	HP USB Travel Dock	TOK30AA
	HP USB-C Universal Dock	1MK33AA
	HP Adjustable Dual Display Stand	AW664AA
Input/Output	HP Slim Wireless Keyboard and Mouse	T6L04AA
	HP Slim USB Keyboard and Mouse	T6T83AA
	HP Wireless (Link-5) Keyboard	T6U20AA
	HP USB Essential Keyboard and Mouse	H6L29AA
	HP Conferencing Keyboard	K8P74AA
	HP USB Collaboration Keyboard	Z9N38AA
	HP Wireless Collaboration Keyboard	Z9N39AA
	HP Comfort Grip Wireless Mouse	H2L63AA
	HP X4000b Bluetooth Mouse	H3T50AA
	HP 3-Button USB Laser Mouse	H4B81AA
	HP USB Travel Mouse	G1K28AA
	HP Ultra Mobile Wireless Mouse	H6F25AA
	HP Slim Bluetooth Mouse to AMO	F3J92AA
	HP Wireless Premium Mouse	1JR31AA
	HP USB Premium Mouse	1JR32AA
	HP Essential USB Mouse	2TX37AA
	HP Elite Presenter Mouse	2CE30AA
	HP Stereo 3.5mm Headset	T1A66AA
	HP Stereo USB Headset	T1A67AA
	HP UC Wireless Mono Headset	W3K08AA
	HP UC Wireless Duo Headset	W3K09AA
	HP USB-C to USB 3.0 Adapter	N2Z63AAA
	HP USB-C to USB-A Hub	Z6A00AA
	HP USB-C to HDMI 2.0	1WC36AA
	HP USB-C to VGA	N9K76AA
	HP HDMI to DVI	F5A28AA
	HP USB-C to RJ45	V7W66AA
	HP USB to RJ45	N7P47AA



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

	HP HDMI to VGA	H4F02AA
Power	HP 65W Slim AC Adapter	H6Y82AA
	HP 90W Slim AC Adapter	H6Y83AA
	HP 90W Slim Combo AC Adapter w/ USB	H6Y84AA
	HP 45W Smart AC Adapter	H6Y88AA
	HP 65W Smart AC Adapter	H6Y89AA
	HP 90W Smart AC Adapter	H6Y90AA
	HP 45W 2-prong 4.5 mm DC jack AC Adapter	L6F60AA
	HP 45W USB-C Power Adapter	1HE07AA
	HP 65W USB-C Power Adapter	1HE08AA
	65W USB-C Slim Power Adapter	3PN48AA
	HP Notebook Power Bank	N9F71AA
	HP USB-C Notebook Power Bank	1TZ86AA
Memory	HP 4GB 2400MHz DDR4 Memory	Z4Y84AA
	HP 8GB 2400MHz DDR4 Memory	Z4Y85AA
	HP 16GB 2400MHz DDR4 Memory	Z4Y86AA
UCC	HP Stereo 3.5mm Headset	T1A66AA#xxx
	HP Stereo USB Headset	T1A67AA#xxx
	HP UC Wireless Mono Headset	W3K08AA#xxx
	HP UC Wireless Duo Headset	W3K09AA#xxx
Storage	HP USB External DVDRW Drive	F2B56AA
	HP 256GB M2 PCIe NVME SSD TLC (2280)	1FU87AA
	HP 512GB M2 PCIe NVME SSD TLC (2280)	1FU88AA
Security	HP Nano Keyed Cable Lock	1AJ39AA
	HP Nano Dual-Head Keyed Cable Lock	1AJ41AA
Other	HP TB Dock Audio Module	3AQ21AA
	HP Thunderbolt 120W 1m cable	3AQ23AA
	HP Thunderbolt 1m combo cable	3A25AA
	HP Rechargeable Active Pen	4KL69AA



Change Log

Date of change:	Version History:		Description of change:
	From V1 to V2		

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