Overview

HP EliteBook x360 830 G8 Notebook PC

Left

1. Internal Microphones (2)	**7.** Glass Clickpad
2. Web cam LED	**8.** Smartcard Reader (Optional)
3. HD and IR Camera (Optional)	**9.** Audio Combo Jack
4. Camera Shutter	**10.** Super Speed USB Type-A 5Gbps signaling rate (1 charging) (USB 3.2 Gen 1)
5. IR Camera LEDs (Optional)	**11.** Super Speed USB Type-A 5Gbps signaling rate (1 charging) (USB 3.2 Gen 1)
6. Ambient Light Sensor	**12.** Nano Security Lock Slot (Lock sold separately)

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

Right

1. Power Button Key
2. Power Connector
3. HDMI 2.0b Port (Cable not included)
4. Thunderbolt™ 4 USB4™ Type-C® 40 Gbps USB Power Delivery DisplayPort™ 2.1 [1]

5. Thunderbolt™ 4 USB4™ Type-C® 40 Gbps USB Power Delivery DisplayPort™ 2.1 [1]
6. SIM Card Slot (Optional)
7. Touch fingerprint Sensor (Select models)

1. SuperSpeed USB 20Gbps is not available with Thunderbolt™ 4.

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

At a Glance

- Windows 11 Pro, other Windows OS or FreeDOS preinstalled
- Premium ultraslim design with precision-crafted machined CNC aluminum x360 design with four usage modes that is 0.71 inches (1.79 cm) thin with a starting weight of 2.98 lbs. (1.35 Kg)
- 11th Generation Intel® Core™ i5, i7 Processors
- Find your missing laptop even when it's turned off using the optional Tile™ feature and app
- 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, 250 nits, 45% NTSC
  33.8 cm (13.3") diagonal FHD IPS LED-backlit BrightView touch with Corning® Gorilla® Glass 5, 400 nits, 72% NTSC with Low Power
  33.8 cm (13.3") diagonal FHD IPS LED-backlit Anti-Glare glass touch with Corning® Gorilla® Glass 5, 400 nits, 72% NTSC with Low Power
  33.8 cm (13.3") diagonal FHD IPS LED-backlit BrightView touch with Corning® Gorilla® Glass 5, 1000 nits, 72% NTSC with HP Sure View Reflect Integrated Privacy Screen
  33.8 cm (13.3") diagonal FHD IPS LED-backlit Anti-Glare glass touch with Corning® Gorilla® Glass 5, 1000 nits, 72% NTSC with HP Sure View Reflect Integrated Privacy Screen
- Enterprise grade security with HP Sure Sense, HP Sure Start Gen7, HP Privacy Camera, HP Sure View Reflect , HP Sure Run Gen4, HP Sure Recover Gen4 with Embedded Reimaging , HP Sure Click, SmartCard Reader and Touch Fingerprint reader
- An optional HP Rechargeable Active Pen 3[1] with Magnetic Attach and 4096 Levels of pressure
- Connectivity with optional CAT20 5G/ WWAN, and Thunderbolt™ Docking (Dock sold separately)
- Choice of solid state drives up to 2 TB and DDR4 memory up to 32 GB
- Supports fast charging (50% in 30 minutes) with no impact on battery recharge cycles3
- Featuring redesigned quiet HP Keyboard with the HP Programmable key and backlit options
- Innovative world-facing third mic improves inbound ambient noise cancellation while 360-degree mic pick-up allows everyone to clearly hear and be heard
- Long battery life up to 13 hours and 15 minutes
- Undergoes MIL-STD 810H tests[2]
- Instant on/instant off with Modern Connected Standby
- Intel® Iris® Xe Graphics

1. HP Rechargeable Active Pen 3 sold separately.
2. MIL-STD 810H is not intended to demonstrate fitness of 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.

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PRODUCT NAME

HP EliteBook x360 830 G8 Notebook PC

OPERATING SYSTEMS

Preinstalled

Windows 11 Pro [2]
Windows 11 Pro Education [2]
Windows 11 Home – HP recommends Windows 11 Pro for business [2]
Windows 11 Home Single Language – HP recommends Windows 11 Pro for business [2]
Windows 11 Pro (Windows 11 Enterprise or Windows 10 Enterprise available with a Volume Licensing Agreement) [1]
Windows 11 Pro (preinstalled with Windows 10 Pro Downgrade) [1,2]
FreeDOS

1. Device comes with Windows 10 and a free Windows 11 upgrade or may be preloaded with Windows 11. Upgrade timing may vary by device. Features and app availability may vary by region. Certain features require specific hardware (see Windows 11 Specifications).
2. 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 is automatically updated and enabled. High speed internet and Microsoft account required. ISP fees may apply and additional requirements may apply over time for updates. See http://www.windows.com.

PROCESSORS

Intel® Core™ i7-1165G7 with Intel® UHD Graphics 620 (2.8 GHz base frequency, up to 4.7 GHz with Intel® Turbo Boost Technology, 12 MB L3 cache, 4 cores) [3,4 5,6]
Intel® Core™ i7-1185G7 (3.0 GHz base frequency, up to 4.8 GHz with Intel® Turbo Boost Technology, 12 MB L3 cache, 4 cores), supports Intel® vPro® Technology [3,4,5,6]
Intel® Core™ i5-1135G7 with Intel® UHD Graphics 620 (2.4 GHz base frequency, up to 4.2 GHz with Intel® Turbo Boost Technology, 8 MB L3 cache, 4 cores) [3,4 5,6]
Intel® Core™ i5-1145G7 (2.6 GHz base frequency, up to 4.4 GHz with Intel® Turbo Boost Technology, 8 MB L3 cache, 4 cores), supports Intel® vPro® Technology [3,4,5,6]

Processor Family
11th Generation Intel® Core™ i7 processor (i7-1165G7) [6]
11th Generation Intel® Core™ i7 processor (i7-1185G7) [6]
11th Generation Intel® Core™ i5 processor (i5-1135G7) [6]
11th Generation Intel® Core™ i5 processor (i5-1145G7) [6]

3. 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.
4. Processor speed denotes maximum performance mode; processors will run at lower speeds in battery optimization mode.
5. Intel® Turbo Boost performance varies depending on hardware, software and overall system configuration. See www.intel.com/technology/turboboost for more information.

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6. 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® Iris® Xe Graphics[7]

Supports
Support HD decode, DX12, HDMI 2.0b, HDCP 2.3[8]

7. Intel® Iris® Xe Graphics capabilities require system to be configured with Intel® Core™ i5 or i7 processors and dual channel memory. Intel® Iris® Xe Graphics with Intel® Core™ i5 or 7 processors and single channel memory will only function as UHD graphics.
8. HDMI cable sold separately.

DISPLAY

Touch
33.8 cm (13.3") diagonal FHD IPS BrightView WLED-backlit bent touch screen 250 nits, 45% NTSC with HD camera (1920 x 1080)[9,10,11]
33.8 cm (13.3") diagonal FHD IPS BrightView WLED-backlit bent touch screen, 250 nits, 45% NTSC with HD camera for WWAN (1920 x 1080) [9,10,11]
33.8 cm (13.3") diagonal FHD IPS BrightView WLED-backlit bent touch screen, 400 nits, 100% NTSC with Low Power, Ambient Light Sensor and HD+IR camera (1920 x 1080) [9,10,11]
33.8 cm (13.3") diagonal FHD IPS BrightView WLED-backlit bent touch screen, 400 nits, 100% NTSC with Low Power, Ambient Light Sensor and HD+IR camera for WWAN (1920 x 1080) [9,10,11]
33.8 cm (13.3") diagonal FHD IPS Anti-Glare WLED-backlit bent touch screen 400 nits, 100% NTSC with Low Power, Ambient Light Sensor and HD+IR camera for WWAN (1920 x 1080) [9,10,11]
HP Sure View Reflect Integrated Privacy Screen
33.8 cm (13.3") diagonal FHD IPS BrightView WLED-backlit bent touch screen, 1000 nits, 72% NTSC with Ambient Light Sensor and HD+IR camera (1920 x 1080) [9,10,11,12]
HP Sure View Reflect Integrated Privacy Screen
33.8 cm (13.3") diagonal FHD IPS BrightView WLED-backlit bent touch screen, 1000 nits, 72% NTSC with Ambient Light Sensor and HD+IR camera for WWAN (1920 x 1080) [9,10,11,12]
HP Sure View Reflect Integrated Privacy Screen
33.8 cm (13.3") diagonal FHD IPS Anti-Glare WLED-backlit bent touch screen, 1000 nits, 72% NTSC with Ambient Light Sensor and HD+IR camera (1920 x 1080) [9,10,11,12]
HP Sure View Reflect Integrated Privacy Screen
33.8 cm (13.3") diagonal FHD IPS Anti-Glare WLED-backlit bent touch screen with Corning® Gorilla® Glass 5, 1000 nits, 72% NTSC with Ambient Light Sensor and HD+IR camera for WWAN (1920 x 1080) [9,10,11,12]

HDMI 2.0[13]
Support resolution up to 4K @60 Hz

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9. FHD/HD content required to view FHD/HD images.
10. Resolutions are dependent upon monitor capability, and resolution and color depth settings.
11. Actual brightness will be lower with touchscreen or Sure View.
12. HP Sure View integrated privacy screen is an optional feature that must be configured at purchase and is designed to function in landscape orientation.
13. HDMI cable sold separately.

Docking station model (Sold separately)	Total number of supported displays (incl. the notebook) display)	Max resolutions supported for DP 1.4 hosts with DSC	Dock Connectors	Technical limitations / additional information For more details refer to HP Dock QuickSpecs http://h20195.www2.hp.com/v2/GetDocument.aspx?docname=c04168358 All information below applies to platforms running DP 1.4 with DSC
HP Thunderbolt Dock G2	Max number of displays = 4	Dual 8K@ 60Hz in high res mode	2xDP, 1xVGA, 1xTB, 1xUSB-C alt-mode	Max displays = 4 with max resolution of 5K@ 30Hz running Thunderbolt host Max resolution possible is dual 8K displays @ 60Hz running Thunderbolt host or running a non-Thunderbolt host in High Resolution mode The highest resolution for dual displays running a non-Thunderbolt host in Multi-function mode is one 5K dual cable (using both DP ports) + one 4K on USB-C DP port
HP USB-C Dock G5	3	Dual 5K@ 30Hz + 1 4K UHD (multi-function mode)	1xHDMI, 2xDP	Three maximum displays supported are two 5K@ 30 Hz on DP ports plus one 4K UHD@ 30 Hz on HDMI in Multi-function mode Highest resolution with dual displays is two 8K@ 60Hz host in High Resolution mode The highest resolution for running a non-Thunderbolt host in Multi-function mode is a single 5K dual cable (using both DP ports) + one 4K on HDMI port

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HP USB-C/A Universal Dock G2	3	Triple 4K UHD@ 60Hz	1xHDMI, 2xDP	In High Resolution, mode the max available is one display. This dock's best use case is triple display. The best resolution for dual display is two 4K UHD@ 60Hz Highest triple displays resolution available is three 4KUHD @60Hz using both DP and 1 HDMI port. Best single display is with High Resolution mode using HDMI port.
HP USB-C Travel Dock G2	1	Single 4K@ 30 Hz 4960 x 2160 (via HDMI)	1xHDMI, 1xVGA	Single external display using either HDMI or VGA

STORAGE AND DRIVES

Primary M.2 Storage
128 GB PCIe® Gen3x2 NVMe™ M.2 SSD TLC[14]

256 GB PCIe® Gen3x4 NVMe™ M.2 SSD TLC[14]
512 GB PCIe® Gen3x4 NVMe™ M.2 SSD TLC [14]
1 TB PCIe® Gen3x4 NVMe™ M.2 SSD TLC[14]
2 TB PCIe® Gen3x4 NVMe™ M.2 SSD TLC[14]
256 GB PCIe® NVMe™ Value M.2 SSD[14]
512 GB PCIe® NVMe™ Value M.2 SSD[14]

512 GB PCIe®Gen 3x4 NVMe™ M.2 SED TLC OPAL2[14]
256 GB PCIe® Gen3x4 NVMe™ M.2 SED TLC OPAL2[14]

512 Intel® PCIe® NVMe™ QLC M.2 SSD with 32 GB Intel® Optane™ memory H10[14,15]

14. For storage drives, GB = 1 billion bytes. TB = 1 trillion bytes. Actual formatted capacity is less. Up to 30 GB (for Windows 10 and 11) is reserved for system recovery software
15. Intel® Optane™ H10 memory system acceleration does not replace or increase the DRAM in your system. Requires 8th Gen or higher Intel® Core™ processor, BIOS version with Intel® Optane™ supported, Windows 10 64-bit, and an Intel® Rapid Storage Technology (Intel® RST) driver.

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MEMORY

Maximum Memory
32GB DDR4-3200 [16]

Memory
32 GB DDR4-3200 [16]
16 GB DDR4-3200 [16]
8 GB DDR4-3200 [16]

Memory
Memory soldered down
DDR4, System runs at: 3200
Supports Dual Channel Memory

16. 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-AX201 802.11a/b/g/n/ac (2x2) Wi-Fi 6 and Bluetooth® 5.2, vPro® Wireless Card [17,18]
Intel® Dual Band Wireless-AX201 802.11a/b/g/n/ac (2x2) Wi-Fi 6 and Bluetooth® 5.2, non-vPro® Wireless Card [17]

WWAN
Intel® XMM™ 7360 LTE-Advanced Cat 9 [19]
Qualcomm® Snapdragon™ X55 5G Cat 20 [20]

Near Field Communication (NFC) module [22]
NPC300 Near Field Communication module

Miracast
Native Miracast Support [21]

17. Wireless access point and Internet service required and sold separately. Availability of public wireless access points limited. Wi-Fi 6 (802.11ax) is backwards compatible with prior 802.11 specs.
18. For full Intel® vPro™ functionality, Windows, a vPro supported processor, vPro enabled chipset, vPro enabled WLAN card and discrete TPM 2.0 are required. See https://www.intel.com/content/www/us/en/architecture-and-technology/vpro/vpro-platform-general.html
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. LTE not available on all products, in all regions.
20. Qualcomm® 5G module is optional and must be configured at the factory. Module designed for 5G networks as carriers deploy Evolved-Universal Terrestrial Radio Access New Radio Dual Connectivity (ENDC) with both 100Mhz of 5G NR and LTE channel bandwidth, using 256QAM 4x4, requires activation and separately purchased service contract. 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. 5G LTE not available on all products, in all regions. Backwards compatible to 4G LTE and 3G HSPA technologies. 5G LTE module is available where carrier supported. US Configurations: Verizon mobile broadband service is not supported with this module.
21. Miracast is a wireless technology your PC can use to project your screen to TVs, projectors, and streaming.
22. Sold separately or as an optional feature.

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AUDIO/MULTIMEDIA

Audio
Audio by Bang & Olufsen
2 Integrated stereo speakers
Integrated microphone (3-Mic Array)
World-facing 3rd mic

Speaker Power
2W/4ohm Per speaker

Camera
720p HD camera [9,22]
720p HD+IR camera [9,22]

Sensor
ALS (ambient light sensor)
Magnetometer
Hall Sensor
Gyro
Accelerometer
HP Tamper Lock[54]

9. FHD/HD content required to view FHD/HD images.
22. Sold separately or as an optional feature.
54. HP Tamper Lock must be enabled by the customer or your administrator.

Not all configuration components are available in all regions/countries.
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KEYBOARDS/POINTING DEVICES/BUTTONS & FUNCTION KEYS

Keyboard
HP Premium Keyboard, spill resistant, Backlit keyboard and DuraKeys
HP Premium Keyboard, spill resistant, Non-Backlit keyboard and DuraKeys
HP Premium Keyboard, spill resistant, Backlit keyboard and DuraKeys Privacy

Pointing Device
Clickpad with multi-touch gesture support, 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 - Blank or Backlit Toggle
F10 - Insert
F11 - Airplane Mode
F12 - HP Command Center (Programmable Key)
Print Screen
Power Button (with LED)

Hidden Function Keys
Fn+R - Break
Fn+S - Sys Rq
Fn+C - Scroll Lock

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SOFTWARE AND SECURITY

Preinstalled Software

BIOS
HP BIOSphere Gen6 [23]
HP Drive Lock & Automatic Drive Lock
BIOS Update via Network
Power On Authentication
HP Secure Erase [24]
Absolute Persistence Module [25]
HP LAN-Wireless Protection
Pre-boot Authentication

Software
HP Connection Optimizer [26]
HP Hotkey Support
myHP
HP Support Assistant [27]
HP QuickDrop
HP Noise Cancellation Software
Touchpoint Customizer for Commercial
HP Notifications
HP Privacy Settings
HP Wireless Button Driver
HP Power Manager
HP Programmable Key
HP PC Hardware Diagnostics Windows
Buy Microsoft Office (Sold separately)
HP Smart Support[56]

Manageability Features
HP Driver Packs (download) [29]
HP Manageability Integration Kit Gen4 (download) [30]
HP System Software Manager (SSM) (download)
HP BIOS Config Utility (BCU) (download)
HP Client Catalog (download)
HP Client Management Script Library (download)
HP Image Assistant (download)

Client Security Software
HP Client Security Manager Gen7 [55]
Windows Defender [31]

Security Management
Pre-boot Authentication
USB enable/disable (via BIOS)
Power-on password (via BIOS)
Setup password (via BIOS)
HP Fingerprint Sensor [32]
Support for chassis padlocks and cable lock devices
HP Wolf Pro Security Edition[33]
HP Sure Click [34]
HP Sure Sense [35]
HP Sure Start Gen7 [36]

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HP Sure Run Gen4[49]
HP Sure Recover Gen4[50]
HP Sure Admin [37]
HP Sure View [38]
TPM 2.0 Embedded Security Chip (Common Criteria EAL4+ Certified) (FIPS 140-2 Level 2 Certified) [39]
Secured-core PC capable[52]

Is the BIOS on this notebook ISO/IEC 19678:2015 (formerly NIST 800-147) compliant?: Yes
UEFI version: 2.7
Class: Class 3

23. HP BIOSphere Gen6 is available on select HP Pro and Elite PCs. Features may vary depending on the platform and configurations.
24. HP Secure Erase for the methods outlined in the National Institute of Standards and Technology Special Publication 800-88 "Clear" sanitation method. HP Secure Erase does not support platforms with Intel® Optane™.
25. Absolute firmware module is shipped turned off and can only be activated with the purchase a license subscription and full activation of the software agent. License subscriptions can be purchased for terms ranging multiple years. Service is limited, check with Absolute for availability outside the U.S. Certain conditions apply. For full details visit: https://www.absolute.com/about/legal/agreements/absolute/
26. HP Connection Optimizer requires Windows 10.
27. HP Support Assistant requires Windows and Internet access.
29. HP Driver Packs not preinstalled, however available for download at http://www.hp.com/go/clientmanagement.
30. HP Manageability Integration Kit can be downloaded from http://www8.hp.com/us/en/ads/clientmanagement/overview.html.
31. Windows Defender Opt in and internet connection required for updates.
32. HP Fingerprint sensor is an optional feature that must be configured at purchase.
33. HP Wolf Pro Security Edition (including HP Sure Click Pro and HP Sure Sense Pro) is available preloaded on select SKUs and, depending on the HP product purchased, includes a paid 1-year or 3-year license. The HP Wolf Pro Security Edition software is licensed under the license terms of the HP Wolf Security Software - End-User license Agreement (EULA) that can be found at: https://support.hp.com/us-en/document/ish_3875769-3873014-16 as that EULA is modified by the following: "7. Term. Unless otherwise terminated earlier pursuant to the terms contained in this EULA, the license for the HP Wolf Pro Security Edition (HP Sure Sense Pro and HP Sure Click Pro) is effective upon activation and will continue for either a twelve (12) month or thirty-six (36) month license term ("Initial Term"). At the end of the Initial Term you may either (a) purchase a renewal license for the HP Wolf Pro Security Edition from HP.com, HP Sales or an HP Channel Partner, or (b) continue using the standard versions of HP Sure Click and HP Sure Sense at no additional cost with no future software updates or HP Support.
34. HP Sure Click requires Windows 10 Pro or Enterprise. See https://bit.ly/2PrLT6A_SureClick for complete details
35. HP Sure Sense is available on select HP PCs and is not available with Windows10 Home.
36. HP Sure Start Gen7 is available on select HP PCs.
37. HP Sure Admin requires Windows 10, HP BIOS, HP Manageability Integration Kit from http://www.hp.com/go/clientmanagement and HP Sure Admin Local Access Authenticator smartphone app from the Android or Apple store.
38. HP Sure View Reflect integrated privacy screen is designed to function in landscape orientation.
39. Firmware TPM is version 2.0.
49. HP Sure Recover Gen4 is available on select HP PCs and requires an open network connection. You must back up important files, data, photos, videos, etc. before using HP Sure Recover to avoid loss of data.
50. HP Sure Run Gen4 is available on select Windows 10 based HP Pro, Elite and Workstation PCs with select Intel® or AMD processors.

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52. Secured-core PC capable requires an Intel vPro or AMD Ryzen Pro processor. Requires 8 GB or more system memory. Secured-core PC functionality can be enabled from the factory.
55. HP Client Security Manager Gen7 requires Windows and is available on the select HP Elite and Pro PCs.
56. HP Smart Support is available to commercial customers through your HP Service Representative and HP Factory Configuration Services; or it can be downloaded at: http://www.hp.com/smart-support. HP Smart Support automatically collects the telemetry necessary upon initial boot of the product to deliver device-level configuration data and health insights.

SMART CARD READER

Smart Card Reader (Optional)	Model number	Alcor AU9560
	FIPS 201 Compliant	Yes

POWER

Power Supply
HP Smart 45 W External AC power adapter [40]
HP Smart 45 W External AC power adapter, 2-prong (Japan only)[40]
HP Smart 65 W External AC power adapter [40]
HP Smart 65 W EM External AC power adapter[40]
HP 65 W Slim USB Type-C AC power adapter [40]
HP 65 W USB Type-C AC power adapter

Primary Battery
HP Long Life 3-cell, 53 Wh Li-ion [41,51]

Power Cord
2-wire plug - 1m (Japan only)
3-wire plug - 1m
Premium - 1m

Battery life
Up to 13 hours and 15 minutes [42]

Battery Weight
210g±10g

40. Availability may vary by country.
41. Battery is internal and not replaceable by customer. Serviceable by warranty.
42. Windows 10 MM18 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.
51. Actual battery Watt-hours (Wh) will vary from design capacity. Battery capacity will naturally decrease with shelf life, time, usage, environment, temperature, system configuration, loaded apps, features, power management settings and other factors.

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WEIGHTS & DIMENSIONS

Product Weight
Touch
Starting at 2.98 lb (1.35 kg) [43]

Product Dimensions
12.1 x 8.07 x 0.71 in
30.75 x 20.5 x 1.79 cm

43. Weight will vary by configuration.

PORTS/SLOTS

2 Thunderbolt™ 4 with USB Type-C® 40Gbps signaling rate (USB Power Delivery, DisplayPort™ 2.1) [53]
2 Super Speed USB Type-A 5Gbps signaling rate includes 1 charging (USB 3.2 Gen 1)
1 HDMI 2.0b [44]
1 Headphone/microphone combo
1 4.5 mm AC Adapter Port
1 nano SIM card slot[45]
1 Smartcard reader (Optional)
1 Nano Security Lock Slot (Lock sold separately)

44. HDMI cable sold separately
45. All units have a SIM card slot and icon but units that do not support WWAN are shipped with a non-removable SIM slot plug.
53. SuperSpeed USB 20Gbps is not available with Thunderbolt™ 4

SERVICE AND SUPPORT

1-year and 3-year limited warranties and 90 day software limited warranty options depending on country.
Batteries have a default one year limited warranty except for HP Long Life batteries which will follow the one or three year warranty of 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. [46]

46. 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.

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SYSTEM UNIT

Stand-Alone Power Requirements (AC Power)		
	Nominal Operating Voltage	19.5V
	Average Operating Power	1.825W
	Integrated graphics	Yes
	Discrete Graphics	N/A
	Max Operating Power	UMA < 45W
Temperature		
	Operating	32° to 95° F (0° to 35° C)
	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)
	Non-operating	-50 to 40,000 ft (-15.24 to 12,192 m)
Planned Industry Standard Certifications		
	UL	YES
	CSA	YES
	FCC Compliance	YES
	ENERGY STAR®	Select models[47]
	EPEAT®	EPEAT 2019 Gold in United States[48]
	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

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SABS	YES

47. Configurations of the HP EliteBook x360 830 G8 Notebook PC that are ENERGY STAR® certified are identified as HP EliteBook x360 830 G8 Notebook ENERGY STAR on HP websites and on http://www.energystar.gov.
48. Based on US EPEAT® registration according to IEEE 1680.1-2018 EPEAT®. EPEAT® status varies by country. Visit www.epeat.net for more information.

DISPLAYS

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

1. Actual brightness will be lower with touchscreen or Sure View.

LCD 13.3 inch Diagonal FHD (1920 x 1080) Anti-Glare WLED UWVA 45% cg 250nits eDP 1.2 w/o PSR	**Outline Dimensions (W x H x D)**	299.06 x 176.54 mm (max) (FPC folding included)
	Active Area	293.76 x 165.24 mm (typ.)
	Weight	260 g (max)
	Diagonal Size	13.3 inch
	Thickness	3.0 mm/ 5.0 mm (PCB) (max)
	Interface	eDP 1.2 (2lane)
	Surface Treatment	BrightView Glass
	Touch Enabled	Yes
	Contrast Ratio	600:1 (typ.)
	Refresh Rate	60 Hz
	Brightness	250 nits (Panel Only)[1]
	Pixel Resolution	1920 x 1080 (FHD)
	Format	RGB
	Backlight	LED
	Color Gamut Coverage	NTSC 45%
	Color Depth	6 bits
	Viewing Angle	UWVA 85/85/85/85

LCD 13.3 inch Diagonal FHD (1920 x 1080) Anti-Glare WLED UWVA sRGB 100% cg 400nits eDP 1.4+PSR2 bent	**Outline Dimensions (W x H x D)**	299.06 x 176.54 mm (max) (FPC folding included)
	Active Area	293.76 x 165.24 mm (typ.)
	Weight	175 g (max)
	Diagonal Size	13.3 inch
	Thickness	2.0 mm / 3.8 mm (PCB) (max)
	Interface	eDP 1.4 w/ PSRII (2 lane)
	Surface Treatment	BrightView Glass
	Touch Enabled	Yes
	Contrast Ratio	1500:1(typ.)
	Refresh Rate	60Hz
	Brightness	400 nits (Panel Only) [1]
	Pixel Resolution	1920 x 1080 (FHD)

Not all configuration components are available in all regions/countries.
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	Format	RGB
	Backlight	LED
	Color Gamut Coverage	sRGB 100% (NTSC 72%)
	Color Depth	8 bits
	Viewing Angle	UWVA 85/85/85/85

LCD 13.3-in Diagonal FHD (1920 x 1080) Anti-Glare WLED UWVA 72% cg 1000nits eDP 1.4+PSR HP Sure View Reflect	**Outline Dimensions (W x H x D)**	299.06 x 176.54 mm (max)
	Active Area	293.76 x 165.24 mm (typ.)
	Weight	220 g (max)
	Diagonal Size	13.3 inch
	Thickness	3.9 mm (max)
	Interface	eDP 1.4 + PSR (4 lane)
	Surface Treatment	Anti-glare glass
	Touch Enabled	Yes
	Contrast Ratio	1500:1 (typ.)
	Refresh Rate	60 Hz
	Brightness	1000 nits[1]
	Pixel Resolution	1920 x 1080 (FHD)
	Format	RGB
	Backlight	LED
	Color Gamut Coverage	72%
	Color Depth	8bits
	Viewing Angle	UWVA 85/85/85/85

Panel LCD 13.3 inch FHD (1920x1080) Anti-Glare WLED UWVA sRGB 100percent cg 400nits eDP 1.4+PSR2 bent	**Outline Dimensions (W x H x D)**	299.06 x 176.54 mm (max) (FPC folding included)
	Active Area	293.76 x 165.24 mm (typ.)
	Weight	175 g (max)
	Diagonal Size	13.3 inch
	Thickness	2.0 mm / 3.8 mm (PCB) (max)
	Interface	eDP 1.4 w/ PSRII (2 lane)
	Surface Treatment	BrightView Glass
	Touch Enabled	Yes
	Contrast Ratio	1500:1(typ.)
	Refresh Rate	60Hz
	Brightness	400 nits (Panel Only) [1]
	Pixel Resolution	1920 x 1080 (FHD)
	Format	RGB
	Backlight	LED
	Color Gamut Coverage	sRGB 100% (NTSC 72%)
	Color Depth	8 bits
	Viewing Angle	UWVA 85/85/85/85

Not all configuration components are available in all regions/countries.
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Panel LCD 13.3-in FHD (1920x1080) Anti-Glare WLED UWVA 72percent cg 1000nits eDP 1.4+PSR HP Sure View Reflect

Outline Dimensions (W x H x D)	299.06 x 176.54 mm (max)
Active Area	293.76 x 165.24 mm (typ.)
Weight	220 g (max)
Diagonal Size	13.3 inch
Thickness	3.9 mm (max)
Interface	eDP 1.4 + PSR (4 lane)
Surface Treatment	Anti-glare glass
Touch Enabled	Yes
Contrast Ratio	1500:1 (typ.)
Refresh Rate	60 Hz
Brightness	1000 nits[1]
Pixel Resolution	1920 x 1080 (FHD)
Format	RGB
Backlight	LED
Color Gamut Coverage	72%
Color Depth	8bits
Viewing Angle	UWVA 85/85/85/85

Not all configuration components are available in all regions/countries.
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STORAGE AND DRIVES

NOTE: For storage drives, GB = 1 billion bytes. TB = 1 trillion bytes. Actual formatted capacity is less. Up to 30 GB (for Windows 10 and 11) is reserved for system recovery software

SSD 128GB 2280 PCIe-3x2 Three Layer Cell		
	Form Factor	M.2 2280
	Capacity	128GB
	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 or Gen3X2
	Maximum Sequential Read	Up To 2047 MB/s
	Maximum Sequential Write	Up To 1200 MB/s
	Logical Blocks	250,069,680
	Operating Temperature	32° to 158°F (0° to 70°C) [ambient temp]
	Features	ATA Security; TRIM; L1.2

SSD 256GB 2280 PCIe-3x4 NVMe 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 3500 MB/s
	Maximum Sequential Write	Up To 2200 MB/s
	Logical Blocks	500,118,192
	Operating Temperature	32° to 158°F (0° to 70°C) [ambient temp]
	Features	ATA Security (Option); TCG Opal 2.0; TRIM; L1.2

SSD 256GB 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)
	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

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SSD 256GB 2280 M2 PCIe-3x4 SS NVMe TLC		
	Form Factor	M.2 2280
	Capacity	256 GB
	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	2800 ~ 3500 MB/s
	Maximum Sequential Write	1400 ~ 2200 MB/s
	Logical Blocks	500,118,192
	Operating Temperature	32° to 158°F (0° to 70°C) [ambient temp]
	Features	ATA Security; TRIM; L1.2

SSD 512GB 2280 M2 PCIe-3x4 SS NVMe TLC		
	Form Factor	M.2 2280
	Capacity	512GB
	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 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 512GB 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)
	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

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SSD 512GB 2280 PCIe NVMe Value		
	Form Factor	M.2 2280
	Capacity	512GB
	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 1700 MB/s
	Maximum Sequential Write	Up to 1500 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 1TB 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 512GB 2280 PCIe-3x2x2 NVMe+SSD 32GB 3D Xpoint		
	Form Factor	M.2 2280
	Capacity	512 GB
	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 2400 MB/s
	Maximum Sequential Write	Up to 1300 MB/s
	Logical Blocks	1,000,215,215
	Operating Temperature	32° to 158°F (0° to 70°C) [ambient temp]
	Features	TRIM; L1.2

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SSD 2TB 2280 PCIe-3x4 NVMe Three Layer Cell

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 3500 MB/s
Maximum Sequential Write	Up To 3000MB/s
Logical Blocks	3,907,029,168
Operating Temperature	32° to 158°F (0° to 70°C) [ambient temp]
Features	ATA Security; TRIM; L1.2

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NETWORKING/COMMUNICATIONS

Intel® Wi-Fi® 6 AX201 + Bluetooth® 5.2 Wireless Card (802.11ax 2x2, vPro ™, supporting gigabitdata rate[5]) vPro®[1]	**Wireless LAN Standards**	IEEE 802.11a IEEE 802.11b IEEE 802.11g IEEE 802.11n IEEE 802.11ac IEEE 802.11ax IEEE 802.11d IEEE 802.11e IEEE 802.11h IEEE 802.11i IEEE 802.11k IEEE 802.11r IEEE 802.11v
	Interoperability	Features Wi-Fi 6 technology
	Frequency Band	•802.11b/g/n/ax 2.402 – 2.482 GHz •802.11a/n/ac/ax 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"802.11b/g/n/ax
	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, ,80MHz & 160MHz) •802.11ax MCS0 ~ MCS11, (1SS and 2SS) (20MHz, 40MHz, ,80MHz & 160MHz)
	Modulation	Direct Sequence Spread Spectrum OFDM, BPSK, QPSK, CCK, 16-QAM, 64-QAM, 256-QAM,1024QAM
	Security[3]	•IEEE 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 •WPA3 certification •IEEE 802.11i •WAPI
	Network Architecture Models	Ad-hoc (Peer to Peer) Infrastructure (Access Point Required)
	Roaming	IEEE 802.11 compliant roaming between access points
	Output Power[2]	•802.11g : +17.5dBm minimum •802.11a : +18.5dBm minimum •802.11n HT20(2.4GHz): +15.5dBm minimum •802.11n HT40(2.4GHz): +14.5dBm minimum •802.11n HT20(5GHz): +15.5dBm minimum •802.11n HT40(5GHz): +14.5dBm minimum •802.11ac VHT80(5GHz): +11.5dBm minimum •802.11ac VHT160(5GHz): +11.5dBm minimum •802.11ax HT40(2.4GHz): +10dBm minimum •802.11ax VHT160(5GHz): +10dBm minimum

Not all configuration components are available in all regions/countries.
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Power Consumption	•Transmit mode:2.0 W •Receive mode:1.6 W •Idle mode (PSP180 mW(WLAN Associated) •Idle mode:50 mW(WLAN unassociated) •Connected Standby/Modern Standby: 10mW •Radio disabled: 8 mW
Power Management	ACPI and PCI Express compliant power management 802.11 compliant power saving mode
Receiver Sensitivity[4]	•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 •802.11ax, MCS11(HT40): -59dBm maximum •802.11ax, MCS11(VHT160): -58.5dBm 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 with CNVi Interface
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

HP Integrated Module with Bluetooth 4.0/4.1/4.2/5.0/5.1/ 5.2Wireless Technology

Bluetooth Specification	4.0/4.1/4.2/5.0/5.1/5.2 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 data rate; throughput up to 2.17 Mbps BLE: 1 Mbps data rate; throughput up to 0.2 Mbps Legacy: Synchronous Connection Oriented links up to 3, 64 kbps, voice channels Legacy: Asynchronous Connection Less links 2178.1 kbps/177.1 kbps asymmetric (3-DH5) or 864 kbps symmetric (3-EV5)
Transmit Power	The Bluetooth component shall operate as a Class II Bluetooth device with a maximum transmit power of + 9.5 dBm for BR and EDR.
Power Consumption	Peak (Tx): 330 mW Peak (Rx): 230 mW Selective Suspend: 17 mW
Bluetooth Software Supported	Microsoft Windows Bluetooth Software

Not all configuration components are available in all regions/countries.
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Link Topology	
Power Management	Microsoft Windows ACPI, and USB Bus Support
Certifications	FCC (47 CFR) Part 15C, Section 15.247 & 15.249
Power Management Certifications	ETS 300 328, ETS 300 826 Low Voltage Directive IEC950 UL, CSA, and CE Mark
Bluetooth Profiles 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)
Security & Manageability	Intel® vPro™ support with appropriate Intel® chipset components

1. Wireless access point and Internet service required and sold separately. Availability of public wireless access points limited. Wi-Fi 6 (802.11ax) is backwards compatible with prior 802.11 specs.
2. Maximum output power may vary by country according to local regulations.
12/13 and are capable of transmitting must fully comply with requirements of 15.247 or otherwise disable those channels.
3. Check latest software/driver release for updates on supported security features.
4. 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).
5. Wi-Fi 6 is designed to support gigabit data rate when transferring files between two devices connected to the same router. Requires a wireless router, sold separately, that supports 80MHz and higher channels.

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Intel® Wi-Fi® 6 AX201 + Bluetooth ®5.2 Wireless Card (802.11ax 2x2, non-vPro, supporting gigabit data rate[5]) non-vPro®[1]		
	Wireless LAN Standards	IEEE 802.11a IEEE 802.11b IEEE 802.11g IEEE 802.11n IEEE 802.11ac IEEE 802.11ax IEEE 802.11d IEEE 802.11e IEEE 802.11h IEEE 802.11i IEEE 802.11k IEEE 802.11r IEEE 802.11v
	Interoperability	Features Wi-Fi 6 technology
	Frequency Band	•802.11b/g/n/ax 2.402 – 2.482 GHz •802.11a/n/ac/ax 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, ,80MHz & 160MHz) •802.11ax: MCS0 ~ MCS11, (1SS and 2SS) (20MHz, 40MHz, ,80MHz & 160MHz)
	Modulation	Direct Sequence Spread Spectrum OFDM, BPSK, QPSK, CCK, 16-QAM, 64-QAM, 256-QAM, 1024QAM
	Security[3]	•IEEE 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 •WPA3 certification •IEEE 802.11i •WAPI
	Network Architecture Models	Ad-hoc (Peer to Peer) Infrastructure (Access Point Required)
	Roaming	IEEE 802.11 compliant roaming between access points
	Output Power[2]	•802.11b : +18.5dBm minimum •802.11g : +17.5dBm minimum •802.11a : +18.5dBm minimum •802.11n HT20(2.4GHz) : +15.5dBm minimum •802.11n HT40(2.4GHz) : +14.5dBm minimum •802.11n HT20(5GHz) : +15.5dBm minimum •802.11n HT40(5GHz) : +14.5dBm minimum •802.11ac VHT80(5GHz) : +11.5dBm minimum •802.11ac VHT160(5GHz) : +11.5dBm minimum •802.11ax HT40(2.4GHz) : +10dBm minimum •802.11ax VHT160(5GHz) : +10dBm minimum

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Power Consumption	•Transmit mode2.0 W Receive mode1.6 W Idle mode (PSP)180 mW(WLAN Associated) Idle mode50 mW (WLAN unassociated) Connected Standby 10mW Radio disabled8 mW"
Power Management	ACPI and PCI Express compliant power management 802.11 compliant power saving mode
Receiver Sensitivity[4]	•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 •802.11ax, MCS11(HT40): -59dBm maximum •802.11ax, MCS11(VHT160): -58.5dBm 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 with CNVi Interface
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 Off – Radio ON

HP Integrated Module with Bluetooth 4.0/4.1/4.2/5.0/5.1/5.2 Wireless Card

Bluetooth Specification	4.0/4.1/4.2/5.0/5.1/5.2 Compliant
Frequency Band	2402 to 2480 MHz
Number of Available Channels	Legacy: 0~79 (1 MHz/CH) BLE: 0~39 (2 MHz/CH)
Data Rates and Throughput	Legacy: 3 Mbps data rate; throughput up to 2.17 Mbps BLE: 1 Mbps data rate; throughput up to 0.2 Mbps Legacy: Synchronous Connection Oriented links up to 3, 64 kbps, voice channels Legacy: Asynchronous Connection Less links 2178.1 kbps/177.1 kbps asymmetric (3-DH5) or 864 kbps symmetric (3-EV5)
Transmit Power	The Bluetooth component shall operate as a Class II Bluetooth device with a maximum transmit power of + 9.5 dBm for BR and EDR.
Power Consumption	Peak (Tx): 330 mW Peak (Rx): 230 mW Selective Suspend: 17 mW
Bluetooth Software Supported Link	Microsoft Windows Bluetooth Software

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

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Topology	
Power Management	Microsoft Windows ACPI, and USB Bus Support
Certifications	FCC (47 CFR) Part 15C, Section 15.247 & 15.249
Power Management Certifications	ETS 300 328, ETS 300 826 Low Voltage Directive IEC950 UL, CSA, and CE Mark
Bluetooth Profiles 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)

1. Wireless access point and Internet service required and sold separately. Availability of public wireless access points limited. Wi-Fi 6 (802.11ax) is backwards compatible with prior 802.11 specs
2. Maximum output power may vary by country according to local regulations.
12/13 and are capable of transmitting must fully comply with requirements of 15.247 or otherwise disable those channels.
3. Check latest software/driver release for updates on supported security features.
4. 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).
5. Wi-Fi 6 is designed to support gigabit data rate when transferring files between two devices connected to the same router. Requires a wireless router, sold separately, that supports 80MHz and higher channels.

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Intel® XMM™ 7360 LTE-Advanced		
	Technology/Operating bands	FDD LTE: LTE: 2100 (Band 1), 1900 (Band 2), 1800 (Band 3), 1700 (Band 4), 850 (Band 5), 2600 (Band 7), 900 (Band 8), 1400 (Band 11), 700 (Band 12), 700 (Band 13) 700 (Band 17), 850 (Band 18), 850 (Band 19), 800 (Band 20), 1450 (Band 21), 850 (Band 26) 700 (Band 28) MHz, 700 (Band 29), 2300 (Band 30), 2100 (Band 66) MHz TDD LTE: 2600 (Band 38), 1900 (Band 39) 2300 (Band 40), 2500 (Band 41) MHz HSPA+: 2100 (Band 1), 1900 (Band 2), 1700 (Band 4), 850 (Band 5), 900 (Band 8) MHz
	Wireless protocol standards	3GPP Release 11 LTE Specification CAT.9, MAX 60MHz aggregation BW WCDMA R99, 3GPP Release 5, 6, 7 and 8 UMTS Specification
	GPS	Standalone, A-GPS (MS-B and LTO)
	GPS bands	GPS 1575.42 MHz ± 1.023 MHz, GLONASS 1596-1607MHz, Beidou 1561.098 ± 2.046 MHz
	Maximum data rates	LTE: 450 Mbps (DL 3CA), 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	6 g
	Dimensions (Length x Width x Thickness)	42 x 30 x 2.3 mm

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. LTE not available on all products, in all regions.

Qualcomm® Snapdragon™ X55 5G Cat 20 [1]		
	Technology/ Operating bands	WCDMA/HSDPA/HSUPA/HSPA+ operating bands: Band 1: 1920 to 1980 MHz (UL), 2110 to 2170 MHz (DL) Band 2: 1850 to 1910 MHz (UL), 1930 to 1990 MHz (DL) Band 4: 1710 to 1755 MHz (UL), 2110 to 2155 MHz (DL) Band 5: 824 to 849 MHz (UL), 869 to 894 MHz (DL) Band 6: 830 to 840 MHz (UL), 875 to 885 MHz (DL) Band 8: 880 to 915 MHz (UL), 925 to 960 MHz (DL) Band 9: 1750 to 1785 MHz(UL), 1845to 1880 MHz (DL) Band 19: 830 to 845 MHz (UL), 875 to 890 MHz (DL) LTE FDD/TDD operating bands: Band 1: 1920 to 1980 MHz (UL), 2110 to 2170 MHz (DL) Band 2: 1850 to 1910 MHz (UL), 1930 to 1990 MHz (DL) Band 3: 1710 to 1785 MHz (UL), 1805 to 1880 MHz (DL) Band 4: 1710 to 1755 MHz (UL), 2110 to 2155 MHz (DL) Band 5: 824 to 849 MHz (UL), 869 to 894 MHz (DL) Band 7: 2500 to 2570 MHz (UL), 2620 to 2690 MHz (DL) Band 8: 880 to 915 MHz (UL), 925 to 960 MHz (DL) Band 12: 699 to 716 MHz (UL), 729 to 746 MHz (DL) Band 13: 777 to 787 MHz (UL), 746 to 756 MHz (DL)

Not all configuration components are available in all regions/countries.
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Band 14: 788 to 798 MHz (UL), 758 to 768 MHz (DL)
Band 17: 704 to 716 MHz (UL), 734 to 746 MHz (DL)
Band 18: 815 to 830 MHz (UL), 860 to 875 MHz (DL)
Band 19: 830 to 845 MHz (UL), 875 to 890 MHz (DL)
Band 20: 832 to 862 MHz (UL), 791 to 821 MHz (DL)
Band 25: 1850 to 1915 MHz (UL), 1930 to 1995 MHz (DL)
Band 26: 814 to 849 MHz (UL), 859 to 894 MHz (DL)
Band 28: 703 to 748 MHz (UL), 758 to 803 MHz (DL)
Band 29: 717 to 728 MHz (DL)
Band 30: 2305 to 2315 MHz (UL) 2350 to 2360 MHz (DL)
Band 32: 1452 to 1496 MHz (DL)
Band 34: 2010 to 2025 MHz (UL/DL)
Band 38: 2570 to 2620 MHz (UL/DL)
Band 39: 1880 to 1920 MHz (UL/DL)
Band 40: 2300 to 2400 MHz (UL/DL)
Band 41: 2496 to 2690 MHz (UL/DL)
Band 42: 3400 to 3600 MHZ (UL/DL)
Band 46: 5150 to 5925 MHZ (DL)
Band 48: 3550 to 3700 MHZ (UL/DL)
Band 66: 1710 to 1800 MHz (UL), 2110 to 2200 MHz (DL)
Band 71: 663 to 698 MHz (UL), 617 to 652 MHz (DL)
5GNR Sub 6GHZ
n1: 1920 to 1980 MHz (UL), 2110 to 2170 MHz (DL)
n2: 1850 to 1910 MHz (UL), 1930 to 1990 MHz (DL)
n3: 1710 to 1785 MHz (UL), 1805 to 1880 MHz (DL)
n5: 824 to 849 MHz (UL), 869 to 894 MHz (DL)
n7: 2500 to 2570 MHz (UL), 2620 to 2690 MHz (DL)
n8: 880 to 915 MHz (UL), 925 to 960 MHz (DL)
n12: 699 to 716 MHz (UL), 729 to 746 MHz (DL)
n20: 832 to 862 MHz (UL), 791 to 821 MHz (DL)
n28: 703 to 748 MHz (UL), 758 to 803 MHz (DL)
n41: 2496 to 2690 MHz (UL/DL)
n66: 1710 to 1800 MHz (UL), 2110 to 2200 MHz (DL)
n71: 663 to 698 MHz (UL), 617 to 652 MHz (DL)
n77: 3300 to 4200 MHz (UL/DL)
n78: 3300 to 3800 MHz (UL/DL)
n79: 4400 to 5000 MHz (UL/DL)

Wireless protocol standards	5GNR Air Interface l 3GPP Rel15 5G NR sub-6 LTE Rel14 20 layers and 2 Gbps downlink (DL) throughput – 4 × 4 MIMO across 5x CA 200 Mbps uplink (UL) throughput – 40 MHz ULCA and 256 QAM WCDMA R99, 3GPP Release 5, 6, 7 and 8 UMTS Specification
GPS	Standalone, A-GPS (MS-A, MS-B)
GPS bands	GPS: L1 (1575.42MHz); L5 (1176MHz) GLONASS: L1 (1602MHz) BeidouB1(1561.098MHz) Galileo E1 (1575.42); E5a (1176MHz)
Maximum data rates	5G sub 6G : 3.8 Gbps LTE: ue-CategoryDL 20, (DL : 2 Gbps) ue-CategoryUL 13 , (UL: 150Mbps) DC-HSPA+: 42 Mbps (Download), 5.76 Mbps (Upload) HSPA+: 21Mbps (Download), 5.76 Mbps (Upload)

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Maximum output power	LTE: 23 dBm in all band except B41 LTE B41 HPUE = 26dBm HSPA+: 23.5 dBm
Maximum power consumption	5G Sub 6 : 2500 mA LTE: 1,300 mA (peak); 1100 mA (average) HSPA+: 1,100 mA (peak); 800 mA (average)
Form Factor	M.2, 3042-S3 Key B
Weight	8 g
Dimensions (Length x Width x Thickness)	42 mm × 30 mm × 2.6 mm

1. Qualcomm® 5G module is optional and must be configured at the factory. Module designed for 5G networks as carriers deploy Evolved-Universal Terrestrial Radio Access New Radio Dual Connectivity (ENDC) with both 100Mhz of 5G NR and LTE channel bandwidth, using 256QAM 4x4, requires activation and separately purchased service contract. 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. 5G LTE not available on all products, in all regions. Backwards compatible to 4G LTE and 3G HSPA technologies. 5G LTE module is available where carrier supported. US Configurations: Verizon mobile broadband service is not supported with this module.

Not all configuration components are available in all regions/countries.
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NXP NPC300 Near Field Communication Module	Dimensions (L x W x H)	Module 17 mm by 10 mm by 2.0 mm
	Chipset	NPC300
	System interface	I²C
	NFC RF standards	ISO/IEC 14443 A 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	-25℃ to 80℃
	Storage temperature	-25℃ to 125℃
	Humidity	10-90% operating 5-95% non-operating
	Supply Operating voltage	2.7 to 5.5 Volts
	I/O Voltage	1.8V or 3.3V
Power Consumption (Booster enable, VBAT= 3.3V, VCC_BOOST = 5V)		
	Mode	Power Consumption, Typical (2)
	Plling	710.93 mW
	Detected Test Tag Type 1	152.09 mW
	Detected Test Tag Type 2	341.26 mW
	Detected Test Tag Type 3	383.76 mW
	Detected Test Tag Type 4	312.26 mW
	Antenna	Antenna connector, 0.3mm pitch, 7 connector FPC. Antenna matching is external to module.

Not all configuration components are available in all regions/countries.
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Built-in Tile™ module[1]	Bluetooth Specification	Bluetooth Core Specification v5.0
	Frequency Band	2400 to 2483.5 MHz
	Number of Available Channels	0-39 Channels with 2MHz bandwidth at each channel
	Data Rate	BLE : 1 Mbps data rate
	Transmit Power	Max TX power : 8dBm
	Power Consumption "	"<0.1mW at idle mode (ready to be found)
	Form Factor	PCI-Express M.2 MiniCard
	Dimensions	Type 3042 : 30 x 42 x 2.3 mm
	Weight	Weight : 4.0g
	Operating Voltage	DC 3.135V～3.6V, Typical 3.3V
	Temperature	Operating: -10℃ ～+55℃ Non-operating: － 40℃ ～+85℃

1. Tile is an optional feature that must be configured at the factory and requires Windows 10. Some features require optional subscription to Tile Premium. Tile application for Windows 10 available for download from the Windows Store. Mobile phone app available for download from App Store and Google Play. Requires iOS 11 and greater or Android 6.0 and greater see https://support.thetileapp.com/hc/en-us/articles/200424778 for more information. HP Tile will function as long as the PC has battery power.

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POWER

AC Adapter 65 Watt Smart nPFC Standard Barrel 4.5mm Right Angle 1.8m	Dimensions (H x W x D)		107.0x47.0x30.0mm
	Weight		unit: 250g +/- 10g Not including power cord. Power cord varies by country
	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	65 W
		DC output	19.5 V
		Hold-up time	5ms at 115 Vac input
		Output current limit	<11.0A
	Connector		4.5mm Barrel Type
	Environmental Design	Operating temperature	32ºF to 95ºF (0ºto 35ºC)
		Non-operating (storage) temperature	-4ºF to 185ºF (-20ºto 85ºC)
		Altitude	0 to 16,400 ft (0 to 5000m)
		Humidity	20% to 95%
		Storage Humidity	10% to 95%
	EMI and Safety Certifications		ECE 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.

AC Adapter 45 Watt Smart nPFC Standard Barrel 4.5mm Right Angle 1.8m	Dimensions (H x W x D)		95.0x40.0x26.5mm
	Weight		unit: 200g +/- 10g Not including power cord. Power cord varies by country
	Input	Input Efficiency	87.74 % at 115 Vac and 88.4 % at 230Vac
		Input frequency range	47 ~ 63 Hz
		Input AC current	Max. 1.4 A at 90 Vac
	Output	Output power	45 W
		DC output	19.5 V
		Hold-up time	5ms at 115 Vac input
		Output current limit	<8.0 A
	Connector		4.5mm Barrel Type, 3 pin/grounded, mates with interchangeable cords
	Environmental Design	Operating temperature	32ºF to 95ºF (0ºto 35ºC)
		Non-operating (storage) temperature	-4ºF to 185ºF (-20ºto 85ºC)
		Altitude	0 to 16,400 ft (0 to 5000m)

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

AC Adapter 45 Watt Smart nPFC Standard Barrel 4.5mm Right Angle 1.8m 2prong	**Dimensions (H x W x D)**	95x45x26.8mm	
	Weight	unit: 200g +/- 10g Not including power cord. Power cord varies by country	
	Input	**Input Efficiency**	87.74 % at 115 Vac and 88.4 % at 230Vac
		Input frequency range	47 ~ 63 Hz
		Input AC current	Max. 1.4 A at 90 Vac
	Output	**Output power**	45 W
		DC output	19.5 V
		Hold-up time	5ms at 115 Vac input
		Output current limit	<8.0 A
	Connector	4.5 mm 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%
		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.	

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AC Adapter 65 Watt Smart nPFC EM Barrel 4.5mm New EM	Dimensions (H x W x D)	102x55x30mm	
	Weight	270g +/- 10g Not including power cord. Power cord varies by country	
	Input	Input Efficiency	88.0 % at 115 Vac and 89.0 % at 230Vac
		Input frequency range	47 to 63 Hz
		Input AC current	Max. 1.7 A at 90 Vac
	Output	Output Power	65 W
		DC output	19.5V
		Hold-up time	5 msec at 115 VAC input
		Output current limit	<11.0A
	Connector	4.5mm Barrel Type, 3 pin/grounded, mates with interchangeable cords	
	Environmental Design	Operating temperature	32ºF to 95ºF (0ºto 35ºC)
		Non-operating (storage) temperature	-4ºF to 185ºF (-20ºto 85ºC)
		Altitude	0 to 16,400 ft (0 to 5000m)
		Humidity	20% to 95%
		Storage Humidity	10% to 95%
	EMI and Safety Certifications	CE Mark - full compliance with LVD and EMC directives Worldwide safety standards - IEC60950, EN60950, UL60950, Class1, SELV; Agency approvals - C-UL-US, NORDICS, DENAN, EN55022 Class B, FCC Class B, CISPR22 Class B, CCC, NOM-1 NYCE. MTBF - over 200,000 hours at 25°C ambient condition.	

AC Adapter 65 Watt nPFC Standard USB Type-C Straight 1.8m	Dimensions (H x W x D)	90.0x51x28.5mm	
	Weight	unit: 250g +/- 10g Not including power cord. Power cord varies by country	
	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 @ 12V/5A 89% min at 115 Vac/ 230Vac @ 15V/4.33A 89% min at 115 Vac/ 230Vac @ 20V/3.25A
		Input frequency range	47 to 63 Hz
		Input AC current	1.6 A at 90 VAC and maximum load
	Output	Output power	65 W
		DC output	5V/9V/12V/15V/20V
		Hold-up time	5 msec at 115 VAC input
		Output current limit	8.0A MAXIMUM
	Connector	USB Type-C	
	Environmental Design	Operating temperature	32°F to 95°F (0ºto 35°C)

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	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	CE Mark - full compliance with LVD and EMC directives Worldwide safety standards - IEC60950, EN60950, UL60950, ul62368, 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."	

AC Adapter 65 Watt nPFC Slim USB Type-C Straight 1.8m	**Dimensions (H x W x D)**	88x53.5x21mm	
	Weight	unit: 220g +/- 10g Not including power cord. Power cord varies by country	
	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 @ 12V/5A 89% min at 115 Vac/ 230Vac @ 15V/4.33A 89% min at 115 Vac/ 230Vac @ 20V/3.25A
		Input frequency range	47 to 63Hz
		Input AC current	1.6 A at 90 VAC and maximum load
	Output	**Output Power**	65 W
		DC output	5V/9V/12V/15V/20V
		Hold-up time	5 msec 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%
	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.	

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HP 3 Cell 53 Wh Long Life -PL Fast Charge		
	Dimensions (H x W x D)	267.3x59.75x7.5mm
	Weight	210g±10g Not including power cord. Power cord varies by country
	Cells/Type	3cell Lithium-Ion Polymer cell / 645180
	Voltage	11.55V
	Amp-hour capacity	4590mAh
	Watt-hour capacity[1]	53Wh
	Operating (Charging)	32˚ to 113˚ F (0˚ to 45˚ C)
	Operating (Discharging)	14˚ to 122˚ F (-10˚ to 60˚ C)
	Fuel Gauge LED	NA
	Optional Travel Battery Available	No

1. Actual battery Watt-hours (Wh) will vary from design capacity. Battery capacity will naturally decrease with shelf life, time, usage, environment, temperature, system configuration, loaded apps, features, power management settings and other factors.

FINGERPRINTREADER

Model:
Synaptics Validity VFS7552 touch sensor
Mobile Voltage Operation:
3.0V to 3.6V
Operating Temperature:
14° – 167°F (-10°-75°C)
Current Consumption Image:
36mA peak
Low Latency Wait For Finger:
950 uA
Capture Rate:
30 cm/sec
ESD Resistance:
IEC 61000-4-2 4B (+15KV)

Detection Matrix:
200*1 (Plus another secondary line) / 508 dpi / 10mm sensor area

FRR (False Reject Rate) / FAR:
 (False Acceptance Rate) FRR ~ 1% @ 1:50K FAR

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

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Technical Specifications

ENVIRONMENTAL DATA

Sustainable Impact Specifications	• Bulk packaging available
	• Low halogen[1]
	• Ocean-Bound Plastic in speaker enclosure[2]
	• Outside Box and corrugated cushions are 100% sustainably sourced and recyclable[3]
	• 35% post-consumer recycled plastic[4]

1. External power supplies, WWAN modules, power cords, cables and peripherals excluded.
2. Percentage of ocean-bound plastic contained in each component varies by product
3. 100% outer box packaging and corrugated cushions made from sustainably sourced certified and recycled fibers.
4. Recycled plastic content percentage is based on the definition set in the IEEE 1680.1-2018 standard.

COUNTRY OF ORIGIN

China

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

Type	Description	Part Number
Cases	HP Prelude Pro Top Load	1X645AA
	HP Prelude Pro Backpack	1X644AA
	HP Business Backpack (17.3")	2SC67AA
	HP Business Case (15.6")	2SC66AA
	HP Business Slim Top Load (14.1")	2SC65AA
	HP 14.1 Business Sleeve	2UW01AA
	HP 13.3 Business Sleeve	2UW00AA
Docking	HP Thunderbolt Dock 120W G2	2UK37AA
	HP TB Dock w/ Combo Cable (230W)	3TR87AA
	HP TB Dock Audio Module	3AQ21AA
	HP TB Dock 230W G2 Cable	3XB95AA
	HP TB Dock 120W G2 cable	3XB94AA
	HP TB Dock G2 combo cable	3XB96AA
	HP USB Type-C Mini Dock	1PM64AA
	HP USB Type-C Dock G5	5TW10AA
	HP USB Type-C /A Universal Dock G2	5TW13AA
Input / Output	HP Wireless Rechargeable 950MK Mouse and Keyboard	3M165AA
	HP Wired Desktop 320MK Mouse and Keyboard	9SR36AA
	HP Wireless Premium Keyboard	Z9N41AA
	HP USB Essential Keyboard and Mouse	H6L29AA
	HP Wireless Collaboration Keyboard	Z9N39AA
	HP 935 Creator Wireless Mouse	1D0K8AA
	HP 635 Multi-Device Wireless Mouse	1D0K2AA
	HP Comfort Grip Wireless Mouse	H2L63AA
	HP X4000b Bluetooth Mouse	H3T50AA
	HP Wired Desktop 320M Mouse	9VA80AA
	HP USB Travel Mouse	G1K28AA
	HP Bluetooth Travel Mouse	6SP30AA
	HP Wireless Premium Mouse	1JR31AA
	HP USB Premium Mouse	1JR32AA
	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 Type-C to USB-A Hub	Z6A00AA
	HP USB Type-C to DP	N9K78AA
	HP USB Type-C to VGA	N9K76AA
	HP HDMI to VGA	H4F02AA
	HP USB Type-C to HDMI 2.0 Adapter	1WC36AA

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

	HP USB Type-C to RJ45 Adapter	V7W66AA
	HP USB to Gig RJ45 Adapter	N7P47AA
	HP USB Type-C Travel Hub G2	7PJ38AA
	HP Elite USB Type-C Hub	4WX89AA
Power	HP 65W Slim AC Adapter	H6Y82AA
	HP 45W Smart AC Adapter	H6Y88AA
	HP 65W Smart AC Adapter	H6Y89AA
	HP 45W 2-prong 4.5 mm DC jack AC Adapter	L6F60AA#ABJ
	HP 45W USB-C Power Adapter	1HE07AA
	HP 65W USB-C Power Adapter	1HE08AA
	65W USB Type-C® Slim Power Adapter	3PN48AA
	HP Notebook Power Bank	N9F71AA
	HP USB-C Essential Power Bank	3TB55AA
Storage	HP USB External DVDRW Drive	F2B56AA
	HP 256GB PCI-e 3x4 NVMe M.2 SSD	TBT
	HP 512GB PCI-e 3x4 NVMe M.2 SSD	TBT
Security	HP Nano Keyed Cable Lock	1AJ39AA
	HP Sure Key Cable Lock	6UW42AA

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Summary of changes

Date of change:	Version History:		Description of change:
January 29, 20201	V1 to V2	Update	USB Ports
February 4, 2021	V2 to V3	Added	Processors, WPA3 certification
February 8, 2021	V3 to V4	Update	Smart Card Reader
February 10, 2021	V4 to V5	Update	Environmental Data
February 17, 2021	V5 to V6	Update	Processor section
February 24, 2021	V6 to V7	Update	Battery life
March 9, 2021	V7 to V8	Update	Audio and Multimedia section
April 19, 2021	V8 to V9	Updated	Input/ Output Section Updated
April 23, 2021	V9 to V10	Added	BIOS information in Software section
April 29, 2021	V10 to V11	Updated	TPM 2.0
May 4, 2021	V11 to V12	Removed	Processors base frequency/Added HP Smart Support
May 20, 2021	V12 to V13	Removed	HP Thunderbolt Dock 230W G2
May 27, 2021	V13 to V14	Update	HP Pro Security Edition to HP Wolf Pro Security Edition
June 24, 2021	V14 to V15	Added	Sensors, removed HP WorkWell from Software section and updated Memory section
September 2, 2021	V15 to V16	Updated	Techspecs in Processor, Networking and Memory section
November 11, 2021	V16 to V17	Updated	Windows 10 with Free upgrade to Windows 11 when available in OS section and footnote.
November 17, 2021	V17 to V18	Update	Networking Qualcomm® 5G Disclaimers
December 9, 2021	V18 to V19	Update	OS footnotes and Wi-Fi 6 footnotes
December 14, 2021	V19 to V20	Update	Windows OS section
February 28, 2022	V20 to V21	Added	Processors base frequency
April 20, 2022	V21 to V22	Added	Reference for USB Ports
September 7, 2022	V22 to V23	Removed	Tile App
December 7, 2022	V23 to V24	Updated	Windows OS
February 23, 2023	V24 to V25	Updated	Disclaimer for Qualcomm® Snapdragon™ X55 5G
March 6, 2023	V25 to V26	Updated	Networking and Communications section
June 8, 2023	V26 to V27	Updated	WWAN module in Networking section
October 9, 2024	V27 to V28	Updated	Update Port Specification to: Thunderbolt™ 4

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