

Overview

HP Elite x360 830 13 inch G10 2-in-1 Notebook PC



- 1. Internal Microphones (2)
- 2. Ambient Light Sensor (Optional)
- 3. Webcam
- 4. Camera Shutter
- 5. IR Camera (Optional)
- 6. IR Camera LEDs (Optional)
- 7. NFC Sensor
- 1. SuperSpeed USB 20Gbps is not available with Thunderbolt™ 4.

Left

- 8. Glass Clickpad
- 9. Smartcard Reader (Optional)
- 10. LED Indicator
- 11. Thunderbolt™ 4 with USB4 Type-C? 40Gbps signaling rate (USB Power Delivery, DisplayPort™ 1.4)¹
- 12. Thunderbolt™ 4 with USB4 Type-C? 40Gbps signaling rate (USB Power Delivery, DisplayPort™ 1.4)¹
- 13. SuperSpeed USB Type-A 5Gbps signaling rate (USB 3.2 Gen 1)
- 14. HDMI 2.1 Port (Cable not included)

Overview



Right

- | | | | |
|----|---|----|--|
| 1. | Power Button Key | 4. | Nano Security Lock Slot (Lock sold separately) |
| 2. | Audio Combo Jack | 5. | SIM Card Slot (Optional) |
| 3. | SuperSpeed USB Type-A 5Gbps signaling rate (Charging) (USB 3.2 Gen 1) | 6. | Touch Fingerprint Sensor (Select models) |

Overview



At a Glance

Overview

- Preinstalled with Windows 11 versions or FreeDOS
- Premium ultraslim design with precision-crafted all-metal x360 design with four usage modes
- 13th Generation Intel® Core™ i5, i7 U-series Processors up to ten-core
- New LPDDR5-4800memory with up to 32GB capacity
- 5MP camera with increased 88° field of view allows you to move around more freely in front on the camera or accommodate a group
- Optional ultrabright displays with HP Eye Ease, ambient light and ambient color sensors
- Choice of displays:
 - 33.8 cm (13.3") diagonal WUXGA IPS LED-backlit BrightView touch with Corning® Gorilla® Glass 5, 250 nits, 45% NTSC
 - 33.8 cm (13.3") diagonal WUXGA IPS LED-backlit BrightView touch with Corning® Gorilla® Glass 5, 400 nits, 100% sRGB with Low Power with HP Eye Ease
 - 33.8 cm (13.3") diagonal WUXGA IPS LED-backlit Anti-Glare glass touch with Corning® Gorilla® Glass 5, 400 nits, 100% sRGB with Low Power with HP Eye Ease
 - 33.8 cm (13.3") diagonal WUXGA IPS LED-backlit BrightView touch with Corning® Gorilla® Glass 5, 1000 nits, 100% sRGB with HP Sure View Reflect Integrated Privacy Screen with HP Eye Ease
 - 33.8 cm (13.3") diagonal WUXGA IPS LED-backlit Anti-Glare glass touch with Corning® Gorilla® Glass 5, 1000 nits, 100% sRGB with HP Sure View Reflect Integrated Privacy Screen with HP Eye Ease
- New enhanced HP Auto Frame provides improved face tracking and more natural framing movement
- New "Be Right Back" functionality allows you to set an image and notify meeting participants you'll "BRB" when you need to leave for a few minutes
- Choose from 38Whr or 51Whr battery options
- HP Wolf Security for Business creates a hardware-enforced, always-on, resilient defense
- Connectivity with optional Intel® 5000 5G/WWAN, and Thunderbolt™ Docking (Dock sold separately)
- Undergoes MIL-STD 810H tests¹
- An optional HP Rechargeable Active Pen with Magnetic Attach and 4096 Levels of pressure
- Supports fast charging (50% in 30 minutes) with no impact on battery recharge cycles
- Designed to support all HP docking options including the HP Universal Dock G5
- Can be wiped up to 10,000 times with germicidal cleaning wipes²

1. 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.

2. Approved germicidal wipes for use on Select HP Platforms <https://h20195.www2.hp.com/v2/GetDocument.aspx?docname=4AA7-9819ENW>

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

Technical Specifications

PRODUCT NAME

HP EliteBook x360 830 13 inch G10 2-in-1 Notebook PC

OPERATING SYSTEMS

| | |
|--------------|--|
| Preinstalled | Windows 11 Pro ¹ |
| | Windows 11 Pro Education ¹ |
| | Windows 11 Home - HP recommends Windows 11 Pro for Business ¹ |
| | Windows 11 Home Single Language - HP recommends Windows 11 Pro for Business ¹ |
| | 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. 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>.

2. This system is preinstalled with Windows 10 Pro software and also comes with a license for Windows 11 Pro software and provision for recovery software. You may only use one version of the Windows software at a time. Switching between versions will require you to uninstall one version and install the other version. You must back up all data (files, photos, etc.) before uninstalling and installing operating systems to avoid loss of your data.

PROCESSORS

| Processor 3,4,5,6,7 | Cores | Number of P-cores | Number of E-cores | Threads | L3 Cache | Max Turbo Frequency | | Base Frequency | | Intel SIPP/vPro? Enterprise | Intel vPro? Essentials |
|------------------------|-------|----------------------|----------------------|---------|-------------|------------------------|-------------|-------------------|-------------|-----------------------------------|---------------------------|
| | | | | | | P- cores | E- cores | P- cores | E- cores | | |
| Intel® Core™ i7-1365U | 10 | 2 | 8 | 12 | 12 MB | 5.2 GHz | 3.9 GHz | 1.8 GHz | 1.3 GHz | X | |
| Intel® Core™ i7-1355U | 10 | 2 | 8 | 12 | 12 MB | 5.0 GHz | 3.7 GHz | 1.7 GHz | 1.2 GHz | | |
| Intel® Core™ i5-1345U | 10 | 2 | 8 | 12 | 12 MB | 4.7 GHz | 3.5 GHz | 1.6 GHz | 1.2 GHz | X | |
| Intel® Core™ i5-1335U | 10 | 2 | 8 | 12 | 12 MB | 4.6 GHz | 3.4 GHz | 1.3 GHz | 0.9 GHz | | X |

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.

6. In accordance with Microsoft's support policy, HP does not support the Windows 8 or Windows 7 operating system on product 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>

7. Intel vPro? requires Windows 10 Pro 64 bit or higher, a vPro supported processor, vPro enabled chipset, vPro enabled wired LAN and/or Wi-Fi 6E WLAN and TPM 2.0. Some functionality requires additional 3rd party software in order to run. Features of vPro?

Technical Specifications

Essentials and Enterprise vary. See <http://intel.com/vpro>

CHIPSET

Chipset is integrated with processor

GRAPHICS

Integrated
Intel® Iris® X Graphics

Supports
Support HD decode, DX12, HDMI 2.1, HDCP 2.3 ⁸

8. HDMI cable sold separately

DISPLAY

- Touch**
33.8 cm (13.3") diagonal WUXGA Bent touch screen , BrightView UWVA, eDP, 250 nits, 45% NTSC with 5MP camera (1920 x 1200) ^{10,11,13}
33.8 cm (13.3") diagonal WUXGA Bent touch screen , BrightView UWVA, eDP, 250 nits, 45% NTSC with 5MP camera for WWAN(1920 x 1200) ^{10,11,13}
33.8 cm (13.3") diagonal WUXGA Bent touch screen, Low Blue Light, anti-glare UWVA eDP1.4+PSR, 400 nits, 100% sRGB, Low Power, Ambient Light Sensor+Ambient Color Sensor with 5MP+IR Camera (1920 x 1200) with HP Eye Ease ^{10,11,13}
33.8 cm (13.3") diagonal WUXGA Bent touch screen, Low Blue Light, anti-glare UWVA eDP1.4+PSR, 400 nits, 100% sRGB, Low Power, Ambient Light Sensor+Ambient Color Sensor with 5MP+IR Camera for WWAN (1920 x 1200) with HP Eye Ease ^{10,11,13}
33.8 cm (13.3") diagonal WUXGA Bent touch screen, Low Blue Light, BrightView UWVA eDP1.4+PSR, 400 nits, 100% sRGB, Low Power, Ambient Light Sensor+Ambient Color Sensor with 5MP+IR Camera (1920 x 1200) with HP Eye Ease ^{10,11,13}
33.8 cm (13.3") diagonal WUXGA Bent touch screen, Low Blue Light, BrightView UWVA eDP1.4+PSR, 400 nits, 100% sRGB, Low Power, Ambient Light Sensor+Ambient Color Sensor with 5MP+IR Camera for WWAN (1920 x 1200) with HP Eye Ease ^{10,11,13}
33.8 cm (13.3") diagonal WUXGA Bent touch screen, Low Blue Light, anti-glare UWVA eDP+PSR, 1000 nits, 100% sRGB with HP Sure View Reflect integrated privacy screen, Ambient Light Sensor+Ambient Color Sensor with 5MP+IR camera (1920 x 1200) with HP Eye Ease ^{10,11,12,13}
33.8 cm (13.3") diagonal WUXGA Bent touch screen, Low Blue Light, BrightView UWVA eDP+PSR, 1000 nits, 100% sRGB with HP Sure View Reflect integrated privacy screen, Ambient Light Sensor+Ambient Color Sensor with 5MP+IR camera (1920 x 1200) with HP Eye Ease ^{10,11,12,13}
33.8 cm (13.3") diagonal WUXGA Bent touch screen, Low Blue Light, anti-glare UWVA eDP+PSR, 1000 nits, 100% sRGB with HP Sure View Reflect integrated privacy screen, Ambient Light Sensor+Ambient Color Sensor with 5MP+IR camera for WWAN (1920 x 1200) with HP Eye Ease ^{10,11,12,13}
33.8 cm (13.3") diagonal WUXGA Bent touch screen, Low Blue Light, BrightView UWVA eDP+PSR, 1000 nits, 100% sRGB with HP Sure View Reflect integrated privacy screen, Ambient Light Sensor+Ambient Color Sensor with 5MP+IR camera for WWAN (1920 x 1200) with HP Eye Ease ^{10,11,12,13}

DisplayPort™ 1.4
HDMI 2.1 Support resolution up to 4K @60 Hz ⁹

Displays support
Supports dual display through the dock

Display Size (Diagonal)
13.3" diagonal
33.8 cm (13.3") diagonal

Technical Specifications

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

DOCKING (Sold Separately)

| | |
|--------------------------|------------------------------|
| Docking station model #1 | HP Thunderbolt 120W G4 Dock |
| Docking station model #2 | HP Thunderbolt 280W G4 Dock |
| Docking station model #3 | HP USB-C Dock G5 |
| Docking station model #4 | HP USB-C/A Universal Dock G2 |

For additional aftermarket options and docking specs please see page 42.

STORAGE AND DRIVES

Primary Storage

- 2 TB PCIe? Gen4x4 NVMe™ M.2 SSD TLC ¹⁴
- 1 TB PCIe? Gen4x4 NVMe™ NMIC SSD TLC ¹⁴
- 1 TB PCIe? Gen4x4 NVMe™ M.2 SSD TLC ¹⁴
- 1 TB PCIe? Gen4x4 NVMe™ SED TLC NMIC OPAL2 ¹⁴
- 1 TB PCIe? Gen4x4 NVMe™ SED TLC OPAL2 ¹⁴
- 512 GB PCIe? Gen4x4 NVMe™ SED TLC OPAL2 ¹⁴
- 512GB PCIe? Gen4x4 NVMe™ M.2 SSD TLC ¹⁴
- 512 GB PCIe? NVMe™ Value NMIC M.2 SSD ¹⁴
- 512 GB PCIe? NVMe™ Value M.2 SSD ¹⁴
- 256 GB PCIe? Gen4x4 NVMe™ Value SED TLC OPAL2¹⁴
- 256GB PCIe? NVMe™ Value M.2 SSD ¹⁴

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.

MEMORY

Technical Specifications

Maximum Memory

32 GB LPDDR5-4800 MT/s

Memory

32 GB LPDDR5-4800 MT/s
16 GB LPDDR5-4800 MT/s M
8 GB LPDDR5-4800 MT/s

Memory Slots

Memory soldered down
LPDDR5, System runs at: 4800 MT/s
Supports Dual Channel Memory
Slot(s) are non-accessible / non-upgradable

NETWORKING/COMMUNICATIONS

WLAN

Intel® AX211 Wi-Fi6E+ Bluetooth® 5.3 M.2 160MHz CNVi World-Wide WLAN vPro Wireless Card ¹⁶
Intel® AX211 Wi-Fi6E+ Bluetooth® 5.3 M.2 160MHz CNVi World-Wide WLAN non-vPro Wireless Card ¹⁶

WWAN

Intel® 5000 5G Solution WWAN ^{17,18}
Intel® XMM 7560 R+ LTE-Advanced Pro WWAN (Cat 16) ¹⁷

NFC

Near Field Communication (NFC) module ¹⁹
HP Module with NXP NFC Controller NPC300 I2C NCI

Miracast

Native Miracast Support ²⁰

16. Wi-Fi 6E requires a Wi-Fi 6E router, sold separately, to function in the 6GHz band. Availability of public wireless access points limited. Wi-Fi 6E is backwards compatible with prior 802.11 specs. And available in countries where Wi-Fi 6E is supported.
17. 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.
18. Intel 5G module is optional and must be configured at the factory. Module designed for 5G NR NSA (non-standalone) 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 as defined by 3GPP. Module requires activation and separately purchased service contract. Check with service provider for coverage and availability in your area. Data connection, upload and download speeds will vary due to network, location, environment, network conditions, and other factors. Backwards compatible to 4G LTE and 3G HSPA technologies. 5G module planned to be available in select platforms and select countries, where carrier supported.
19. Miracast is a wireless technology your PC can use to project your screen to TVs, projectors, and streaming.
20. Sold separately or as an optional feature.

AUDIO/MULTIMEDIA

Technical Specifications

Audio

Audio by Bang & Olufsen
2 Integrated stereo speakers
Discrete Amplifiers
Integrated dual array microphone

Speaker Power

1W/8ohm Per speaker

Camera

5 MP camera ²¹
5 MP+IR camera ²¹
5 MP + IR camera for face authentication with Windows Hello

Sensors

ALS (ambient light sensor)
Adaptive Color Sensor
Hall effect Sensor
Motion AI LSM6DSL
Thermal Sensor
HP Tamper Lock ²²
Magnetometer
Accelerometer + Gyroscope

21. Sold separately or as an optional feature.
22. HP Tamper Lock must be enabled by the customer or your administrator.

KEYBOARDS/POINTING DEVICES/BUTTONS & FUNCTION KEYS

Keyboard

HP Premium Keyboard, spill resistant, Backlit keyboard and DuraKeys ²³
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

ESC: system information
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
home
end
Power Button (with LED)
Delete

Hidden Function Keys

Fn+R - Break

Technical Specifications

Fn+S - Sys Rq
Fn+C - Scroll Lock

23. Backlit keyboard is an optional feature.

SOFTWARE AND SECURITY

Preinstalled Software

HP Easy Clean²⁴
HP PC Hardware Diagnostics Windows
myHP
HP Smart Support²⁵
HP Services Scan²⁶
HP Connection Optimizer
HP Hotkey Support
HP Support Assistant²⁷
HP Notifications
HP Privacy Settings
HP Power Manager²⁸
Microsoft Office sold separately and requires Internet access for activation

Manageability Features

HP Connect²⁹
HP Image Assistant Gen5 (download)
HP Manageability Integration Kit (download)³⁰
HP Client Management Script Library (download)
HP Patch Assistant (download)³¹
HP Driver Packs (download)
HP Client Catalog (download)
HP Cloud Recovery³²

Security Management

HP Wolf Security for Business³³ includes:
HP Sure Click³⁴
HP Sure Sense³⁵
HP Sure Run³⁶
HP Sure Recover³⁷
HP Sure Start³⁸
HP Tamper Lock³⁹
HP Sure Admin⁴⁰

BIOS

HP BIOSphere Gen6⁴¹
HP Secure Erase⁴²
Absolute Persistence Module⁴³
BIOS Update via Network
HP Wake on WLAN
Secured-Core PC Enable⁴⁴
TPM 2.0 Embedded Security Chip (Common Criteria EAL4+ Certified) (FIPS 140-2 Level 2 Certified)
HP Fingerprint Sensor⁴⁵

Security

TPM
Model: Nuvoton NPCT760HABYX
Version: 7.2.3.1
Revision: TPM 2.0
FIPS 140-2 Compliant: Yes

Model: Infineon SLB9672VU2.0
Version: 15.23

Technical Specifications

Revision TPM2.0
FIPS 140-2 Compliant: Yes

Smartcard Reader

Model number: Alcor AU9560
FIPS 201 Compliant: Yes

IPv6 Support

Yes

FirstNet Certified

Yes

The BIOS on this notebook implements ISO/IEC 19678:2015 guidelines (formerly NIST 800-147).

UEFI version: 2.7
Class: 3

24. HP Easy Clean requires Windows 10 RS3 and higher and will disable the keyboard, touchscreen, and clickpad only. Ports are not disabled. See user guide for cleaning instructions.
25. HP Smart Support requires HP TechPulse to be installed. For more information about how to enable or to download HP Smart Support, please visit <http://www.hp.com/smart-support>.
26. HP Services Scan is provided with Windows Update on select products and will check entitlement on each hardware device to determine if an HP TechPulse-enabled service has been purchased, and will download applicable software automatically. HP TechPulse is a telemetry and analytics platform that provides critical data around devices and applications and is not sold as a standalone service. HP TechPulse follows stringent GDPR privacy regulations and is ISO27001, ISO27701, ISO27017 and SOC2 Type2 certified for Information Security. Internet access with connection to TechPulse portal is required. For full system requirements or to disable this feature, please visit <http://www.hpdaas.com/requirements>. Not applicable in China.
27. HP Support Assistance requires Windows and Internet Access
28. HP Power Manager requires Windows 10 and higher and can be downloaded from the Microsoft Store.
29. HP Connect for Microsoft Endpoint Manager is available from the Azure Market Place for HP Pro, Elite, Z and Point-of-Sale PCs managed with Microsoft Endpoint Manager. Subscription to Microsoft Endpoint Manager required and sold separately. Network connection required.
30. HP Manageability Integration Kit can be downloaded from <http://www8.hp.com/us/en/ads/clientmanagement/overview.html>.
31. HP Patch Assistant available on select HP PCs with the HP Manageability Kit that are managed through Microsoft System Center Configuration Manager. HP Manageability Integration Kit can be downloaded from <http://www8.hp.com/us/en/ads/clientmanagement/overview.html>.
32. HP Cloud Recovery is available for Z by HP, HP Elite and Pro desktops and laptops PCs with Intel® or AMD processors and requires an open, wired network connection. **NOTE:** You must back up important files, data, photos, videos, etc. before use to avoid loss of data. Details please refer to: <https://support.hp.com/us-en/document/c05115630>.
33. HP Wolf Security for Business requires Windows 10 or higher, includes various HP security features and is available on HP Pro, Elite, RPOS and Workstation products. See product details for included security features and OS requirement.
34. HP Sure Click requires Windows 10 Pro or higher or Enterprise. See https://bit.ly/2PrLT6A_SureClick for complete details.
35. HP Sure Sense is available on select HP PCs with Windows 10 Pro, Windows 10 Enterprise, Windows 11 Pro, or Windows 11 Enterprise OS
36. HP Sure Run Gen5 is available on select HP PCs and requires Windows 10 and higher.
37. HP Sure Recover Gen5 with Embedded Reimaging is an optional feature which requires Windows 10 and higher must be configured at purchase. You must back up important files, data, photos, videos, etc. before use to avoid loss of data. Network based recovery using Wi-Fi is only available on PCs with Intel Wi-Fi Module
38. HP Sure Start Gen7 is available on select HP PCs and requires Windows 10 and higher
39. HP Tamper Lock must be enabled by the customer or your administrator.
40. HP Sure Admin requires Windows 10 or higher, 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
41. HP BIOSphere Gen6 features may vary depending on the platform and configuration.
42. 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™.
43. 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/>
44. Secured-Core PC Enable requires an Intel® vPro®, AMD Ryzen™ Pro processor or Qualcomm® processor with SD850 or higher and requires 8 GB or more system memory. Secured-core PC is enabled from the factory.
45. HP Fingerprint sensor is an optional feature that must be configured at purchase.

Technical Specifications

POWER

Power Supply

HP Smart 65 W USB Type-C? adapter ⁴⁶
HP Smart 45 W USB Type-C? adapter ⁴⁶

Battery

HP Long Life 3-cell, 38 Wh Polymer ^{47,48}
HP Long Life 3-cell, 38 Wh Polymer SET ^{47,48}
HP Long Life 3-cell, 51 Wh Polymer ^{47,48}

Power Cord

3-wire plug - 1m ⁴⁶
2-wire plug - 1m ⁴⁶

Battery Life

Up to 14 hours 45mins (U15, HP Long Life 3-cell, 51 Wh Li-ion Polymer, UMA graphic, display set to 200nits, 16GB LPDDR5 memory, 512GB NVMe SSD)⁴⁹

46. Availability may vary by country.
47. Battery is internal and not replaceable by customer. Serviceable by warranty.
48. 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.
49. 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.

WEIGHTS & DIMENSIONS

Product Weight⁵⁰

Starting at 2.95 lb
Starting at 1.34 kg

Product Dimensions (W x D x H)

11.81 x 8.51 x 0.76 in
30.01 x 21.62 x 1.92 cm

Packaging Dimensions (W x D x H) ⁵¹

12"-15"? boxes (305mm height): 1200mm x 1000mm x 1080mm

50. Weight will vary by configuration. Does not include power adapter.
51. Product packaging size varies based on options chosen. Please contact your HP representative for your packaging size details.

PORTS/SLOTS

Technical Specifications

- 2 Thunderbolt™ 4 with USB4 Type-C? 40Gbps signaling rate (USB Power Delivery, DisplayPort™ 1.4) ⁵²
- 2 Super Speed USB Type-A 5Gbps signaling rate (1 charging)
- 1 HDMI 2.1 ⁹
- 1 Headphone/microphone combo jack
- 1 Nano Security Lock Slot (Lock sold separately)
- 1 Smartcard reader (Optional)
- 1 nano SIM card slot

52. SuperSpeed USB 20Gbps is not available with Thunderbolt™ 4.
9. HDMI cable sold separately?.

SERVICE AND SUPPORT

1-year warranty 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>. ⁵³

53. 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.

SYSTEM UNIT

Stand-Alone Power Requirements (AC Power)

| | |
|---------------------------|--------|
| Type-C Adapter | |
| Nominal Operating Voltage | AC 20V |
| Average Operating Power | |
| Integrated graphics | Yes |
| Discrete Graphics | N/A |
| Max Operating Power | 65W |

Temperature

| | |
|---------------|---|
| Operating | 32? to 95? F (0? to 35? C) (No sustained direct exposure to sunlight) (System performance may be reduced above 32?C (89.6?F)) |
| Non-operating | -4? to 140? F (-20? to 60? C) |

Relative Humidity

| | |
|---------------|---|
| Operating | 10% to 90% (non-condensing) |
| Non-operating | 5% to 95% (38.7? C (101.6? F) maximum wet bulb tempera-ture; non-condensing) |

Shock

| | |
|---------------|------------------------|
| Operating | 40 G, 2 ms, half-sine |
| Non-operating | 240 G, 2 ms, half-sine |

Random Vibration

| | |
|---------------|-------------|
| Operating | 1.043 grams |
| Non-operating | 3.5 grams |

Altitude (unpressurized)

Technical Specifications

| | |
|---|--|
| Operating | 10,000 ft (3,048 m) |
| Non-operating | 40,000 ft (12,192 m) |
| Planned Industry Standard Certifications | |
| Regulatory Model Number | HSN-I46C |
| CSA/UL 62368-1 | Yes |
| ENERGY STAR? | Yes ⁵⁴ |
| EPEAT? | EPEAT? Gold in the United States ⁵⁵ |
| FCC/ICES/CISPR/VCCI | Yes |
| CE MARKING | Yes |
| GS Mark | Yes |
| | Related commodity should comply with ISO 9241 Standards. |
| China CCC/SRRC | Yes |
| Taiwan BSMI/NCC | Yes |
| Korea KCC/KC/KES | Yes |
| Ukraine NSoC/TEC | Yes |
| EAEU Compliance | Yes |
| Saudi Arabian Compliance | Yes |
| TCO | Yes |
| Low Blue Light | Yes |
| WW RoHS | Yes |

54. Configurations of the HP EliteBook x360 830 13 inch G10 2-in-1 Notebook PC that are ENERGY STAR? qualified are identified as HP EliteBook x360 830 13 inch G10 2-in-1 Notebook PC ENERGY STAR on HP websites and on <http://www.energystar.gov>.
55. Based on US EPEAT? registration according to IEEE 1680.1-2018 EPEAT?. EPEAT? status varies by country. Visit <http://www.epeat.net> for more information.

DISPLAYS

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

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

| | | |
|--|---|-------------------------|
| 13.3 in WUXGA (1920 x 1200) Anti-Glare UWVA WLED+LBL sRGB NB2Y 1000 eDP 1.3+PSR 100 PrivacyG4 Plus bent LCD Panel | Outline Dimensions (W x H x D) | 291.380 x 188.640 (max) |
| | Active Area | 286.080 x 178.800 (typ) |
| | Weight | 210 (max) |
| | Diagonal Size | 13.3 |
| | Surface Treatment | Anti-Glare |
| | Touch Enabled | Yes |
| | Contrast Ratio | 1500:1 (typ) |
| | Refresh Rate | 60 Hz |
| | Brightness | 1000 nits ¹ |
| | Pixel Resolution - Format | 1920 x1200 (WUXGA) |
| | Backlight | RGB |
| | Pixel Resolution | WLED |
| | Color Gamut Coverage | sRGB 100% |
| | Color Depth | 8 |
| | Viewing Angle | UWVA 85/85/85/85 |
| | Low Blue Light | Yes |
| | Power Consumption (W, EBL@ 150nits max/ 200nits max) | N/A |

Technical Specifications

| | | |
|--|---|-------------------------|
| 13.3 in WUXGA (1920 x 1200) Anti-Glare UWVA LED NTSC NB2X 250 eDP 1.2 w/o PSR 45 bent LCD Panel | Outline Dimensions (W x H x D) | 292.040 x 189.830 (max) |
| | Active Area | 286.040 x 178.780 (typ) |
| | Weight | 280 (max) |
| | Diagonal Size | 13.3 |
| | Surface Treatment | Anti-Glare |
| | Touch Enabled | Yes |
| | Contrast Ratio | 1000:1(typ) |
| | Refresh Rate | 60 Hz |
| | Brightness | 250 nits ¹ |
| | Pixel Resolution - Format | 1920 x 1200 (WUXGA) |
| | Backlight | RGB |
| | Pixel Resolution | WLED |
| | Color Gamut Coverage | NTSC 45% |
| | Color Depth | 6+2 |
| | Viewing Angle | UWVA 89/89/89/89 |
| | Low Blue Light | No |
| | Power Consumption (W, EBL@ 150nits max/ 200nits max) | 2.26 (max) / 2.78 (max) |

| | | |
|---|---|-------------------------|
| 13.3 in WUXGA (1920 x 1200) Anti-Glare UWVA WLED+LBL sRGB NB2X 400 eDP 1.4+PSR2 Low-Power 100 bent LCD Panel | Outline Dimensions (W x H x D) | 292.040 x 189.830 (max) |
| | Active Area | 286.040 x 178.780 (typ) |
| | Weight | 185 (max) |
| | Diagonal Size | 13.3 |
| | Surface Treatment | Anti-Glare |
| | Touch Enabled | Yes |
| | Contrast Ratio | 1200:1(typ) |
| | Refresh Rate | 60 Hz |
| | Brightness | 400 nits ¹ |
| | Pixel Resolution - Format | 1920 x 1200 (WUXGA) |
| | Backlight | RGB |
| | Pixel Resolution | WLED |
| | Color Gamut Coverage | sRGB 100% |
| | Color Depth | 8 |
| | Viewing Angle | UWVA 89/89/89/89 |
| | Low Blue Light | Yes |
| | Power Consumption (W, EBL@ 150nits max/ 200nits max) | 1.21 (max) / 1.45 (max) |

STORAGE AND DRIVES

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.

Technical Specifications

| | | |
|---|--------------------------|--------------------------|
| SSD 512GB 2280 PCIe-4x4 NVMe Three Layer Cell | Form Factor | M.2 2280 |
| | Capacity | 512GB |
| | NAND Type | TLC |
| | Interface | PCIe NVMe Gen4X4 |
| | Minimum Sequential Read | 6400 MB/s ? 10% |
| | Minimum Sequential Write | 3500 MB/s ? 10% |
| | Logical Blocks | 1,000,215,215 |
| | Features | Pyrite 2.0; TRIM; L1.2 |
| SSD 1TB 2280 PCIe-4x4 NVMe Three Layer Cell | Form Factor | M.2 2280 |
| | Capacity | 1TB |
| | NAND Type | TLC |
| | Interface | PCIe NVMe Gen4X4 |
| | Minimum Sequential Read | 6400 MB/s ? 10% |
| | Minimum Sequential Write | 5000 MB/s ? 10% |
| | Logical Blocks | 2,000,409,264 |
| | Features | Pyrite 2.0; TRIM; L1.2 |
| SSD 2TB 2280 PCIe-4x4 NVMe Three Layer Cell | Capacity | 2TB |
| | NAND Type | TLC |
| | Interface | PCIe NVMe Gen4X4 |
| | Minimum Sequential Read | 6400 MB/s ? 10% |
| | Minimum Sequential Write | 5000 MB/s ? 10% |
| | Logical Blocks | 4,000,797,360 |
| | Features | Pyrite 2.0; TRIM; L1.2 |
| 256GB PCIe 2280 NVMe Self Encrypted OPAL2 Value Solid State Drive | Capacity | 256GB |
| | NAND Type | TLC |
| | Interface | PCIe NVMe Gen4X4 |
| | Minimum Sequential Read | 2000 MB/s ? 10% |
| | Minimum Sequential Write | 900 MB/s ? 10% |
| | Logical Blocks | 500,118,192 |
| | Features | TCG Opal 2.0; TRIM; L1.2 |
| 512GB PCIe-4x4 2280 NVME Self Encrypted OPAL2 Three Layer Cell Solid State Drive | NAND Type | TLC |
| | Interface | PCIe NVMe Gen4X4 |
| | Minimum Sequential Read | 6400 MB/s ? 10% |
| | Minimum Sequential Write | 3500 MB/s ? 10% |
| | Logical Blocks | 1,000,215,215 |
| | Features | TCG Opal 2.0; TRIM; L1.2 |

Technical Specifications

1TB PCIe-4x4 2280 NVME
Self Encrypted OPAL2
Three Layer Cell Solid
State Drive

| | |
|--------------------------|--------------------------|
| NAND Type | TLC |
| Interface | PCIe NVMe Gen4X4 |
| Minimum Sequential Read | 6400 MB/s ? 10% |
| Minimum Sequential Write | 5000 MB/s ? 10% |
| Logical Blocks | 2,000,409,264 |
| Features | TCG Opal 2.0; TRIM; L1.2 |
| NAND Type | TLC |

SSD 256GB 2280 PCIe
NVMe Value

| | |
|--------------------------|------------------------|
| NAND Type | TLC |
| Interface | PCIe NVMe Gen4X4 |
| Minimum Sequential Read | 2000 MB/s ? 10% |
| Minimum Sequential Write | 900 MB/s ? 10% |
| Logical Blocks | 500,118,192 |
| Features | Pyrite 2.0; TRIM; L1.2 |

SSD 512GB 2280 PCIe
NVMe Value

| | |
|--------------------------|------------------------|
| NAND Type | TLC |
| Interface | PCIe NVMe Gen4X4 |
| Minimum Sequential Read | 2200 MB/s ? 10% |
| Minimum Sequential Write | 1000 MB/s ? 10% |
| Logical Blocks | 1,000,215,215 |
| Features | Pyrite 2.0; TRIM; L1.2 |

NETWORKING/COMMUNICATIONS

Intel? AX211 Wi-Fi 6E +
Bluetooth? 5.3 M.2
160MHz CNVi World-wide
WLAN non-vPro Wireless
Card¹

| | |
|------------------------|--|
| 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 | Wi-Fi certified |
| Frequency Band | <ul style="list-style-type: none">802.11b/g/n/ax 2.402 - 2.482 GHz802.11a/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 5.955 - 6.415 GHz 6.435 - 6.515 GHz 6.535 - 6.875 GHz 6.895 - 7.115 GHz |

Technical Specifications

| | |
|-----------------------------------|---|
| Data Rates | <ul style="list-style-type: none">802.11b: 1, 2, 5.5, 11 Mbps802.11g: 6, 9, 12, 18, 24, 36, 48, 54 Mbps802.11a: 6, 9, 12, 18, 24, 36, 48, 54 Mbps802.11n: max 300Mbps802.11ac : 1733Mbps802.11ax : max 2.4Gbps |
| Modulation | Direct Sequence Spread Spectrum OFDM, BPSK, QPSK, CCK, 16-QAM, 64-QAM, 256-QAM, 1024QAM |
| Security ² | 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 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 ³ | 802.11b : +17dBm minimum 802.11g : +16dBm minimum 802.11a : +17dBm minimum 802.11n HT20(2.4GHz) : +14dBm minimum 802.11n HT40(2.4GHz) : +13dBm minimum 802.11n HT20(5GHz) : +14dBm minimum 802.11n HT40(5GHz) : +13dBm minimum 802.11ac VHT80(5GHz) : +10dBm minimum 802.11ac VHT160(5GHz) : +10dBm minimum 802.11ax HE40(2.4GHz) : +12dBm minimum 802.11ax HE80(5GHz) : +10dBm minimum 802.11ax HE160(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 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(VHT80) : -84dBm maximum 802.11ac, MCS9(VHT80) : -59dBm maximum 802.11ac, MCS9(VHT160) : -58.5dBm maximum 802.11ax, MCS11(HE40): -57dBm maximum 802.11ax, MCS11(HE80): -54dBm maximum 802.11ax, MCS11(HE160): -53.5dBm 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 |
| Dimensions | 1. Type 2230: 2.3 x 22.0 x 30.0 mm |
| Weight | 1. Type 2230: 2.8g |
| Operating Voltage | 3.3v +/- 9% |

Technical Specifications

| | | |
|--|-------------------------------------|--|
| HP Integrated Module with Bluetooth 4.0/4.1/4.2/5.0/5.1/5.2/5.3 Wireless Card | 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 |
| | Bluetooth Specification | 4.0/4.1/4.2/5.0/5.1/5.2/5.3 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. |

1. Wi-Fi 6E requires a Wi-Fi 6E router, sold separately, to function in the 6GHz band. Availability of public wireless access points limited. Wi-Fi 6E is backwards compatible with prior 802.11 specs. And available in countries where Wi-Fi 6E is supported. Wi-Fi 6E 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.
2. Check latest software/driver release for updates on supported security features.
3. The FCC has declared as of September 1, 2014 products that utilize passive scanning on channel 12/13 and are capable of transmitting must fully comply with requirements of 15.247 or otherwise disable those channels.
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).

| | | |
|--|------------------------------------|--|
| Intel? AX211 Wi-Fi 6E +Bluetooth? 5.3 M.2 160MHz CNVi World-Wide WLAN vPro Wireless Card 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 Frequency Band | Wi-Fi certified <ul style="list-style-type: none">802.11b/g/n/ax 2.402 - 2.482 GHz802.11a/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 5.955 - 6.415 GHz 6.435 - 6.515 GHz 6.535 - 6.875 GHz |

Technical Specifications

| | |
|-----------------------------------|---|
| | 6.895 - 7.115 GHz |
| Data Rates | <ul style="list-style-type: none">802.11b: 1, 2, 5.5, 11 Mbps802.11g: 6, 9, 12, 18, 24, 36, 48, 54 Mbps802.11a: 6, 9, 12, 18, 24, 36, 48, 54 Mbps802.11n: max 300Mbps802.11ac : 1733Mbps802.11ax : max 2.4Gbps |
| Modulation | Direct Sequence Spread Spectrum OFDM, BPSK, QPSK, CCK, 16-QAM, 64-QAM, 256-QAM, 1024QAM |
| Security ² | 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 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 ³ | 802.11b : +17dBm minimum 802.11g : +16dBm minimum 802.11a : +17dBm minimum 802.11n HT20(2.4GHz) : +14dBm minimum 802.11n HT40(2.4GHz) : +13dBm minimum 802.11n HT20(5GHz) : +14dBm minimum 802.11n HT40(5GHz) : +13dBm minimum 802.11ac VHT80(5GHz) : +10dBm minimum 802.11ac VHT160(5GHz) : +10dBm minimum 802.11ax HE40(2.4GHz) : +12dBm minimum 802.11ax HE80(5GHz) : +10dBm minimum 802.11ax HE160(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 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(VHT80) : -84dBm maximum 802.11ac, MCS9(VHT80) : -59dBm maximum 802.11ac, MCS9(VHT160) : -58.5dBm maximum 802.11ax, MCS11(HE40): -57dBm maximum 802.11ax, MCS11(HE80): -54dBm maximum 802.11ax, MCS11(HE160): -53.5dBm 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 |
| Dimensions | 1. Type 2230: 2.3 x 22.0 x 30.0 mm |
| Weight | 1. Type 2230: 2.8q |

Technical Specifications

| | |
|---|--|
| Operating Voltage | 3.3v +/- 9% |
| Temperature | Operating14? to 158? F (-10? to 70? C) Non-operating-40? to 176? F (-40? to 80? C) |
| Humidity | Operating10% to 90% (non-condensing) Non-operating5% to 95% (non-condensing) |
| Altitude | Operating0 to 10,000 ft (3,048 m) Non-operating0 to 50,000 ft (15,240 m) |
| LED Activity | LED Amber - Radio OFF; LED OFF - Radio ON |
| HP Integrated Module with Bluetooth 4.0/4.1/4.2/5.0/5.1/5.2/5.3 Wireless Card | |
| Bluetooth Specification | 4.0/4.1/4.2/5.0/5.1/5.2/5.3 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) |

1. Wi-Fi 6E requires a Wi-Fi 6E router, sold separately, to function in the 6GHz band. Availability of public wireless access points limited. Wi-Fi 6E is backwards compatible with prior 802.11 specs. And available in countries where Wi-Fi 6E is supported. Wi-Fi 6E 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.
2. Check latest software/driver release for updates on supported security features.
3. The FCC has declared as of September 1, 2014 products that utilize passive scanning on channel 12/13 and are capable of transmitting must fully comply with requirements of 15.247 or otherwise disable those channels.
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).

| | | |
|--------------------------------------|----------------------------|--|
| Intel? 5G Solution 5000 ¹ | Technology/Operating bands | WCDMA/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 8: 880 to 915 MHz (UL), 925 to 960 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) 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) |
|--------------------------------------|----------------------------|--|

Technical Specifications

| | |
|--|---|
| | 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 43: 3400 to 3800 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) n20: 832 to 862 MHz (UL), 791 to 821 MHz (DL) n25: 1850 to 1915 MHz (UL), 1930 to 1995 MHz (DL) n28: 703 to 748 MHz (UL), 758 to 803 MHz (DL) n38: 2570 to 2620 MHz (UL/DL) n40: 2300 to 2400 MHz (UL/DL) n41: 2496 to 2690 MHz (UL/DL) n48: 3550 to 3700 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) 5GNR Air Interface 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 Standalone, A-GPS (MS-A, MS-B) GPS: L1 (1575.42MHz) GLONASS: L1 (1602MHz) BeidouB1(1561.098MHz) Galileo E1 (1575.42) QZSS(1575.42 MHz) |
| Wireless protocol standards | SA 5G/NR sub-6 Peak: DL4.67Gbps/ UL 1.25Gbps 5G NSA sub 6G : DL: 3.8 Gbps/UL 700Mbps LTE: ue-CategoryDL 19, (DL : 1.6 Gbps) ue-CategoryUL 18 , (UL: 211Mbps) |
| GPS | DC-HSPA+: 42 Mbps (Download), 11.5 Mbps (Upload) |
| GPS bands | LTE: 23 dBm in all band except B41 LTE B41 HPUE = 26dBm NR: 23 dBm in all band except n41, n77, n78 and n79 LTE n41, n77, n78 and n79 HPUE = 26dBm HSPA+: 23.5 dBm 5G Sub 6 : 2500 mA LTE: 1,300 mA (peak); 1100 mA (average) HSPA+: 1,100 mA (peak); 800 mA (average) |
| Maximum data rates | M.2, 3052-S3 Key B |
| Maximum output power | 8 g |
| Maximum power consumption | Dimensions (Length x Width x Thickness) |
| Form Factor | 52 mm ? 30 mm ? 2.3 mm |
| Weight | eSIM |
| Dimensions (Length x Width x Thickness) | Support |
| eSIM | |

Technical Specifications

1. Intel® 5G module is optional and must be configured at the factory. Module designed for 5G SA (standalone), and 5G NR NSA (non-standalone) 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 as defined by 3GPP. Module requires activation and separately purchased service contract. Check with service provider for coverage and availability in your area. Data connection, upload and download speeds will vary due to network, location, environment, network conditions, and other factors. Backwards compatible to 4G LTE and 3G HSPA technologies. 5G module planned to be available in select platforms and select countries, where carrier supported.

| | | |
|---|---|---|
| Intel® XMM™ 7560 R+ LTE-Advanced Pro ¹ | 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), 600 (band 71). TDD LTE: 2100 (Band 34), 2600 (Band 38), 1900 (Band 39), 2400 (Band 40), 2500 (Band 41), 3500 (Band 42), 3700 (Band 43), 3700 (band 48), 5200 (Band 46 RX only) MHz; 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.13 40MHz throughput up to 150Mbps WCDMA R99, 3GPP Release 5, 6, 7 and 8 UMTS Specification |
| | GPS | Standalone GPS/Beidou/Glonass, 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), 150 Mbps (Upload) DC-HSPA+: 42 Mbps (Download), 5.76 Mbps (Upload) HSPA+: 21Mbps (Download), 5.76 Mbps (Upload) |
| | 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.

Technical Specifications

| | | |
|----------------|---|--|
| NFC NXP NPC300 | Dimensions (L x W x H) | 17x10x2.0 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 | 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 | 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. |

POWER

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

Technical Specifications

| | | |
|--|---|---|
| AC Adapter 45 Watt nPFC Standard USB Type C? Straight 1.8m | Dimensions (H x W x D) | 3.701 x 1.693 x 1.071 in (9.4 x 4.3 x 2.72 cm) |
| | Weight | 0.44 lb (200 g) max (Not including power cord. Power cord varies by country.) |
| | Input | 100~240VAC |
| | Input Efficiency | Average Efficiency of 25%, 50%, 75%, 100% load condition with 115Vac/230Vac Spec: 5V: 81.5% 9V: 86.7% 12V: 87.4% 15V: 87.8% |
| | Input frequency range | 47 ~ 63Hz |
| | Input AC current | Max. 1.4 A at 90 Vac |
| | Output | Output power 5V/15W 9V/27W 12V/36W 15V/45W |
| | DC output | 5V/9V/12V/15V |
| | Hold-up time | 100% load 5ms at 115 Vac input |
| | Output current limit | <5.0A |
| 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 | 20% to 95% |
| EMI and Safety Certifications | Storage Humidity | 10% to 95% |
| | CE Mark - full compliance with LVD and EMC directives | |
| | Worldwide safety standards - IEC60950-1 and IEC62368-1 : 2018, EN62368-1:2014+A11, UL62368-1 | |
| | Agency approvals - C-UL-US, TUV/GS, TUV/PSE, EN55032 Class B, FCC Class B, CISPR32 Class B, CCC and CECP, CU(EAC), EAEU, KCC (Safety+EMC) and K-MEPS, NOM-001 and 029 NYCE, NRcan, NRCS, ISC, SEC, PSB, Argentina S-mark, Australia RCM, BIS, BSMI, UAE, UKCA DoC, USB-IF, Ukraine (CoC+DoC+RoHS+ECO) | |

Technical Specifications

| | | | | |
|--|-------------------------------|-----------------------|--|-----------------------------|
| AC Adapter 65 Watt nPFC Standard USB Type C? Straight 1.8m | Dimensions (H x W x D) | | 3.543 x 2.008 x 1.122 in (9.0 x 5.1 x 2.85 cm) | |
| | Weight | | 0.53 lb (240 g) max (Not including power cord. Power cord varies by country.) | |
| | Input | 100-240Vac | | |
| | | Input Efficiency | Average Efficiency of 25%, 50%, 75%, 100% load condition with 115Vac/230Vac Spec: 5V : 81.5% 9V : 86.7% 12V : 88.0% 15V : 89.0% 20V : 89.0% | |
| | Output | Input frequency range | 47-63Hz | |
| | | Input AC current | Max. 1.6 A at 90 Vac | |
| | | Output power | 5V/15W 9V/27W 12V/60W 15V/65W 20V/65W | |
| | | DC output | 5V/9V/12V/15V/20V | |
| | | Hold-up time | 100% load 5ms at 115 Vac input | |
| | | Output current limit | < 8.0A | |
| | | Connector | USB Type-C? | |
| | | Environmental Design | Operating temperature | 32°F to 95°F (0°to 35°C) |
| | | | Non-operating (storage) temperature | -4°F to 185°F (-20°to 85°C) |
| | | | Altitude | 0 to 16,400 ft (0 to 5000m) |
| | Humidity | | 20% to 95% | |
| | Storage Humidity | | 10% to 95% | |
| | EMI and Safety Certifications | | CE Mark - full compliance with LVD and EMC directives Worldwide safety standards - IEC60950-1 and IEC62368-1 : 2018, EN62368-1:2014+A11, UL 62368-1 Agency approvals - C-UL-US, TUV/GS, TUV/PSE, EN55032 Class B, FCC Class B, CISPR32 Class B, CCC and CECP, CU(EAC), EAEU, KCC(Safety+EMC) and K-MEPS, NOM-001 and 029 NYCE, NRcan, NRCS, ISC, SEC, PSB, Argentina S-mark, Australia RCM, BIS, BSMI, UAE, UKCA DoC | |

Technical Specifications

| | | |
|--|-------------------------------------|--|
| HP 65W Slim USB-C? Straight AC Power Adapter | Dimensions (H x W x D) | 3.819 x 2.106 x 0.827 in (9.7x5.35x2.1cm) |
| | Weight | 0.49 lb (220 g) max (Not including power cord. Power cord varies by country.) |
| | Input | 100-240Vac |
| | Input Efficiency | Average Efficiency of 25%, 50%, 75%, 100% load condition with 115Vac/230Vac Spec: 5V : 81.5% 9V : 86.7% 12V : 88.0% 15V : 89.0% 20V : 89.0% |
| | Input frequency range | 47-63Hz |
| | Input AC current | Max. 1.6 A at 90 Vac |
| | Output | Output power 5V/15W 9V/27W 12V/60W 15V/65W 20V/65W |
| | DC output | 5V/9V/12V/15V/20V |
| | Hold-up time | 100% load 5ms at 115 Vac input |
| | Output current limit | < 8.0A |
| Connector | USB TYPE C? | |
| Environmental Design | Operating temperature | 32°F to 95°F (0°to 35°C) |
| | Non-operating (storage) temperature | -4°F to 185°F (-20°to 85°C) |
| | Altitude | 0 to 16,400 ft (0 to 5000m) |
| | Humidity | 20% to 95% |
| | Storage Humidity | 10% to 95% |
| EMI and Safety Certifications | | CE Mark - full compliance with LVD and EMC directives Worldwide safety standards - IEC60950-1 and IEC62368-1 : 2018, EN62368-1:2014+A11, UL 62368-1 Agency approvals - C-UL-US, TUV/GS, TUV/PSE, EN55032 Class B, FCC Class B, CISPR32 Class B, CCC and CECP, CU(EAC), EAEU, KCC(Safety+EMC) and K-MEPS, NOM-001 and 029 NYCE, NRcan, NRCS, ISC, SEC, PSB, Argentina S-mark, Australia RCM, BIS, BSMI, UAE, UKCA DoC |

| | | |
|---|-------------|--|
| HP 3-cell Long Life Li-Ion (WP 38Wh) ¹ | Weight | 0.184kg +/- 10g (0.406lb) |
| | Cells/Type | 3cell Lithium-Ion Polymer cell / 564975 |
| | Energy | Voltage 11.58V |
| | | Amp-hour capacity 3.283Ah |
| | | Watt-hour capacity ¹ 38Wh |
| | Temperature | Operating (Charging) 32° to 113° F (0° to 45° C) |
| | | Operating (Discharging) 14° to 140° F (-10° to 60° C) |
| | | 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

Technical Specifications

| | | | |
|---|-------------|---|-------------------------------|
| HP 3-cell Long Life Li-Ion (WQ 38Wh) ¹ | Weight | 0.178kg +/- 10g(0.392lb) | |
| | Cells/Type | 3cell Lithium-Ion Polymer cell / 604975 | |
| | Energy | Voltage | 11.55V |
| | | Amp-hour capacity | 3.291Ah |
| | | Watt-hour capacity ¹ | 38Wh |
| | Temperature | Operating (Charging) | 32° to 113° F (0° to 45° C) |
| | | Operating (Discharging) | 14° to 140° F (-10° to 60° C) |
| | | 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

| | | | | |
|---|-------------|---|-------------------------------|--|
| HP 3-cell Long Life Li-Ion (51 Wh) ¹ | Weight | 0.229kg +/- 10g (0.505 lb) | | |
| | Cells/Type | 3cell Lithium-Ion Polymer cell / 566075 | | |
| | Energy | Voltage | 11.58V | |
| | | Amp-hour capacity | 4.431Ah | |
| | | Watt-hour capacity ¹ | 51.3Wh | |
| | Temperature | Operating (Charging) | 32° to 113° F (0° to 45° C) | |
| | | Operating (Discharging) | 14° to 140° F (-10° to 60° C) | |
| | | 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

| | |
|----------------------------|--|
| AUDIO | |
| HD Stereo Codec | Realtek ALC3315 |
| Audio I/O Ports | Headset: CTIA only and Headphone-out |
| Internal Speaker Amplifier | Cirrus Logic High-Efficiency Boosted Class D Amplifier |
| Multi-streaming Capable | Playback multi-streaming can be enabled in the audio control panel to allow independent audio. |
| Sampling | Following MSFT Behavior |
| | DAC:48kHz |
| | ADC:48kHz |
| Wavetable Syntheses | N/A |
| Analog Audio | Support 3.5mm Headset: CTIA only and Headphone-out |
| # of Channels on Line-Out | N/A |
| Internal Speaker | Yes |

FINGERPRINT READER

Technical Specifications

| | |
|-----------------------------|---|
| Sensor vendor | Main source: Synaptics FS7605 2nd source: ELAN 80SW |
| Sensor type | Capacitive |
| DPI resolution | Main source: 363 DPI 2nd source: 508 DPI |
| Scan area | Main source: 104 x 86 pixels 2nd source: 80x80 pixels |
| False Rejection Rate | FRR=? 3% |
| False Acceptance Rate | Main source: FAR 1/100K 2nd source: < 0.001% |
| Mobile Voltage Operation | Main source: 3.0V to 3.6V 2nd source: 2.7V~3.6V |
| Operating Temperature | Main source: 0°C~60°C 2nd source: -20°C - +80°C |
| Current Consumption Image | Main source: 100mA max 2nd source: 35mA peak |
| Low Latency Wait For Finger | Main source: 260uA 2nd source: 300uA |
| Capture Rate | Main source: Image transmitter output frequency 9.6MHz 2nd source: 50 frame/sec |
| ESD Resistance | IEC 61000-4-2 4B (+15KV) |
| Detection Matrix | Main source: 363 dpi / 7.4x6mm sensor area 2nd source: 508 dpi / 4x4mm sensor area |

ENVIRONMENTAL DATA

| | | | |
|---|---|--------------|--------------|
| Eco-Label Certifications & declarations | This product has received or is in the process of being certified to the following approvals and may be labeled with one or more of these marks: <ul style="list-style-type: none">IT ECO declarationUS ENERGY STAR?US Federal Energy Management Program (FEMP)EPEAT? Gold registered in the United States. See http://www.epeat.net for registration status in your country.TCO CertifiedChina Energy Conservation Program (CECP)China State Environmental Protection Administration (SEPA)Taiwan Green MarkKorea Eco-labelJapan PC Green label* | | |
| Sustainable Impact Specifications | <ul style="list-style-type: none">Product Carbon Footprint (hp.com)Ocean-bound plastic in Speaker59.4% post-consumer recycled plastic79.3% recycled metalLow halogenOutside Box and corrugated cushions are 100% sustainably sourced and recyclableMolded Paper Pulp Cushion inside box is 100% sustainably sourced and recyclableBulk packaging available | | |
| 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, 50Hz |
| Normal Operation (Sort idle) | 4.33 W | 4.66 W | 4.44 W |

Technical Specifications

| | | | |
|--|---|--|---------------------|
| Normal Operation (Long idle) | 0.98 W | 1.16 W | 1.02 W |
| Sleep | 0.98 W | 1.16 W | 1.02 W |
| Off | 0.41 W | 0.44 W | 0.41 W |
| | NOTE: Energy efficiency data listed is for an ENERGY STAR? compliant product if offered within the model family. HP computers marked with the ENERGY STAR? Logo are compliant with the applicable U.S. Environmental Protection Agency (EPA) ENERGY STAR? specifications for computers. If a model family does not offer ENERGY STAR? compliant configurations, then energy efficiency data listed is for a typically configured PC featuring a hard disk drive, a high efficiency power supply, and a Microsoft Windows? operating system. | | |
| Heat Dissipation* | 115VAC, 60Hz | 230VAC, 50Hz | 100VAC, 50Hz |
| Normal Operation (Short idle) | 14.8 BTU/hr | 15.9 BTU/hr | 15.2 BTU/hr |
| Normal Operation (Long idle) | 3.4 BTU/hr | 4.0 BTU/hr | 3.5 BTU/hr |
| Sleep | 3.4 BTU/hr | 4.0 BTU/hr | 3.5 BTU/hr |
| Off | 1.4 BTU/hr | 1.5 BTU/hr | 1.4 BTU/hr |
| | *NOTE: Heat dissipation is calculated based on the measured watts, assuming the service level is attained for one hour. | | |
| Declared Noise Emissions (in accordance with ISO 7779 and ISO 9296) | Sound Power (L _{WAd} , bels) | Sound Pressure (L _{pAm} , decibels) | |
| Typically Configured - Idle | 3.4 | 24.4 | |
| Fixed Disk - Random writes | 4.1 | 31.4 | |
| Optical Drive - Sequential reads | 3.9 | 30.1 | |
| Longevity and Upgrading | This product can be upgraded, possibly extending its useful life by several years. Upgradeable features and/or components contained in the | | |
| | Spare parts are available throughout the warranty period and or for up to "5"? years after the end of production. | | |
| 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 www.epeat.net• Plastics parts weighing over 25 grams used in the product are marked per ISO11469 and ISO1043.• This product is 93.8% recycle-able when properly disposed of at end of life. | | |
| Packaging Materials | External: | PAPER/Corrugated | 220 g |
| | | PAPER/Corrugated | 41 g |
| | | PAPER/Molded Pulp | 54 g |
| | | PAPER/Molded Pulp | 62 g |
| | | PAPER/Paper | 3 g |

Technical Specifications

| | | | | | | | | | | |
|--|--|------------------|---|------|---|--|--|--|--|--|
| | <table><tr><td>Internal:</td><td>PLASTIC/Polyethylene low density - LDPE</td><td>14 g</td></tr><tr><td colspan="3">The plastic packaging material contains at least 0.0% recycled content.</td></tr><tr><td colspan="3">The corrugated paper packaging materials contains at least 56.5% recycled content.</td></tr></table> | Internal: | PLASTIC/Polyethylene low density - LDPE | 14 g | The plastic packaging material contains at least 0.0% recycled content. | | | The corrugated paper packaging materials contains at least 56.5% recycled content. | | |
| Internal: | PLASTIC/Polyethylene low density - LDPE | 14 g | | | | | | | | |
| The plastic packaging material contains at least 0.0% recycled content. | | | | | | | | | | |
| The corrugated paper packaging materials contains at least 56.5% recycled content. | | | | | | | | | | |
| RoHS Compliance | <p>HP Inc. complies fully with materials regulations. We were among the first companies to extend the restrictions in the European Union (EU) Restriction of Hazardous Substances (RoHS) Directive to our products worldwide through the HP GSE. HP has contributed to the development of related legislation in Europe, as well as China, India, and Vietnam.</p> <p>We believe the RoHS directive and similar laws play an important role in promoting industry-wide elimination of substances of concern. We have supported the inclusion of additional substances-including PVC, BFRs, and certain phthalates-in future RoHS legislation that pertains to electrical and electronics products.</p> <p>We met our voluntary objective to achieve worldwide compliance with the new EU RoHS requirements for virtually all relevant products by July 2013, and we will continue to extend the scope of the commitment to include further restricted substances as regulations continue to evolve.</p> <p>To obtain a copy of the HP RoHS Compliance Statement, see HP RoHS position statement.</p> | | | | | | | | | |
| 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/supplychain/gen_specifications.html):</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• Bis(2-Ethylhexyl) phthalate (DEHP)• Benzyl butyl phthalate (BBP)• Dibutyl phthalate (DBP)• Diisobutyl phthalate (DIBP)• 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) | | | | | | | | | |
| 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. | | | | | | | | | |

Technical Specifications

| | |
|--|---|
| | <ul style="list-style-type: none">• 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 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</p> <p>http://www.hp.com/hpinfo/globalcitizenship/gcreport/index.html</p> <p>Eco-label certifications</p> <p>http://www8.hp.com/us/en/hp-information/environment/ecolabels.html</p> <p>ISO 14001 certificates:</p> <p>http://h20195.www2.hp.com/V2/GetDocument.aspx?docname=c04755842 and http://www.hp.com/hpinfo/globalcitizenship/environment/pdf/cert.pdf</p> |
| footnotes | <ul style="list-style-type: none">• Percentage of ocean-bound plastic contained in each component varies by product• Recycled plastic content percentage is based on the definition set in the IEEE 1680.1-2018 standard.• External power supplies, WWAN modules, power cords, cables and peripherals excluded.• 100% outer box packaging and corrugated cushions made from sustainably sourced certified and recycled fibers.• Fiber cushions made from 100% recycled wood fiber and organic materials.• Plastic cushions are made from >90% recycled plastic.\• Recycled metal is expressed as a percentage of the total weight of the metal according to ISO 14021 definitions for metal parts over 25 grams. |

COUNTRY OF ORIGIN

China

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

DOCKING (Sold Separately)

| | |
|---|--|
| Docking station model #1 | HP Thunderbolt 120W G4 Dock |
| Total number of supported displays (incl. the notebook display) | 4 |
| Max. resolutions supported | Quad 4K @60Hz Dual 8K single cable@30 for TB hosts or USB-C hosts DP 1.4 with DSC in high res mode |
| Dock Connectors | 2xDP, 1xHDMI, 1xTB, 1xUSB-C Alt Mode |
| Technical limitations | Maximum resolution and display support is dependent on the maximum capability of the notebook. Thunderbolt Hosts: Maximum of (4) displays with maximum resolution of 5K@ 30Hz running Thunderbolt host. Maximum resolution possible is dual 8K displays @ 60Hz running Thunderbolt host or running a non-Thunderbolt host in high resolution mode @30Hz Non-Thunderbolt hosts: The highest resolution for dual displays running a non-Thunderbolt host in multi-function mode is (1) 5K dual cable (using both DP ports) +(1) 4K on USB-C DP port Non-Thunderbolt hosts support (3) displays with a maximum resolution of (2) 5K single cable + (1) 4K UHD @ 60 Hz in high resolution mode. In multi-function mode the maximum resolution for (3) displays is (2) 5K single cable @ 30Hz + (1) 4K UHD @ 30Hz. |
| Docking station model #2 | HP Thunderbolt 280W G4 Dock |
| Total number of supported displays (incl. the notebook display) | 4 |
| Max. resolutions supported | Quad 4K @60Hz Dual 8K single cable@30 for TB hosts or USB-C hosts DP 1.4 with DSC in high res mode |
| Dock Connectors | 2xDP, 1xHDMI, 1xTB, 1xUSB-C Alt Mode |
| Technical limitations | Maximum resolution and display support is dependent on the maximum capability of the notebook. Thunderbolt Hosts: Maximum of (4) displays with maximum resolution of 5K@ 30Hz running Thunderbolt host. Maximum resolution possible is dual 8K displays @ 60Hz running Thunderbolt host or running a non-Thunderbolt host in high resolution mode @30Hz Non-Thunderbolt hosts: The highest resolution for dual displays running a non-Thunderbolt host in multi-function mode is (1) 5K dual cable (using both DP ports) +(1) 4K on USB-C DP port Non-Thunderbolt hosts support (3) displays with a maximum resolution of (2) 5K single cable + (1) 4K UHD @ 60 Hz in high resolution mode. In multi-function mode the maximum resolution for (3) displays is (2) 5K single cable @ 30Hz + (1) 4K UHD @ 30Hz. |
| Docking station model #3 | HP USB-C Dock G5 |
| Total number of supported displays (incl. the notebook display) | 3 |
| Max. resolutions supported | Dual 5K@ 30Hz + (1) 4K UHD (multi-function mode) |
| Dock Connectors | 1xHDMI, 2xDP |
| Technical limitations | Maximum resolution and display support is dependent on the maximum capability of the notebook. Highest resolution with dual displays is two 8K@ 60Hz host in High Resolution mode. Three maximum displays supported are two 5K@ 30 Hz on DP ports plus one 4K UHD@ 30 Hz on HDMI in Multi-function mode The highest resolution for a non-Thunderbolt host in Multi-function mode is a single 5K dual cable (using both DP ports) + (1) 4K on HDMI port. |

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

| | |
|---|---|
| Docking station model #4 | HP USB-C/A Universal Dock G2 |
| Total number of supported displays (incl. the notebook display) | 3 |
| Max. resolutions supported | Dual 4K @ 60Hz Single 5K @ 60Hz |
| Dock Connectors | 1xHDMI, 2xDP |
| Technical limitations | Maximum resolution and display support is dependent on the maximum capability of the notebook. The best resolution for dual or triple displays is 4K UHD@ 60Hz. For use with the USB-A adapter that comes in the box the maximum number of displays supported is (2) 4k x 60 Hz on the Type-A Gen 1 connection from the host. |

| Type | Description | Part Number |
|-------------|--|-------------|
| Audio | HP Wired USB-A Stereo Headset | 428K6AA |
| | HP Wired 3.5mm Stereo Headset | 428K7AA |
| | HP 365 BT Speaker | 567D3AA#ACJ |
| Video | HP 325 FHD USB-A Webcam | 53X27AA |
| | HP 965 4K USB-A STR Webcam | 695J5AA |
| Cases | HP Prelude G2 15.6 Backpack | 1E7D6AA |
| | HP Prelude G2 15.6 Top Load | 1E7D7AA |
| | HP Prelude Pro Recycled 15.6 Backpack | 1X644AA |
| | HP Prelude Pro Recycled 15.6 Top Load | 1X645AA |
| | HP Renew 14 Laptop Sleeve | 2E6U9AA |
| | HP Renew Business 14.1 Laptop Bag | 3E5F9AA |
| | HP Renew Business 14.1 Laptop Sleeve | 3E2U7AA |
| | HP Renew Business 15.6 Laptop Bag | 3E5F8AA |
| | HP Renew Business 17.3 Laptop Backpack | 3E2U5AA |
| | HP Renew Business 17.3 Laptop Bag | 3E2U6AA |
| | HP Renew Executive 14.1 Laptop Sleeve | 6B8Y3AA |
| | HP Renew Executive 16 Laptop Backpack | 6B8Y1AA |
| | HP Renew Executive 16 Laptop Bag | 6B8Y2AA |
| | HP Reversible 13.3 Sleeve | 7ZE82AA |
| | HP Travel 18L 15.6 Iron Gray Laptop Backpack | 6H2D9AA |
| | HP Travel 25L 15.6 Iron Gray Laptop Backpack | 6H2D8AA |
| Digital Pen | HP Active RECHBL G3 Moonracer 2.0 Pen | 6SG43AA |
| Docking | HP USB-C 120W G5 Dock | 5TW10AA |
| | HP USB-C/A 120W G2 Universal Dock | 5TW13AA |
| | HP Thunderbolt 120W G4 Dock | 4J0A2AA |
| | HP Thunderbolt 280W G4 Dock | 4J0G4AA |
| Hub | HP 4K USB-C Multiport Hub | 6G842AA |
| | HP Universal USB-C Multiport Hub | 50H55AA |
| | HP USB-C Travel Dock G2 | 7PJ38AA |
| | HP USB-C to USB-A Hub | Z6A00AA |
| Adapter | HP USB-C to RJ45 Adapter G2 | 4Z527AA |
| | HP USB 3.0 to Giqabit RJ45 Adapter G2 | 4Z7Z7AA |

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

| | | |
|----------------|--|-------------|
| | HP HDMI to VGA Adapter | H4F02AA |
| | HP USB-C to DisplayPort Adapter | N9K78AA |
| | HP USB-C to HDMI 2.0 Adapter | 1WC36AA |
| | HP USB-C to USB 3.0 Adapter | N2Z63AA |
| | HP USB-C to VGA Adapter | N9K76AA |
| Keyboard/Combo | HP 125 WD USB Keyboard | 266C9AA |
| | HP 320K WD USB Keyboard | 9SR37AA |
| | HP 355 Compact Multi-Device BT Keyboard | 692S9AA |
| | HP 455 Programmable Wireless Keyboard | 4R177AA |
| | HP 975 USB+BT Dual-Mode Wireless Keyboard | 3Z726AA |
| | HP 155 Wired Mouse and Keyboard Combo | 5B8C0AA#ACJ |
| | HP 225 Antimicrobial Wired Mouse and Keyboard Combo | 286K3AA#AB2 |
| | HP 225 Wired Mouse and Keyboard Combo | 286J4AA |
| | HP 235 Wireless Mouse and Keyboard Combo | 1Y4D0AA |
| | HP 655 Wireless Keyboard and Mouse Combo | 4R009AA |
| | HP Wired Desktop 320MK Mouse and Keyboard | 9SR36AA |
| | HP Wireless Rechargeable 950MK Mouse and Keyboard | 3M165AA |
| Mouse | HP 125 USB-A Wired Mouse | 265A9AA |
| | HP 128 USB Laser Wired Mouse | 265D9AA |
| | HP 155 USB-A Wired Mouse | 5B8B7AA#ACJ |
| | HP 235 Wireless 2.4GHz Slim Wireless Mouse | 4E407AA |
| | HP 320M USB-A Wired Mouse | 9VA80AA |
| | HP 435 Bluetooth 5.0 + Wireless 2.4GHz Multi-Device Wireless Mouse | 3B4Q5AA |
| | HP 715 Rechargeable Multi-Device Bluetooth 5.0 + Wireless 2.4GHz Bluetooth Mouse | 6E6F0AA |
| | HP 925 Ergonomic Vertical Bluetooth 5.0 + Wireless 2.4GHz Wireless Mouse | 6H1A5AA |
| | HP Creator USB-A+Bluetooth 935 Wireless Mouse Black | 1D0K8AA |
| | HP USB Premium Wireless Mouse | 1JR31AA |
| | HP USB-A+Bluetooth Multi-Device 635 Wireless Mouse Black | 1D0K2AA |
| | HP USB-A+Bluetooth Travel Bluetooth Mouse | 6SP30AA |
| Power | HP 45W USB-C LC Dali AC Power Adapter | 1MZ01AA |
| | HP 65W GaN USB-C Laptop Charger | 600Q7AA |
| | HP 65W USB-C Laptop Charger | 671R3AA |
| | HP 65W USB-C LC AC Power Adapter | 1P3K6AA |
| Commodity | HP USB DVD-Writer EXT ODD | F2B56AA |
| | HP Nano Keyed Cable Lock | 1AJ39AA |
| | HP Nano Master Keyed Cable Lock | 1AJ40AA |
| | HP SureKey Standard/Nano/Wedge Cable Lock | 6UW42AA |
| | HP Combination Nano Cable Lock | 63B28AA |
| | HP Essential Combination Nano Cable Lock | 63B31AA |

Change Log

| Date of change: | Version History: | | Description of change: |
|-------------------|------------------|------------|--|
| March 30, 2023 | V1 to V2 | Updated | LPDDR5 memory speed, added Environmental Data and Battery Life |
| April 6, 2023 | V2 to V3 | Updated | DisplayPort™ in Display section |
| April 11, 2023 | V3 to V4 | Updated | Integrated Graphics |
| May 9, 2023 | V4 to V5 | Updated | Product weight in Weight and Dimensions section |
| June 5, 2023 | V5 to V6 | Updated | Storage and Drives section |
| June 30, 2023 | V6 to V7 | Updated | Environmental Data |
| July 12, 2023 | V7 to V8 | Added | Memory in Memory section |
| August 2, 2023 | V8 to V9 | Updated | Environmental Data and Memory section |
| August 14, 2023 | V9 to V10 | Updated | Graphics section |
| August 18, 2023 | V10 to V11 | Updated | Networking section |
| October 11, 2023 | V11 to V12 | Updated | Panel Color Depth in Displays section |
| November 2, 2023 | V12 to V13 | Updated | Storage and Drives section |
| February 1, 2024 | V13 to V14 | Update | Display Section |
| February 19, 2024 | V14 to V15 | Added | Power Section |
| February 21, 2024 | V15 to V16 | Removed | Intel® Iris® X? Graphics Disclaimer |
| February 27, 2024 | V16 to V17 | Updated | At a Glance and TPM Section |
| April 12, 2024 | V17 to V18 | Added | Memory Slot |
| April 26, 2024 | V18 to V19 | Correction | MT/s units to memory speeds |

? Copyright 2024 HP Development Company, L.P. The information contained herein is subject to change without notice. The only warranties for HP products and services are set forth in the express warranty statements accompanying such products and services. Nothing herein should be construed as constituting an additional warranty. HP shall not be liable for technical or editorial errors or omissions contained herein.

Intel, Core, Thunderbolt and Intel vPro are trademarks or registered trademarks of Intel Corporation or its subsidiaries in the United States and other countries. DisplayPort™ and the DisplayPort™ logo are trademarks owned by the Video Electronics Standards Association (VESA?) in the United States and other countries. USB Type-C? and USB-C? are trademarks of USB Implementers Forum. ENERGY STAR is a registered trademark of the U.S. Environmental Protection Agency. Microsoft and Windows are either registered trademarks or trademarks of Microsoft Corporation in the United States and/or other countries.