

HP EliteBook X G2a 14 inch Notebook Next Gen AI PC

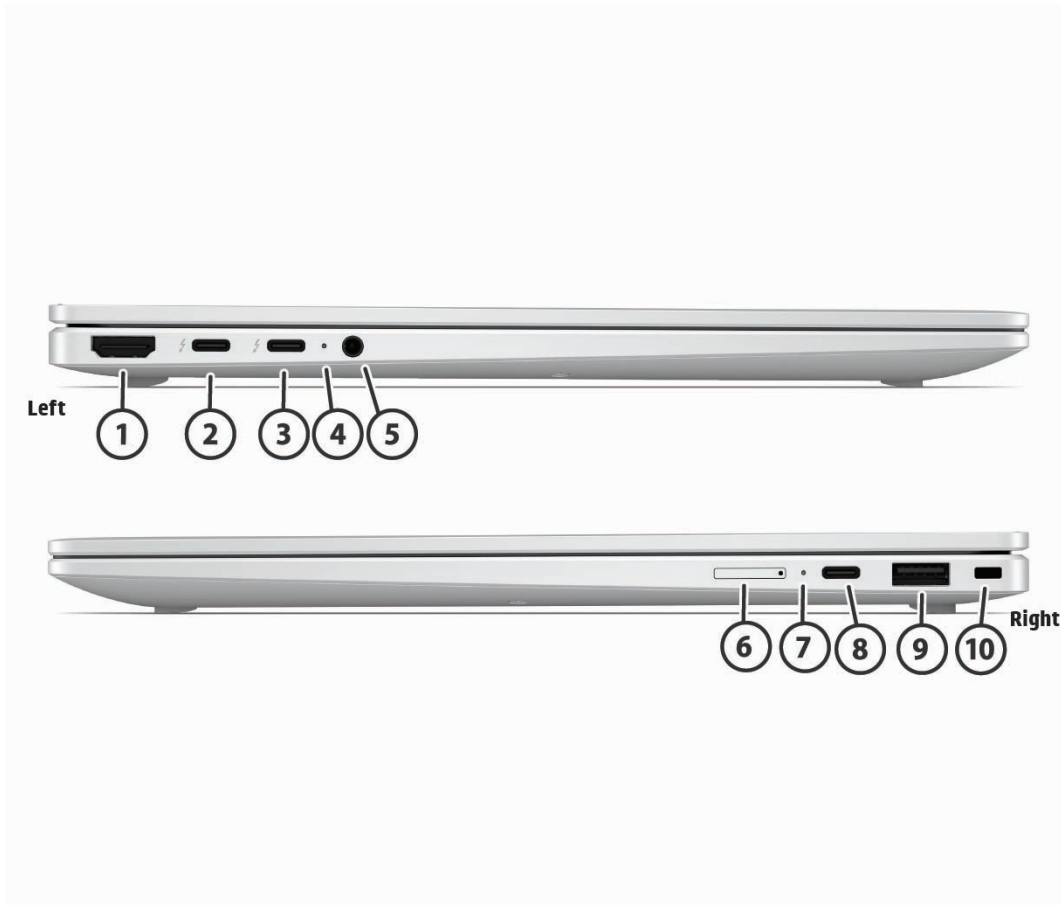


Also available in
Atmospheric Blue



Front

- | | | | |
|---|-------------------------|---|----------------|
| 1 | Internal Microphone (2) | 4 | Camera Shutter |
| 2 | Webcam LED | 5 | Touchpad |
| 3 | Webcam | | |



Sides

1	HDMI 2.1	6	Nano SIM card slot (optional)
2	Thunderbolt™ 4 with USB Type-C® 40Gbps signaling rate (USB Power Delivery, DisplayPort™ 2.1)¹	7	Power Indicator LED
3	Thunderbolt™ 4 with USB Type-C® 40Gbps signaling rate (USB Power Delivery, DisplayPort™ 2.1)¹	8	USB Type-C® 10Gbps signaling rate (USB Power Delivery, DisplayPort™ 2.1)
4	Power Indicator LED	9	USB Type-A 5Gbps signaling rate (Powered)
5	Headphone/mic combo jack	10	Nano Security Slot

1. USB 20Gbps signaling rate is not available with Thunderbolt™ 4. Actual throughput may vary.

PRODUCT NAME

HP EliteBook X G2a 14 inch Notebook Next Gen AI PC



OPERATING SYSTEM

Preinstalled

Windows 11 Pro¹

Windows 11 Home - HP recommends Windows 11 Pro for business¹

Windows 11 Home Single Language - HP recommends Windows 11 Pro for business¹

Windows 11 Pro (Windows 11 Enterprise available with a Volume Licensing Agreement)¹

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>



PROCESSORS

Processor ^{2,3,4,5}	Cores	Threads	L3 Cache	Max Boost Frequency	Base Frequency	Pro	Integrated Graphic	NPU
AMD Ryzen™ AI 9 HX PRO 470 processor	12 cores	24	24 MB	5.20 GHz	2.00 GHz	X	AMD Radeon™ 890M	55 TOPS
AMD Ryzen™ AI 7 PRO 450 processor	8 cores	16	16 MB	5.10 GHz	2.00 GHz	X	AMD Radeon™ 860M	50 TOPS
AMD Ryzen™ AI 5 PRO 440 processor	6 cores	12	16 MB	4.80 GHz	2.00 GHz	X	AMD Radeon™ 840M	50 TOPS
AMD Ryzen™ AI 5 435 processor	6 cores	12	8 MB	4.50 GHz	2.00 GHz		AMD Radeon™ 840M	50 TOPS

Processor Family

AMD Ryzen™ AI 9 HX PRO processor

AMD Ryzen™ AI 7 PRO processor

AMD Ryzen™ AI 5 PRO processor

AMD Ryzen™ AI 5 processor

2. Multicore is designed to improve performance of certain 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. AMD numbering, branding, naming are not a measurement of clock speed.

3. AMD Max Boost frequency performance varies depending on hardware, software and overall system configuration.

4. Features and software that require a NPU may require software purchase, subscription or enablement by a software or platform provider, and third party software may have specific configuration or compatibility requirements. Potential NPU inferencing performance varies by use, configuration, and other factors.



5. 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>



GRAPHICS

Integrated

AMD Radeon™ Graphics

Supported protocols

Support DirectX® 12, HDCP 2.3, HDMI 2.1 (up to 4K 120Hz SDR)

Display supported (including internal display; dock may be required) up to 4

Codec

Hardware Acceleration HEVC (H.265) CODEC is supported



DISPLAY

Availability may vary by country.

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

Non-Touch

35.6 cm (14") diagonal, WUXGA (1920 x 1200), LCD, UWVA, Anti-Glare, Low Blue Light, 800 nits, sRGB 100%, Sure View 6⁶

35.6 cm (14") diagonal, 3K (2880 x 1800), OLED, 120Hz (VRR), UWVA, Anti-Glare, OLED+Low Blue Light, 500 nits, DCI-P3 100%

35.6 cm (14") diagonal, WUXGA (1920 x 1200), LCD, UWVA, Anti-Glare, WLED+Low Blue Light, 400 nits, Low power, sRGB 100%

35.6 cm (14") diagonal, WUXGA (1920 x 1200), OLED, UWVA, Anti-Glare, OLED+Low Blue Light, 300 nits, DCI-P3 100%

Touch

35.6 cm (14") diagonal, WUXGA (1920 x 1200), LCD, Touch on Panel, UWVA, Anti-Glare, Low Blue Light, 800 nits, sRGB 100%, Sure View 6⁶

35.6 cm (14") diagonal, 3K (2880 x 1800), Tandem OLED, 120Hz (VRR), Direct Bonding Touch Screen, UWVA, BrightView, OLED+Low Blue Light, 700 nits, DCI-P3 100%

35.6 cm (14") diagonal, WUXGA (1920 x 1200), LCD, Touch on Panel, UWVA, Anti-Glare, WLED, 500 nits, sRGB 100%

Display Size (Diagonal)

35.6 cm (14")

Aspect Ratio

16:10

Screen to Body Ratio

Up to 90.08%

Max Hinge Open Angle

177±3°

6. HP Sure View integrated privacy screen is an optional feature that must be configured at purchase and is designed to function in landscape orientation.



DOCKING (SOLD SEPARATELY)

Docking station model name

HP Thunderbolt™ 100W G6 Dock

**Total number of supported displays (incl.the notebook)
display)**

4

Max. resolutions supported

(4) 4K @60Hz*

(2) 4K @ 120Hz*

(3) QHD @ 120Hz*

(1) QHD @ 360Hz*

Dock Connectors

1 x HDMI 2.1, 2 x DisplayPort 1.4, 1 x Thunderbolt 4

Technical limitations

*Requires DisplayPort 1.4 support with Display Stream Compression (DSC).

Bluetooth required for HP Quick Connect. HP Quick Connect available on select HP notebooks.

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 name

HP Thunderbolt™ 180W G6 Dock

**Total number of supported displays (incl.the notebook)
display)**

4

Max. resolutions supported

(4) 4K @60Hz*

(2) 4K @ 120Hz*

(3) QHD @ 120Hz*

(1) QHD @ 360Hz*

Dock Connectors

1 x HDMI 2.1, 2 x DisplayPort 1.4, 1 x Thunderbolt 4, 1 x USB-C 3.2 Gen 2 DisplayPort

Technical limitations

*Requires DisplayPort 1.4 support with Display Stream Compression (DSC).

Bluetooth required for HP Quick Connect. HP Quick Connect available on select HP notebooks.

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 name

HP Thunderbolt™ 280W G6 Dock

**Total number of supported displays (incl.the notebook)
display)**

4

Max. resolutions supported

(4) 4K @60Hz*

(2) 4K @ 120Hz*

(3) QHD @ 120Hz*

(1) QHD @ 360Hz*

Dock Connectors

1 x HDMI 2.1, 2 x DisplayPort 1.4, 1 x Thunderbolt 4, 1 x USB-C 3.2 Gen 2 DisplayPort

Technical limitations

*Requires DisplayPort 1.4 support with Display Stream Compression (DSC).

Bluetooth required for HP Quick Connect. HP Quick Connect available on select HP notebooks.

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 name

HP USB-C™ 100W G6 Dock

**Total number of supported displays (incl.the notebook)
display)**

3

Max. resolutions supported

(1) 4K @120hz*

(2) 4K @120hz*

(3) 4K @60hz*

Dock Connectors

1 x HDMI 2.1, 2 x DisplayPort 1.4

Technical limitations

*Requires DisplayPort 1.4 support with Display Stream Compression (DSC).

Bluetooth required for HP Quick Connect. HP Quick Connect available on select HP notebooks.

Maximum resolution and display support is dependent on the maximum capability of the notebook.

Highest resolution with dual displays is two 8K@ 30Hz 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.



STORAGE AND DRIVES

Storage

2 TB PCIe® Gen5 NVMe™ SSD Value ⁷

2 TB PCIe® Gen5x4 NVMe™ Self Encrypted OPAL2 SSD ⁷

1 TB PCIe® Gen5 NVMe™ SSD Value ⁷

1 TB PCIe® Gen5x4 NVMe™ Self Encrypted OPAL2 SSD ⁷

1 TB PCIe® NVMe™ SSD Value ⁷

512 GB PCIe® Gen5 NVMe™ Self Encrypted OPAL2 SSD Value ⁷

512 GB PCIe® Gen5 NVMe™ SSD Value ⁷

512 GB PCIe® NVMe™ SSD Value ⁷

⁷ For storage drives, GB = 1 billion bytes. TB = 1 trillion bytes. Actual formatted capacity is less. Up to 32 GB is reserved for system recovery software.

MEMORY

Maximum Memory

64GB LPDDR5X-8533 MT/s (onboard)⁸

Memory

64GB LPDDR5X-8533 MT/s (onboard)⁸

32GB LPDDR5X-8533 MT/s (onboard)⁸

24GB LPDDR5X-8533 MT/s (onboard)⁸

16GB LPDDR5X-8533 MT/s (onboard)⁸

Memory Slots

No memory slots. Memory soldered down.

System runs at up to 8533 MT/s

System runs at 8000 MT/s for 64GB and AMD Ryzen™ AI 5 435 processor

Supports Dual Channel Memory.

Memory is non-accessible / non-upgradeable.

[8. 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

Items below may be optional.

WLAN

Mediatek MT7925 SD 1418 Wi-Fi 7 +Bluetooth 6.0 AIM-T WW WLAN⁹

WWAN

HP 5G Sub-6 CAT19¹⁰

HP 5G Sub-6 CAT19 HP Go Solution¹⁰

MTK T900 5G R18 Sub-6 CAT20¹⁰

MTK T900 5G R18 Sub-6 CAT20 HP Go¹⁰

LPWAN

HP RW220-GL LTE (Low Power) (CAT-1bis)¹¹

NFC

NFC Mirage WNC XRAV-1

Miracast

Native Miracast Support¹²

9. Wireless access point and Internet service required and sold separately. Availability of public wireless access points limited. Wi-Fi 7 (802.11BE) functionality requires compatible Windows OS, select processor, and a Wi-Fi 7 router, sold separately. Wi-Fi 7 is backwards compatible with prior 802.11 specs. Available in countries where Wi-Fi 7 is supported. The specification for 802.11BE is a draft specification and is not final. If the final specification differs from the draft specification, it may affect the ability of the device to communicate with other 802.11BE devices.

10. 5G module is optional. WWAN-ready configuration must be selected at purchase to add WWAN at a later date. 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.



11. LPWAN (also called Mobile Narrowband) supports HP Protect & Trace with Wolf Connect service through the subscription term, but does not support mobile broadband use.
 12. Miracast is a wireless technology your PC can use to project your screen to TVs, projectors, and streaming.
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AUDIO/MULTIMEDIA

Audio

Audio by Poly Studio

4 Integrated stereo speakers

Discrete Amplifiers

2 Integrated dual array microphone

Enhanced by AI noise reduction

Speaker Power

1W / 8 ohm per speaker

Camera

5MP AI camera, IR camera

Sensors

Ambient Light Sensor ¹³

Color Sensor with Ambient Light Sensing

Fingerprint Sensor

Gyroscope

Hall Effect Sensor

HP Sure Platform

HP Tamper Lock

Inertial Measurement Unit Sensor

Thermal Sensor

[13. Ambient light sensor included with Sure View display configurations.](#)



KEYBOARDS/POINTING DEVICES/BUTTONS & FUNCTION KEYS

Keyboard

HP Premium Keyboard, spill-resistant, Backlit keyboard.

HP Premium Keyboard, spill-resistant, Privacy, Backlit keyboard

Pointing Device

Clickpad ; Haptic Trackpad

Microsoft Precision Touchpad Default Gestures Support

Multi-touch gesture support

Function Keys ¹⁴

ESC - System information

F1 - Audio Mute

F2 - Volume Down

F3 - Volume Up

F4 - Mic Mute

F5 - Media (KB backlight for Brazilian)

F6 - Display Switching

F7 - Sure View (Snipping for non Sure view)

F8 - Brightness Down

F9 - Brightness up

F10 - Keyboard Backlight (Copilot for Brazilian)

F11 - Programmable Key(HP app)

F12 - Home

End

Insert

Delete

Power Button (with LED)

Microsoft Copilot



Hidden Function Keys

Fn+R - Break, Fn+S - Sys Rq, Fn+C - Scroll Lock, Fn+Copilot - Context Menu

14. Copilot+ in Windows requires Windows 11. Some features require an NPU. Timing of feature delivery and availability varies by market and device. Requires Microsoft account to log in. Where Microsoft in Windows is not available, the Copilot key will lead to the Bing search engine. See aka.ms/copilotpluspcs.



SOFTWARE AND SECURITY

Application Software

Buy Microsoft Office (Sold Separately)¹⁵

Edge Customization

HP Connection Optimizer

HP Hotkey Support

HP IQ¹⁶

HP Notifications

HP PC Hardware Diagnostics UEFI

HP PC Hardware Diagnostics Windows

HP Privacy Settings

HP Services Scan¹⁷

HP Smart Support¹⁸

HP Support Assistant¹⁹

HSA Fusion for Commercial

HSA Telemetry for Commercial

HP app²⁰

Poly Studio Desktop²¹

Manageability Features

HP Client Catalog (download)²²

HP Client Management Script Library (download)²³

HP Cloud Recovery²⁴

HP Connect for Microsoft Endpoint Manager²⁵

HP Driver Packs (download)²⁶

HP Image Assistant (download)²⁷

HP Manageability Integration Kit (download)²⁸

HP Patch Assistant (download)²⁹

HP Power Manager with Battery Health Manager (download)³⁰

Security Features

Secured-Core PC Enable³¹



Windows Hello Enhanced Sign-In Security (ESS)

HP Wolf Security for Business which includes: ³²

HP Sure Admin ³³

HP Sure Click ³⁴

HP Sure Recover ³⁵

HP Sure Run ³⁶

HP Sure Sense ³⁷

HP Sure Start ³⁸

HP Tamper Lock ³⁹

Security- TPM

Model

Nuvoton NPCT760HACYX

Firmware Version

Firmware Version: 7.2.4.1

TCG

TCG TPM 2.0

FIPS 140-3 Compliant

FIPS 140-3 Compliant: Yes

Model

STMicro ST33KTPM2X32DKG9

Firmware Version

Firmware Version: 9.257

TCG

TCG TPM 2.0



FIPS 140-3 Compliant

FIPS 140-3 Compliant: Yes

BIOS

Absolute Persistence Module ⁴⁰

HP BIOS Recovery BIOS Update via Network

HP BIOSphere ⁴¹

HP DriveLock & Automatic DriveLock

HP Secure Erase ⁴²

IPv6 Support

Yes

FirstNet Certified

Yes

Does the BIOS implement the ISO/IEC 19678:2015 (formerly NIST 800-147) guidelines?

Yes

UEFI version

2.9

Class

3

15. Microsoft 365 sold separately and requires Internet access for activation.

16. HP IQ delivery app is preloaded on select HP PCs; it will be automatically updated to the future featured HP IQ application if you have auto updates enabled in Windows or will be available for download from the Microsoft Store. The future featured HP IQ app uses artificial intelligence. Features vary by configuration. For complete details see https://support.hp.com/us-en/document/ish_13696672-13696717-16.

17. HP Services Scan automatically collects the telemetry necessary upon initial boot of the product to deliver device-level configuration data and health insights and is available preinstalled on select products, thru HP Factory Configuration Services; or it



can be downloaded. For more information about how to enable HP Smart Support or for download, please visit

<http://www.hp.com/smart-support>.

18. HP Smart Support automatically collects the telemetry necessary upon initial boot of the product to deliver device-level configuration data and health insights and is available preinstalled on select products, thru HP Factory Configuration Services; or it can be downloaded. For more information about how to enable HP Smart Support or for download, please visit

<http://www.hp.com/smart-support>.

19. HP Support Assistant is available on Windows. For more information, please visit <http://www.support.hp.com/help/hp-support-assistant>

20. HP app requires Windows 10 or higher OS

21. Poly Studio Desktop requires a Windows OS.

22. HP Client Catalog not preinstalled, however available for download at (<https://www.hp.com/us-en/solutions/client-management-solutions.html>).

23. HP Client Management Script Library (<https://www.hp.com/us-en/solutions/client-management-solutions.html#tab=manageability-tools>).

24. 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, network connection. Note: You must back up important files, data, photos, videos, etc. before use to avoid loss of data. Detail, please refer to: <https://support.hp.com/us-en/document/c05115630>.

25. 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.

26. HP Driver Packs not preinstalled, however available for download at <http://www.hp.com/go/clientmanagement>.

27. HP Image Assistant not preinstalled, however available for download at (<https://ftp.ext.hp.com/pub/caps-softpaq/cmit/HPIA.html>)

28. HP Manageability Integration Kit can be downloaded from <http://www.hp.com/go/clientmanagement>.

29. 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>.

30. HP Power Manager with Battery Health can be downloaded by entering your system information here: https://support.hp.com/in-en/document/ish_4449597-3519507-16.

31. 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.

32. HP Wolf Security for Business requires Windows 10 or 11 (Pro or Home) or higher, includes various HP security features and is available on HP X, Ultra, Pro, Elite, Engage and Workstation products. See product details for included security features.

33. HP Sure Admin requires HP G8 or newer platforms, Windows 10 or higher, HP BIOS, HP Manageability Kit or KMS Service from



<http://www.hp.com/go/clientmanagement> and HP Sure Admin Local Access Authenticator

34. HP Sure Click requires Windows 10 Pro or higher or Enterprise. See https://bit.ly/2PrLT6A_SureClick for complete details.

35. HP Sure Recover is available on select HP PCs and requires Windows 10 or 11 and an open network connection. You must back up important files, data, photos, videos, etc. before using HP Sure Recover to avoid loss of data. HP Sure Recover Gen6 with Embedded Reimaging is an optional feature on select HP PCs which requires Windows 10 or 11 must be configured at purchase. You must back up important files, data, photos, videos, etc. before use to avoid loss of data.

36. HP Sure Run is available on select HP PCs and requires Windows 10 and higher.

37. HP Sure Sense is available on select HP PCs with Windows 10 Pro, Windows 10 Enterprise, Windows 11 Pro, or Windows 11 Enterprise OS.

38. HP Sure Start is available on select HP PCs and requires Windows 10 and higher

39. HP Tamper Lock can be Enabled/disabled by customers or IT administrator with administrator authority.

40. Absolute Persistence 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/>.

41. HP BIOSphere features may vary depending on the platform and configuration.

42. HP Secure Erase implements the methods outlined in the National Institute of Standards and Technology Special.



POWER

Power supply availability may vary by country.

Battery is internal and replaceable by customer. Serviceable by warranty.

Higher wattage adapter is recommended for best performance and fastest charging.

Power Supply

100W Wall Mount USB Type-C® GaN Halogen Free AC power adapter

65W Wall Mount USB Type-C® GaN Halogen Free AC power adapter

65W Standard USB Type-C® GaN AC power adapter

Battery

HP Long Life 6 cell, 68Wh Polymer

HP Long Life 3 cell, 56Wh Polymer

Battery Recharge Time

Supports battery HP Fast Charge: approximately 50% in 30 minutes ⁴³

Power Cord

3-wired plug- 1.0m for standard type adapter

Battery life

Up to 20 hours with 68Whr battery (AMD Ryzen™ AI 7 PRO 450, UMA graphic, brightness set to 250nits on a 14-inch WUXGA 400nits LCD display, 32GB LPDDR5X memory, 512GB SSD) ⁴⁴

Up to 11 hours 30 minutes with 68Whr battery (AMD Ryzen™ AI 7 PRO 450, UMA graphic, brightness set to 150nits on a 14-inch WUXGA 400nits LCD display, 32GB LPDDR5X memory, 512GB SSD) ⁴⁵

Up to 18 hours 15 minutes with 68Whr battery (AMD Ryzen™ AI 7 PRO 450, UMA graphic, brightness set to 150nits on a 14-inch WUXGA 400nits LCD display, 32GB LPDDR5X memory, 512GB SSD) ⁴⁶

43. Recharges your battery up to 50% within 30 minutes when the system is off or in standby mode. Power adapter minimum of 65 watts required for battery capacities 56Whr or less. Power adapter minimum of 100 watts required for battery capacities greater than 56Whr and less than 83Whr. Power adapter minimum of 120 watts required for battery capacities greater than 83Whr and less than 100Whr. After charging has reached 50% capacity, charging will return to normal. Charging time may vary +/-10% due to System tolerance.



44. MobileMark 30 battery life will vary depending on various factors including product model, configuration, loaded applications, features, use, wireless functionality, and power management settings. The maximum capacity of the battery will naturally decrease with time and usage. See <http://www.bapco.com> for additional details.

45. Test configuration: HP factory image, balanced power mode with Windows Studio Effects on. Teams 3x3 conferencing 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.

46. Test configuration: HP factory image. Microsoft web browsing 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 (CER Test Methodology).



WEIGHT & DIMENSIONS

Weight will vary by configuration. Does not include power adapter.

Front height measurement is near the front edge where the mechanical chassis taper begins. Back height measurement is near the rear edge where the mechanical chassis taper ends.

Product Weight

Starting at 1.055 kg (2.326 lb) with 56.00 Wh battery

Product Dimensions (w x d x h)⁴⁷

Width: 312.7 mm (12.31 in)

Depth: 217 mm (8.54 in)

Height Front: 7.9 mm (0.31 in) - 7.95 mm (0.31 in)

Height Rear: 13.15 mm (0.52 in) - 14.35 mm (0.56 in)

Maximum Height 15.95 mm (0.63 in) - 17.15 mm (0.68 in)

Packaging and Pallet Dimensions

Product packaging size varies based on options chosen. Please contact your HP representative for your packaging size details. For detailed packaging information, access the [HP Commercial Notebooks Packaging Guide](#).

⁴⁷. Typical dimension. Actual dimension may vary +/- 0.5mm. Height may vary based on configuration. Maximum Height does not include Rubber feet.



PORTS/SLOTS

Left side

- 2 x Thunderbolt™ 4 with USB Type-C® 40Gbps signaling rate (USB Power Delivery, DisplayPort™ 2.1) ⁴⁸
- 1 x HDMI 2.1
- 1 x headphone/mic combo jack

Right side

- 1 x USB Type-C® 10Gbps signaling rate (USB Power Delivery, DisplayPort™ 2.1)
- 1 x USB Type-A 5Gbps signaling rate (Powered)
- 1 x Nano SIM card slot (optional)
- 1 x Nano Security Slot

[48. USB 20Gbps signaling rate is not available with Thunderbolt™ 4. Actual throughput may vary.](#)



ENVIRONMENTAL DATA

Environmental Data	Eco-Label Certifications & Declarations	<p>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:</p> <ul style="list-style-type: none"> • IT ECO declaration • US 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 Certified • China Energy Conservation Program (CECP) • China State Environmental Protection Administration (SEPA) • Taiwan Green Mark • Korea Eco-label • Japan PC Green label* 		
	Sustainable Impact Specifications	<ul style="list-style-type: none"> • Product Carbon Footprint • At least 30% Fish net Scissor, 5% Keycap, 30% speaker ocean bound plastic in the (part(s))¹ • At least 30% post-consumer recycled plastic² • At least 80% recycled metal³ • External Power Supply 90% Efficiency • Low Halogen⁴ • 100% of HP paper-based packaging is from recycled or certified sustainable sources⁵ • Bulk packaging available • Outside Box and corrugated cushions are 100% sustainably sourced and recyclable • Molded Paper Pulp Cushion inside box is 100% sustainably sourced and recyclable 		
	System Configuration	<p>The configuration used for the Energy Consumption and Declared Noise Emissions data for the Notebook model is based on a "Typically Configured Notebook".</p>		
	Energy Consumption (in accordance with US ENERGY STAR® test method)	115VAC, 60Hz	230VAC, 50Hz	100VAC, 50Hz
Normal Operation (Sort idle)	4.3 W	4.44 W	4.56 W	
Normal Operation (Long idle)	0.65 W	0.67 W	0.65 W	



	Sleep	0.65 W	0.67 W	0.65 W
	Off	0.36 W	0.37 W	0.36 W
		<p>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.</p>		
	Heat Dissipation*	115VAC, 60Hz	230VAC, 50Hz	100VAC, 50Hz
	Normal Operation (Short idle)	15 BTU/hr	15 BTU/hr	16 BTU/hr
	Normal Operation (Long idle)	2 BTU/hr	2 BTU/hr	2 BTU/hr
	Sleep	2.2 BTU/hr	2 BTU/hr	2.2 BTU/hr
	Off	1.2 BTU/hr	1 BTU/hr	1.2 BTU/hr
		<p>*NOTE: Heat dissipation is calculated based on the measured watts, assuming the service level is attained for one hour.</p>		
	Declared Noise Emissions (in accordance with ISO 7779 and ISO 9296)	Sound Power (L_{WA}, bels)	Sound Pressure (L_{pAm}, decibels)	
	Idle mode	2.2	14.3	
	Drive Random Seek	2.3	16.0	
	Active Mode	3.3	29.7	
	Longevity and Upgrading	<p>This product can be upgraded, possibly extending its useful life by several years. Upgradeable features and/or components contained in the</p> <p>Spare parts are available throughout the warranty period and or for up to “5” years after the end of production.</p>		



	Additional Information	<ul style="list-style-type: none"> This product is in compliance with the Restrictions of Hazardous Substances (RoHS) directive - 2011/65/EC. This HP product is designed to comply with the Waste Electrical and Electronic Equipment (WEEE) Directive - 2002/96/EC. This product is in compliance with California Proposition 65 (State of California; Safe Drinking Water and Toxic Enforcement Act of 1986). This product is in compliance with the IEEE 1680 (EPEAT) standard at the Gold level, see www.epeat.net Plastics parts weighing over 25 grams used in the product are marked per ISO11469 and ISO1043. This product is 93.6% recycle-able when properly disposed of at end of life. 		
	Packaging Materials	External:	PAPER/Corrugated	230 g
			PAPER/Molded Pulp	44 g
			PAPER/Paper	25 g
		The plastic packaging material contains at least 0% recycled content.		
		The corrugated paper packaging materials contains at least 50% 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>		



	<p>Material Usage</p>	<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 https://h20195.www2.hp.com/v2/GetDocument.aspx?docname=c05998906):</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)
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	<p>Packaging Usage</p>	<p>HP follows these guidelines to decrease the environmental impact of product packaging:</p> <ul style="list-style-type: none"> • Eliminate the use of heavy metals such as lead, chromium, mercury and cadmium in packaging materials. • Eliminate the use of ozone-depleting substances (ODS) in packaging materials. • Design packaging materials for ease of disassembly. • Maximize the use of post-consumer recycled content materials in packaging materials. • Use readily recyclable packaging materials such as paper and corrugated materials. • Reduce size and weight of packages to improve transportation fuel efficiency. • Plastic packaging materials are marked according to ISO 11469 and DIN 6120 standards.
	<p>End-of-life Management and Recycling</p>	<p>HP offers end-of-life HP product return and recycling programs in many geographic areas. To recycle your product, please go to: https://h20195.www2.hp.com/V2/GetDocument.aspx?docname=c05403198 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: HP Product Disassembly Instruction Website. 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>

	<p>HP, Inc. Corporate Environmental Information</p>	<p>For more information about HP's commitment to the environment:</p> <ul style="list-style-type: none"> • Sustainable Impact Report <ul style="list-style-type: none"> ○ https://h20195.www2.hp.com/v2/GetDocument.aspx?docname=c06040843 • Eco-label certifications <ul style="list-style-type: none"> ○ https://www.hp.com/us-en/sustainable-impact/document-reports.html#filters_documents_reports=-document_type-type_energy_star.type_epeat.type_tcolSO • ISO 14001 certificates <ul style="list-style-type: none"> ○ https://h20195.www2.hp.com/v2/GetDocument.aspx?docname=c04777932
	<p>Footnotes</p>	<ol style="list-style-type: none"> 1. Percentage of ocean-bound plastic contained in each component varies by product. Ocean Bound plastic is expressed as a percentage of the total weight plastic. Ocean Bound plastic is based on the definition set by the UL2809 standard. 2. Recycled plastic is expressed as a percentage of the total weight plastic. Post-consumer recycled is based on the definition set in the EPEAT standard for computers, IEEE 1680.1-2018 standard. 3. 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. 4. External power supplies, WWAN modules, power cords, cables and peripherals excluded. Service parts obtained after purchase may not be Low Halogen. 5. HP paper and fiber-based packaging for PCs, displays, home and office print, and supplies is reported by suppliers as recycled or certified, with a minimum of 97% by volume verified by HP. Packaging is the box that comes with the product and all paper-based materials inside the box. Packaging for personal systems accessories and spare parts is not included. Plastic cushions are made from >90% recycled plastic.



SERVICE AND SUPPORT

1-year warranty and 90 day software limited warranty options depending on country. Batteries have a default one year limited warranty. 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>.⁴⁹

49. 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)

Nominal Operating Voltage	20.0 V
Max Operating Power	UMA < 100 W

Temperature

Operating	Operating: 0° to 35° C (32° to 95° F)
Non - operating	Non-operating: -20° to 60° C (-4° to 140° F)

Relative Humidity

Operating	Operating: 10% to 90% (non-condensing)
Non - operating	Non-operating: 5% to 95%, 38.7° C (101.6° F) maximum wet bulb temperature

Shock

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

Random Vibration

Operating	Operating: 1.043 grms
Non - operating	Non-operating: 3.500 grms

Altitude(unpressurized)

Operating	Operating: 3,048 m (10,000 ft)
Non - operating	Non-Operating: 12,192 m (40,000 ft)

Industry Standard Certifications

Regulatory Model Number	HSN-I67C-4
CSA/UL 62368-1	Yes
ENERGY STAR® 1	Yes
FCC/ICES/CISPR/VCCI	Yes
CE MARKING	Yes
GS Mark	No
China CCC/SRRC/CEL	Yes
Taiwan BSMI/NCC	Yes
Korea KCC/KC/KES	Yes
Ukraine NSoC/TEC	Yes
EAEU Compliance	Yes



Saudi Arabian Compliance	Yes
TCO	Yes
EPEAT Gold ²	Yes
Low Blue Light	Yes
WW RoHS	Yes
CECP	No
Medical EMC: IEC 60601-1-2:2014 EN60601-1-2: 2015	Yes
SEPA	No
MIL - STD Testing ³	MIL-STD 810H

1. Configurations that are ENERGY STAR® qualified are identified as ENERGY STAR on HP websites and on <http://www.energystar.gov>

2. Based on US registration according to EPEAT criteria and EPEAT Climate+, status and tier level varies by country. Visit <http://www.epeat.net> for more information.

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



DISPLAYS

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

Availability may vary by country

35.6 cm (14") diagonal, WUXGA (1920 x 1200), LCD, UWVA, Anti-Glare, Low Blue Light, 800 nits, sRGB 100%, Sure View 6¹	Active Area	301.590 x 188.500 mm (typ)
	Dimensions (W x H)	306.890 x 197.900 mm (max)
	Weight	230 g (max)
	Diagonal Size	14 inch
	Surface Treatment	Anti-Glare
	Touch Enabled	No
	Contrast Ratio	1500:1 (typ)
	Refresh Rate	60Hz
	Brightness	800 nits (typ)
	Pixel Resolution	RGB
	Pixel Resolution - Format	1920 x 1200 (WUXGA)
	Aspect Ratio	16:10
	Backlight	Low Blue Light
	Color Gamut Coverage	sRGB 100%
	Color Depth	8
	Viewing Angle	89/89/89/89
Low Blue Light	Yes	
Power Consumption	EBL@150nits: 1.50 W (Max)	

35.6 cm (14") diagonal, WUXGA (1920 x 1200), LCD, Touch on Panel, UWVA, Anti-Glare, Low Blue Light, 800 nits, sRGB 100%, Sure View 6¹	Active Area	301.590 x 188.500 mm (typ)
	Dimensions (W x H)	306.890 x 197.900 mm (max)
	Weight	260 g (max)
	Diagonal Size	14 inch
	Surface Treatment	Anti-Glare
	Touch Enabled	Yes
	Contrast Ratio	1500:1 (typ)
	Refresh Rate	60Hz
	Brightness	800 nits (typ)
	Pixel Resolution	RGB



Pixel Resolution - Format	1920 x 1200 (WUXGA)
Aspect Ratio	16:10
Backlight	Low Blue Light
Color Gamut Coverage	sRGB 100%
Color Depth	8
Viewing Angle	89/89/89/89
Low Blue Light	Yes
Power Consumption	EBL@150nits: 1.90 W (Max)

35.6 cm (14") diagonal, 3K (2880 x 1800), Tandem OLED, 120Hz (VRR), Direct Bonding Touch Screen, UWVA, BrightView, OLED+Low Blue Light, 700 nits, DCI-P3 100%

Active Area	301.824 x 188.640 mm (typ)
Dimensions (W x H)	305.450 x 197.720 mm (max)
Weight	180 g (max)
Diagonal Size	14 inch
Surface Treatment	BrightView
Touch Enabled	Yes
Contrast Ratio	1000000:1 (typ)
Refresh Rate	120Hz
Brightness	700 nits (typ)
Pixel Resolution	RGB
Pixel Resolution - Format	2880 x 1800 (3K)
Aspect Ratio	16:10
Backlight	OLED+LBL
Color Gamut Coverage	DCI-P3 100%
Color Depth	8+2 FRC
Viewing Angle	89/89/89/89
Low Blue Light	Yes
Power Consumption	EBL@150nits: 3.70 W (Max)

35.6 cm (14") diagonal, 3K (2880 x 1800), OLED, 120Hz (VRR), UWVA, Anti-Glare, OLED+Low Blue Light, 500 nits, DCI-P3 100%

Active Area	301.824 x 188.640 mm (typ)
Dimensions (W x H)	305.450 x 197.720 mm (max)
Weight	132 g (max)
Diagonal Size	14 inch
Surface Treatment	Anti-Glare



Touch Enabled	No
Contrast Ratio	1000000:1 (typ)
Refresh Rate	120Hz
Brightness	500 nits (typ)
Pixel Resolution	RGB
Pixel Resolution - Format	2880 x 1800 (3K)
Aspect Ratio	16:10
Backlight	OLED+LBL
Color Gamut Coverage	DCI-P3 100%
Color Depth	8+2 FRC
Viewing Angle	89/89/89/89
Low Blue Light	Yes
Power Consumption	EBL@150nits: 4.20 W (Max)

**35.6 cm (14") diagonal,
WUXGA (1920 x 1200), LCD,
Touch on Panel, UWVA, Anti-
Glare, WLED, 500 nits, sRGB
100%**

Active Area	301.590 x 188.500 mm (typ.)
Dimensions (W x H)	306.594 x 197.596 mm (max)
Weight	220 g (max)
Diagonal Size	14 inch
Surface Treatment	Anti-Glare
Touch Enabled	Yes
Contrast Ratio	1500:1 (typ)
Refresh Rate	60 (typ)
Brightness	500 nits (typ)
Pixel Resolution	RGB
Pixel Resolution - Format	1920 x 1200 (WUXGA)
Aspect Ratio	16:10
Backlight	WLED
Color Gamut Coverage	sRGB 100%
Color Depth	8
Viewing Angle	89/89/89/89
Low Blue Light	No
Power Consumption	EBL@150nits: 1.37 W (Max) EBL@200nits: 1.68 W (Max)



35.6 cm (14") diagonal, WUXGA (1920 x 1200), LCD, UWVA, Anti-Glare, WLED+Low Blue Light, 400 nits, Low power, sRGB 100%	Active Area	301.590 x 188.500 mm (typ)
	Dimensions (W x H)	307.590 x 199.550 mm (max)
	Weight	210 g (max)
	Diagonal Size	14 inch
	Surface Treatment	Anti-Glare
	Touch Enabled	No
	Contrast Ratio	1000:1 (typ)
	Refresh Rate	60 (typ)
	Brightness	400 nits (typ)
	Pixel Resolution	RGB
	Pixel Resolution - Format	1920 x 1200 (WUXGA)
	Aspect Ratio	16:10
	Backlight	WLED+Low Blue Light
	Color Gamut Coverage	sRGB 100%
	Color Depth	8
	Viewing Angle	89/89/89/89
	Low Blue Light	Yes
	Power Consumption	EBL@150nits: 1.29 W (Max) EBL@200nits: 1.66 W (Max)

35.6 cm (14") diagonal, WUXGA (1920 x 1200), OLED, UWVA, Anti-Glare, OLED+Low Blue Light, 300 nits, DCI-P3 100%	Active Area	301.824 x 188.640 mm (typ)
	Dimensions (W x H)	301.824 x 198.020 mm (max)
	Weight	174 g (max)
	Diagonal Size	14 inch
	Surface Treatment	Anti-Glare
	Touch Enabled	No
	Contrast Ratio	1000000:1 (typ)
	Refresh Rate	60 Hz (typ)
	Brightness	300 nits (typ)
	Pixel Resolution	RGB
	Pixel Resolution - Format	1920 x 1200 (WUXGA)
	Aspect Ratio	16:10



Backlight	OLED+LBL
Color Gamut Coverage	DCI-P3 100%
Color Depth	8
Viewing Angle	89/89/89/89
Low Blue Light	Yes
Power Consumption	EBL@200nits: 2.70 W (Max)

1. HP Sure View integrated privacy screen is an optional feature that must be configured at purchase and is designed to function in landscape orientation.



STORAGE

2 TB PCIe® Gen5 NVMe™ SSD Value¹	Form Factor	M.2 2280
	Capacity	2 TB
	NAND Type	Value
	Weight	10g (0.02 lb)
	Interface	PCIe Gen5 NVMe
	Sequential Read	7000 MB/s ± 10% (in PCIe Gen4x4 slot)
	Sequential Write	6800 MB/s ± 10% (in PCIe Gen4x4 slot)
	Logical Blocks	4000797360
	Features	Pyrite 2.0; TRIM; L1.2 Not all features are available in all versions

2 TB PCIe® Gen5x4 NVMe™ Self Encrypted OPAL2 SSD¹	Form Factor	M.2 2280
	Capacity	2 TB
	NAND Type	Performance
	Weight	10g (0.02 lb)
	Interface	PCIe Gen5x4 NVMe
	Sequential Read	7000 MB/s ± 10% (in PCIe Gen4x4 slot)
	Sequential Write	7000 MB/s ± 10% (in PCIe Gen4x4 slot)
	Logical Blocks	4000797360
	Features	TCG OPAL 2.0; TRIM; L1.2 Not all features are available in all versions

1 TB PCIe® Gen5 NVMe™ SSD Value¹	Form Factor	M.2 2280
	Capacity	1 TB
	NAND Type	Value
	Weight	10g (0.02 lb)
	Interface	PCIe Gen5 NVMe
	Sequential Read	7000 MB/s ± 10% (in PCIe Gen4x4 slot)
	Sequential Write	6600 MB/s ± 10% (in PCIe Gen4x4 slot)
	Logical Blocks	2000409264
	Features	Pyrite 2.0; TRIM; L1.2 Not all features are available in all versions



1 TB PCIe® Gen5x4 NVMe™ Self Encrypted OPAL2 SSD¹	Form Factor	M.2 2280
	Capacity	1 TB
	NAND Type	Performance
	Weight	10g (0.02 lb)
	Interface	PCIe Gen5X4 NVMe
	Sequential Read	7000 MB/s ± 10% (in PCIe Gen4x4 slot)
	Sequential Write	7000 MB/s ± 10% (in PCIe Gen4x4 slot)
	Logical Blocks	2000409264
	Features	TCG OPAL 2.0; TRIM; L1.2

Not all features are available in all versions

1 TB PCIe® NVMe™ SSD Value¹	Form Factor	M.2 2280
	Capacity	1TB
	NAND Type	Value
	Weight	10g (0.02 lb)
	Interface	PCIe NVMe
	Sequential Read	3500 MB/s ± 10%
	Sequential Write	2700 MB/s ± 10%
	Logical Blocks	2000409264
	Features	Pyrite 2.0; TRIM; L1.2

Not all features are available in all versions

512 GB PCIe® Gen5 NVMe™ Self Encrypted OPAL2 SSD Value¹	Form Factor	M.2 2280
	Capacity	512 GB
	NAND Type	Value
	Weight	10g (0.02 lb)
	Interface	PCIe Gen5 NVMe
	Sequential Read	7000 MB/s ± 10% (in PCIe Gen4x4 slot)
	Sequential Write	6000 MB/s ± 10% (in PCIe Gen4x4 slot)
	Logical Blocks	1000215216
	Features	TCG OPAL 2.0; TRIM; L1.2

Not all features are available in all versions



512 GB PCIe® Gen5 NVMe™ SSD Value ¹	Form Factor	M.2 2280
	Capacity	512 GB
	NAND Type	Value
	Weight	10g (0.02 lb)
	Interface	PCIe Gen5 NVMe
	Sequential Read	7000 MB/s ± 10% (in PCIe Gen4x4 slot)
	Sequential Write	6000 MB/s ± 10% (in PCIe Gen4x4 slot)
	Logical Blocks	1000215216
	Features	Pyrite 2.0; TRIM; L1.2 Not all features are available in all versions

512 GB PCIe® NVMe™ SSD Value ¹	Form Factor	M.2 2280
	Capacity	512GB
	NAND Type	Value
	Weight	10g (0.02 lb)
	Interface	PCIe NVMe
	Sequential Read	3500 MB/s ± 10%
	Sequential Write	1600 MB/s ± 10%
	Logical Blocks	1000215216
	Features	Pyrite 2.0; TRIM; L1.2 Not all features are available in all versions

1. For storage drives, GB = 1 billion bytes. TB = 1 trillion bytes. Actual formatted capacity is less. Up to 32 GB is reserved for system recovery software.



	802.11ac : 1733Mbps
	802.11ax : max 2.4Gbps
	802.11be : max 2.8Gbps (160MHz)
Modulation	Direct Sequence Spread Spectrum OFDM, BPSK, QPSK, CCK, 16-QAM, 64-QAM, 256-QAM, 1024QAM, 4096QAM
Security	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	Ad-hoc (Peer to Peer)
Models	Infrastructure (Access Point Required)
Roaming	IEEE 802.11 compliant roaming between access points
Output Power	802.11b, 1Mbps : +17dBm minimum 802.11g, 6Mbps : +16dBm minimum 802.11a, 6Mbps : +17dBm minimum 802.11n, MCS7(HT20) : +14dBm minimum 802.11n, MCS7(HT40) : +13.5dBm minimum 802.11ac MCS9(VHT20) : 13.5dBm minimum 802.11ac MCS9(VHT40) : +13.5dBm minimum 802.11ac MCS9(VHT80) : +12.5dBm minimum 802.11ac MCS9(VHT160) : +10.5dBm minimum 802.11ax MCS11(HE20)(6GHz) : +11.5dBm minimum 802.11ax MCS11(HE40)(6GHz) : +7.5dBm minimum 802.11ax MCS11(HE80)(6GHz) : +7.5dBm minimum 802.11ax MCS11(HE160)(6GHz) : +7.5dBm minimum 802.11be MCS13(EHT20)(6GHz) : +11.5dBm 802.11be MCS13(EHT40)(6GHz) : +7.5dBm



	802.11be MCS13(EHT80)(6GHz) : +7.5dBm
	802.11be MCS13(EHT160)(6GHz) : +6.5dBm
Power Consumption	Transmit mode 2.7 W
	Receive mode 1.8 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 ¹	802.11b, 1Mbps : -93.5dBm maximum
	802.11b, 11Mbps : -85dBm maximum
	802.11a/g, 6Mbps : -90.5dBm maximum
	802.11a/g, 54Mbps : -72.5dBm maximum
	802.11n, MCS0(HT20) : -90dBm maximum
	802.11n, MCS7(HT20) : -71.5dBm maximum
	802.11n, MCS0(HT40) : -88.5dBm maximum
	802.11n, MCS7(HT40) : -68.5dBm maximum
	802.11ac, MCS9(VHT20) : -88.5dBm maximum
	802.11ac, MCS9(VHT40) : -65.5dBm maximum
	802.11ac, MCS9(VHT80) : -60.5dBm maximum
	802.11ac, MCS9(VHT160) : -58.5dBm maximum
	802.11ax, MCS11(HE20)(6GHz) : -59.5dBm maximum
	802.11ax, MCS11(HE40)(6GHz) : -56.5dBm maximum
	802.11ax, MCS11(HE80)(6GHz) : -53.5dBm maximum
	802.11ax, MCS11(HE160)(6GHz) : -51.5dBm maximum
	802.11be, MCS13(EHT20)(6GHz) : -55.5dBm maximum
	802.11be, MCS13(EHT40)(6GHz) : -53.5dBm maximum
	802.11be, MCS13(EHT80)(6GHz) : -51.5dBm maximum
	802.11be, MCS13(EHT160)(6GHz) : -48.5dBm 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	Type 1418: 1.67 x 14.0 x 18.0 mm
Weight	Type 1418: 1.3g
Operating Voltage	3.3v +/- 9%
	Integrated Bluetooth® specifications
Bluetooth® Specification	4.0/4.1/4.2/5.0/5.1/5.2/5.3/5.4/6.0 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 I Bluetooth device with a maximum transmit power of +15.5 dBm for BR and +13dBm for EDR.
Power Consumption	Peak (Tx): 330 mW Peak (Rx): 230 mW Selective Suspend: 17 mW
Bluetooth® Software Supported Link Topology	1. Microsoft Windows Bluetooth Software 2. Linux/Chrome OS Bluetooth Software.
Power Management	ACPI and PCI Express compliant power management 802.11 compliant power saving mode
Certifications	FCC (47 CFR) Part 15C, Section 15.247 & 15.249 ETS 300 328, ETS 300 826 Low Voltage Directive IEC950 UL, CSA, and CE Mark
Bluetooth® Profiles	BT4.1-ESR 5/6/7 Compliance



Supported

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)
 BT5.2
 ESR9/10 Compliance
 LE Advertisement Extensions
 Channel Selection Algo
 Limited High Duty Cycle Non-Connectable Advertising
 2Mbps LE
 LE Long Range
 BT5.3
 Host to Controller Encryption Key Control Enhancements
 Compliance to the latest Errata Section 12.3 of BT 5.3
 specification
 BT5.4
 BT6.0

HP 5G Sub-6 CAT19²

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)

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)

5G NR 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)

n30: 2305 to 2315 MHz (UL) 2350 to 2360 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)

Wireless Protocol Standards NR Sub6G rel15

200MHz 2 DLCA, 256 QAM

200MHz 2 ULCA, 256 QAM

15KHz/30KHz SCS for FDD/TDD

LTE Rel15

100MHz 5 DLCA, 256 QAM

40MHz 2 ULCA, 256 QAM

UMTS Rel8

GPS GPS only support L1 C/A

GPS Bands GPS: L1 (1575.42MHz)

GLONASS: L1 (1602MHz)



	BeidouB1(1561.098MHz)
	Galileo E1 (1575.42)
	QZSS(1575.42 MHz)
Maximum Data Rates	Sub-6 SA Peak
	DL 4.67Gbps/UL 1.25Gbps
	Sub-6 NSA Peak
	DL 3.74Gbps/UL 835Mbps
	LTE Peak
	DL 1.6Gbps (CAT19)/UL 211Mbps (CAT18)
	UMTS/HSPA+
	DL DC-HSPA+: 42 Mbps (CAT24)/UL 11.5 Mbps (CAT7)
Maximum Output Power	NR :
	23 dBm in all band except (n30 = 22dBm & n48=21dBm & n77=25dBm & n41/n77/n78 = 26dBm)
	LTE:
	23 dBm in all band except (B30 = 22dBm & B48=21dBm & B41=26dBm)
	UMTS:
	23.5 dBm
Maximum Power Consumption	3500 mA (peak); 1674mA (average)
Form Factor	M.2, 3052-S3 Key B
Weight	8.7g
Dimensions (Length x Width x Thickness)	52 mm x 30 mm x 2.3 mm
Embedded eSIM	Yes

HP 5G Sub-6 CAT19 HP Go Solution²

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)

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)
n30: 2305 to 2315 MHz (UL) 2350 to 2360 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)

Wireless Protocol Standards

NR Sub6G rel15
200MHz 2 DLCA, 256 QAM
200MHz 2 ULCA, 256 QAM
15KHz/30KHz SCS for FDD/TDD
LTE Rel15
100MHz 5 DLCA, 256 QAM
40MHz 2 ULCA, 256 QAM
UMTS Rel8

GPS

GPS only support L1 C/A

GPS Bands

GPS: L1 (1575.42MHz)
GLONASS: L1 (1602MHz)
BeidouB1(1561.098MHz)
Galileo E1 (1575.42)
QZSS(1575.42 MHz)



Maximum Data Rates	<p>Sub-6 SA Peak DL 4.67Gbps/UL 1.25Gbps</p> <p>Sub-6 NSA Peak DL 3.74Gbps/UL 835Mbps</p> <p>LTE Peak DL 1.6Gbps (CAT19)/UL 211Mbps (CAT18)</p> <p>UMTS/HSPA+ DL DC-HSPA+: 42 Mbps (CAT24)/UL 11.5 Mbps (CAT7)</p>
Maximum Output Power	<p>NR :</p> <p>23 dBm in all band except (n30 = 22dBm & n48=21dBm & n77=25dBm & n41/n77/n78 = 26dBm)</p> <p>LTE:</p> <p>23 dBm in all band except (B30 = 22dBm & B48=21dBm & B41=26dBm)</p> <p>UMTS:</p> <p>23.5 dBm</p>
Maximum Power Consumption	3500 mA (peak); 1674mA (average)
Form Factor	M.2, 3052-S3 Key B
Weight	8.7g
Dimensions (Length x Width x Thickness)	52 mm × 30 mm × 2.3 mm
Embedded eSIM	Yes

**MTK T900 5G R18 Sub-6
CAT20²**

Technology Operating Bands	<p>WCDMA/HSPA+ operating bands:</p> <p>Band 1: 1920 to 1980 MHz (UL), 2110 to 2170 MHz (DL)</p> <p>Band 2: 1850 to 1910 MHz (UL), 1930 to 1990 MHz (DL)</p> <p>Band 4: 1710 to 1755 MHz (UL), 2110 to 2155 MHz (DL)</p> <p>Band 5: 824 to 849 MHz (UL), 869 to 894 MHz (DL)</p> <p>Band 8: 880 to 915 MHz (UL), 925 to 960 MHz (DL)</p> <p>LTE FDD/TDD operating bands:</p> <p>Band 1: 1920 to 1980 MHz (UL), 2110 to 2170 MHz (DL)</p> <p>Band 2: 1850 to 1910 MHz (UL), 1930 to 1990 MHz (DL)</p>
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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)
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 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)
5G NR 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)
n13: 777 to 787 Mhz(UL),746 to 756 MHz (DL)
n14: 788 to 798 Mhz(UL),758 to 768 MHz (DL)
n18: 815 to 830 Mhz(UL),860 to 875 MHz (DL)
n20: 832 to 862 MHz (UL), 791 to 821 MHz (DL)
n25: 1850 to 1915 MHz (UL), 1930 to 1995 MHz (DL)
n26: 814 to 849 Mhz(UL),859 to 894 MHz (DL)
n28: 703 to 748 MHz (UL), 758 to 803 MHz (DL)
n29: 717 to 728 MHz (DL)
n30: 2305 to 2315 MHz (UL) 2350 to 2360 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)
n70: 1695 to 1710 MHz (UL) 1995 to 2020 MHz (DL)
n71: 663 to 698 MHz (UL), 617 to 652 MHz (DL)
n75: 1432 to 1517 MHz (DL)
n76: 1427 to 1432 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

NR Sub6G Rel17
300MHz 4 DLCA, 256 QAM
200MHz 2 ULCA, 256 QAM
15KHz SCS for FDD 30KHz SCS for TDD

LTE Rel15
100MHz 5 DLCA, 256 QAM
40MHz 2 ULCA, 256 QAM



	UMTS Rel8
GPS	GPS only support L1 C/A
GPS Bands	GPS: L1 (1575.42MHz) GLONASS: L1 (1602MHz) BeidouB1(1561.098MHz) Galileo E1 (1575.42) QZSS(1575.42 MHz)
Maximum Data Rates	Sub-6 SA Peak DL 7Gbps/UL 2.5Gbps Sub-6 NSA Peak DL 5.8Gbps/UL 140Mbps LTE Peak DL 2Gbps (CAT20)/UL 211Mbps (CAT18) UMTS/HSPA+ DL DC-HSPA+: 42 Mbps (CAT24)/UL 11.5 Mbps (CAT7)
Maximum Output Power	NR : 23 dBm in all band except (n30 = 22dBm & n48=21dBm & n41/n77/n78/n79 = 26dBm) LTE: 23 dBm in all band except (B30 = 22dBm & B48=21.5dBm) UMTS: 23.5 dBm
Maximum Power Consumption	5G Sub 6: 3,120 mA (peak); 1,350 mA (average) LTE: 2,500 mA (peak); 1,000 mA (average)
Form Factor	M.2 3052-S3 Key B
Weight	9.5 g (0.335 oz)
Dimensions (Length x Width x Thickness)	52.00 x 30.00 x 2.30 mm (2.05 x 1.18 x 0.09 inch)
Embedded eSIM	Yes
MTK T900 5G R18 Sub-6 CAT20 HP Go²	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)

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 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)
5G NR 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)
n13: 777 to 787 MHz (UL), 746 to 756 MHz (DL)
n14: 788 to 798 MHz (UL), 758 to 768 MHz (DL)
n18: 815 to 830 MHz (UL), 860 to 875 MHz (DL)
n20: 832 to 862 MHz (UL), 791 to 821 MHz (DL)
n25: 1850 to 1915 MHz (UL), 1930 to 1995 MHz (DL)
n26: 814 to 849 MHz (UL), 859 to 894 MHz (DL)
n28: 703 to 748 MHz (UL), 758 to 803 MHz (DL)
n29: 717 to 728 MHz (DL)
n30: 2305 to 2315 MHz (UL), 2350 to 2360 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)
n70: 1695 to 1710 MHz (UL), 1995 to 2020 MHz (DL)
n71: 663 to 698 MHz (UL), 617 to 652 MHz (DL)
n75: 1432 to 1517 MHz (DL)
n76: 1427 to 1432 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

NR Sub6G Rel17
300MHz 4 DLCA, 256 QAM
200MHz 2 ULCA, 256 QAM



	15KHz SCS for FDD 30KHz SCS for TDD
	LTE Rel15
	100MHz 5 DLCA, 256 QAM
	40MHz 2 ULCA, 256 QAM
	UMTS Rel8
GPS	GPS only support L1 C/A
GPS Bands	GPS: L1 (1575.42MHz) GLONASS: L1 (1602MHz) BeidouB1(1561.098MHz) Galileo E1 (1575.42) QZSS(1575.42 MHz)
Maximum Data Rates	Sub-6 SA Peak DL 7Gbps/UL 2.5Gbps Sub-6 NSA Peak DL 5.8Gbps/UL 140Mbps LTE Peak DL 2Gbps (CAT20)/UL 211Mbps (CAT18) UMTS/HSPA+ DL DC-HSPA+: 42 Mbps (CAT24)/UL 11.5 Mbps (CAT7)
Maximum Output Power	NR : 23 dBm in all band except (n30 = 22dBm & n48=21dBm & n41/n77/n78/n79 = 26dBm) LTE: 23 dBm in all band except (B30 = 22dBm & B48=21.5dBm) UMTS: 23.5 dBm
Maximum Power Consumption	5G Sub 6: 3,120 mA (peak); 1,350 mA (average)
Form Factor	M.2
Weight	3052-S3 Key B 9.5 g (0.335 oz)



Dimensions (Length x Width x Thickness)	52.00 x 30.00 x 2.30 mm (2.05 x 1.18 x 0.09 inch)
Embedded eSIM	Yes

NFC Mirage WNC XRAV-1	Dimensions (L x W x H)	17.00 x 10.00 x 2.00 mm (0.67 x 0.39 x 0.08 inch)
	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	Type 1, Type 2, Type 3 / Type 4, NFCIP-1 / NFCIP-2
	Reader Mode (PCD-VCD)	ISO/IEC 14443 A ISO/IEC 14443 B ISO/IEC 15693 MIFARE 1K MIFARE 4K MIFARE DESFire FeliCa Jewel and Topaz
	Card Emulation Mode (PICC-VICC)	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 kbps,



	212 kbps, 424 kbps, 848 kbps
Operating Temperature	0°C to 70°C (32°F to 158°F)
Storage Temperature	-20°C to 125°C (-4°F to 257°F)
Humidity	Operating: 10 - 90% Non-Operating: 5 - 95%
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.

HP RW220-GL LTE (Low Power) (CAT-1bis)³

Technology/Operating bands	FDD LTE: 2100 (Band 1), 1800 (Band 3), 850 (Band 5), 900 (Band 8), 700 (Band 12), 850 (Band 18), 850 (Band 19), 800 (Band 20), 850 (Band 26), 700 (Band 28) WIFI Scan : 802.11b
Wireless Protocol Standards	3GPP TS 51.010-1 V12.9.0: Mobile Station (MS) conformance specification; Part 1: Conformance specification 3GPP TS 36.521-1 V13.3.0: User Equipment (UE) conformance specification; Radio transmission and



	reception; Part 1: Conformance testing
	3GPP TS 21.111 V10.0.0: USIM and IC card requirements
	3GPP TS 51.011 V4.15.0: Specification of the Subscriber Identity Module -Mobile Equipment (SIM-ME) interface
	3GPP TS 31.102 V10.11.0: Characteristics of the Universal Subscriber Identity Module (USIM) application
	3GPP TS 31.111 V10.16.0: Universal Subscriber Identity Module (USIM) Application Toolkit (USAT)
	3GPP TS 36.124 V13.2.0: Electro Magnetic Compatibility (EMC) requirements for mobile terminals and ancillary equipment
	3GPP TS 27.007 V10.0.8: AT command set for User Equipment (UE)
	3GPP TS 27.005 V10.0.1: Use of Data Terminal Equipment - Data Circuit terminating Equipment (DTE DCE) interface for Short Message Service (SMS) and Cell Broadcast Service (CBS)
GPS	GPS, Galileo, BeiDou, QZSS, AGPS-MS-B
GPS Bands	GPS L1:1575.42Mhz±1.023Mhz, BDS B1:1561.098Mhz±2.046Mhz Galileo E1:1575.42Mhz±1.023Mhz QZSS L1:1575.42Mhz±1.023Mhz
Maximum Data Rates	Downlink: 10Mbps Uplink: 5Mbps
Maximum Output Power	B1/3: 23 +/-2dBm B5/8/12/18/19/20/26/28: 24 +1.7/-2dBm
Maximum Power Consumption	290.945 mA(peak), 8.035 mA(average)
Form Factor	M.2
Weight	3.9 g (0.138 oz)



Dimensions (Length x Width x Thickness)	42.00 x 22.00 x 2.30 mm (1.65 x 0.87 x 0.09 inch)
Embedded eSIM	Yes

1. 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).
 2. 5G module is optional. WWAN-ready configuration must be selected at purchase to add WWAN at a later date. 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.
 3. LPWAN (also called Mobile Narrowband) supports HP Protect & Trace with Wolf Connect service through the subscription term, but does not support mobile broadband use.
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POWER

Power supply availability may vary by country.

100W Wall Mount USB Type-C® GaN Halogen Free AC power adapter	Weight (DC Cable Included)	106 g ± 10 g
	Input	100 Vac ~ 240 Vac
	Input Efficiency	USB-C
		90.00 % min at 115 Vac/ 230 Vac @ 20.00 V/ 5.00 A
	Input frequency range	47 Hz ~ 63 Hz
	Input AC current	Max 1.60 A at 90 Vac input
	Output	
	Output power	20.00 V / 100.00 W
	DC output	+ 20.00 V
	Hold - up time	5 ms at 115 Vac input
	Output Over Current	5.40 A (max)
	Protection	
	AC Inlet Type	Fixed 2 Prong
	DC Cable Connector	USB Type-C
	DC Cable Material	Halogen Free
	Connector	
	Connector	Fixed 2 Prong
	Environmental Design	
	Operating temperature	0°C to 35°C (32°F to 95°F)
	Non - operating(storage) temperature	-20°C to 85°C (-4°F to 185°F)
	Altitude	0 m to 5000 m (0 ft to 16404.2 ft)
	Humidity	20 % to 95 %
Storage Humidity	10 % to 95 %	
EMI and Safety Certifications	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 GEMS	



and RCM, BIS, BSMI, UAE, UKCA DoC

100W Wall Mount USB Type-C® GaN Halogen Free AC power adapter	Weight (DC Cable Included)	250 g ± 10 g
	Input	100 Vac ~ 240 Vac
	Input Efficiency	USB-C 90.00 % min at 115 Vac/ 230 Vac @ 20.00 V/ 5.00 A
	Input frequency range	47 Hz ~ 63 Hz
	Input AC current	Max 1.60 A at 90 Vac input
	Output	
	Output power	20.00 V / 100.00 W
	DC output	+ 20.00 V
	Hold - up time	5 ms at 115 Vac input
	Output Over Current	5.40 A (max)
	Protection	
	AC Inlet Type	Foldable for 2 prong
	DC Cable Connector	USB Type-C
	DC Cable Material	Halogen Free
	Connector	
	Connector	Foldable for 2 prong
	Environmental Design	
	Operating temperature	0°C to 35°C (32°F to 95°F)
	Non - operating(storage) temperature	-20°C to 85°C (-4°F to 185°F)
	Altitude	0 m to 5000 m (0 ft to 16404.2 ft)
	Humidity	20 % to 95 %
Storage Humidity	10 % to 95 %	
EMI and Safety Certifications	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 GEMS and RCM, BIS, BSMI, UAE, UKCA DoC	



65W Standard USB Type-C® GaN AC power adapter	Weight (DC Cable Included)	185 g ± 10 g
	Input	100 Vac ~ 240 Vac
	Input Efficiency	USB-C 89.00 % min at 115 Vac/ 230 Vac @ 20.00 V/ 3.25 A
	Input frequency range	47 Hz ~ 63 Hz
	Input AC current	Max 1.60 A at 90 Vac input
	Output	
	Output power	20.00 V / 65.00 W
	DC output	+ 20.00 V
	Hold - up time	5 ms at 115 Vac input
	Output Over Current	5.40 A (max)
	Protection	
	AC Inlet Type	C6
	DC Cable Connector	USB Type-C
	DC Cable Material	Low Halogen
	Connector	
	Connector	C6
	Environmental Design	
	Operating temperature	0°C to 35°C (32°F to 95°F)
	Non - operating(storage) temperature	-20°C to 85°C (-4°F to 185°F)
	Altitude	0 m to 5000 m (0 ft to 16404.2 ft)
	Humidity	20 % to 95 %
	Storage Humidity	10 % to 95 %
	EMI and Safety Certifications	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 GEMS and RCM, BIS, BSMI, UAE, UKCA DoC



65W Wall Mount USB Type-C® GaN Halogen Free AC power adapter	Weight (DC Cable Included)	185 g ± 10 g
	Input	100 Vac ~ 240 Vac
	Input Efficiency	USB-C 89.00 % min at 115 Vac/ 230 Vac @ 20.00 V/ 3.25 A
	Input frequency range	47 Hz ~ 63 Hz
	Input AC current	Max 1.60 A at 90 Vac input
	Output	
	Output power	20.00 V / 65.00 W
	DC output	+ 20.00 V
	Hold - up time	5 ms at 115 Vac input
	Output Over Current	5.40 A (max)
	Protection	
	AC Inlet Type	Foldable for 2 prong
	DC Cable Connector	USB Type-C
	DC Cable Material	Halogen Free
	Connector	
	Connector	Foldable for 2 prong
	Environmental Design	
	Operating temperature	0°C to 35°C (32°F to 95°F)
	Non - operating(storage) temperature	-20°C to 85°C (-4°F to 185°F)
	Altitude	0 m to 5000 m (0 ft to 16404.2 ft)
	Humidity	20 % to 95 %
Storage Humidity	10 % to 95 %	
EMI and Safety Certifications	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 GEMS and RCM, BIS, BSMI, UAE, UKCA DoC	



65W Wall Mount USB Type-C® GaN Halogen Free AC power adapter	Weight (DC Cable Included)	185 g ± 10 g
	Input	100 Vac ~ 240 Vac
	Input Efficiency	USB-C 89.00 % min at 115 Vac/ 230 Vac @ 20.00 V/ 3.25 A
	Input frequency range	47 Hz ~ 63 Hz
	Input AC current	Max 1.60 A at 90 Vac input
	Output	
	Output power	20.00 V / 65.00 W
	DC output	+ 20.00 V
	Hold - up time	5 ms at 115 Vac input
	Output Over Current	5.50 A (max)
	Protection	
	AC Inlet Type	Fixed 2 Prong
	DC Cable Connector	USB Type-C
	DC Cable Material	Halogen Free
	Connector	
	Connector	Fixed 2 Prong
	Environmental Design	
	Operating temperature	0°C to 35°C (32°F to 95°F)
	Non - operating(storage) temperature	-20°C to 85°C (-4°F to 185°F)
	Altitude	0 m to 5000 m (0 ft to 16404.2 ft)
	Humidity	20 % to 95 %
	Storage Humidity	10 % to 95 %
	EMI and Safety Certifications	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 GEMS and RCM, BIS, BSMI, UAE, UKCA DoC



Battery

Battery is internal and replaceable by customer. Serviceable by warranty.

56Wh Long Life Polymer Fast charge 3 cell Battery	Weight	210 g ± 10 g (0.46 lb)
	Cells / Type	3 cell Lithium-Ion Polymer /
	Energy	
	Voltage	11.67 V
	Amp - hour capacity	4.799 Ah
	Watt - hour capacity	56Wh.00 Wh
	Temperature	
	Operating (Charging)	0°C to 45°C (32°F to 113°F)
	Operating (Discharging)	-10°C to 60°C (14°F to 140°F)
	Optional Travel Battery Available	No
68Wh Long Life Polymer Fast charge 6 cell Battery	Weight	250 g ± 10 g (0.55 lb)
	Cells / Type	6 cell Lithium-Ion Polymer / 604457
	Energy	
	Voltage	11.70 V
	Amp - hour capacity	5.812 Ah
	Watt - hour capacity	68Wh.00 Wh
	Temperature	
	Operating (Charging)	0°C to 45°C (32°F to 113°F)
	Operating (Discharging)	-10°C to 60°C (14°F to 140°F)
	Optional Travel Battery Available	No



AUDIO

Codec	Realtek ALC3335
Audio I/O Ports	3.5mm Headset: CTIA only; Headphone-out
Internal Speaker Amplifier	TI SoundWire Class-D Amplifier
Multi-streaming Capable	Playback multi-streaming can be enabled in the audio control panel to allow independent audio streams to be sent to/from the front jacks or integrated speaker. Following Microsoft behavior.
Sampling	DAC: Supports resolutions from 16-bit to 24-bit;48.0 kHz to 48.0 kHz ADC: Supports resolutions from 16-bit to 24-bit;44.1 kHz to 48.0 kHz
Internal Speaker	Yes



FINGERPRINT READER

Sensor vendor	SYNAPTICS
Sensor type	Capacitive
DPI resolution	363 DPI
Scan area	104 x 86 pixels
False Rejection Rate	< 3%
False Acceptance Rate	< 0.001%
Mobile Voltage Operation	2.7 V ~ 3.6 V
Operating Temperature	5°C ~ 60°C (41°F ~ 140°F)
Current Consumption Image	100 mA max
Low Latency Wait For Finger	260 uA
Capture Rate	50 frames/sec
ESD Resistance	IEC 61000-4-2 4B (+15KV)
Detection Matrix	363 dpi / 7.4 x 6.0 mm sensor area



OPTIONS

Container Name	Description	Part Number
Adapters	HP 240W Thunderbolt 4 Cable	BR1W8AA
	HP HDMI to VGA Adapter	H4F02AA
	HP USB 3.0 to Gigabit RJ45 Adapter G2	4Z7Z7AA
	HP USB-C to DisplayPort Adapter G2	8Y8Y1AA
	HP USB-C to HDMI 2.0 Adapter	1WC36AA
	HP USB-C to RJ45 Adapter G2	4Z527AA
	HP USB-C to USB 3.0 Adapter	N2Z63AA
	HP USB-C to VGA Adapter	N9K76AA
Audio - Earbuds	Poly Voyager Free 60+ Carbon Black Earbuds	7Y8G4AA
	Poly Voyager Free 60+ Carbon Black Earbuds	7Y8H0AA
Audio - Headset	HP USB G2 Stereo Headset	428K6AA
	Poly Blackwire 3210 Monaural USB-C Headset	8X214AA
	Poly Blackwire 3215 Monaural USB-C Headset	8X227AA
	Poly Blackwire 3220 Stereo USB-C Headset	8X228AA
	Poly Blackwire 3225 Stereo USB-C Headset	8X229AA
	Poly Blackwire 3310 Monaural USB-C Headset	8X215AA
	Poly Blackwire 3310 Monaural USB-C Headset	8X216AA
	Poly Blackwire 3315 Monaural USB-C Headset	8X217AA
	Poly Blackwire 3315 Monaural USB-C Headset	8X218AA
	Poly Blackwire 3320 Stereo USB-C Headset	8X219AA
	Poly Blackwire 3320 Stereo USB-C Headset	8X220AA
	Poly Blackwire 3325 Stereo USB-C Headset	8X221AA
	Poly Blackwire 3325 Stereo USB-C Headset	8X222AA
	Poly Blackwire 5210 Monaural USB-C Headset	8X230AA
	Poly Blackwire 5220 Stereo USB-C Headset	8X231AA
	Poly Blackwire 8225 Stereo USB-C Headset	8X223AA
	Poly Blackwire 8225 Stereo USB-C Headset	8X225AA
	Poly EncorePro 320 Binaural Headset	77T26AA
	Poly EncorePro 510 Monaural Headset	783Q2AA
	Poly EncorePro 510 Monoaural Headset	783Q1AA



Poly EncorePro 520 Binaural Headset	783P6AA
Poly EncorePro 520 Binaural Headset	783P7AA
Poly EncorePro 530 Discreet Headset	783P2AA
Poly EncorePro 530 Headset	783P3AA
Poly EncorePro 540 Convertible Headset	783P0AA
Poly EncorePro 540 Convertible Headset	783P1AA
Poly EncorePro 720 Binaural Headset	8R707AA
Poly EncorePro HW710 Single Ear Headset	8R708AA
Poly EncorePro Monoaural 310 Headset	77T43AA
Poly EncorePro Monoaural 515 with USB-A Headset	783R0AA
Poly EncorePro Monoaural 515 with USB-A Headset	783R1AA
Poly EncorePro Stereo 525 with USB-A Headset	783R2AA
Poly EncorePro USB-A Monoaural 715 Headset	783N5AA
Poly EncorePro USB-A Stereo 525 Headset	783R3AA
Poly EncorePro USB-A Stereo 725 Headset	783M6AA
Poly EncorePro USB-C Monoaural 310 Headset	760Q8AA
Poly Savi 7310 DECT 1880-1900 MHz Single Ear Headset	8D3G3AA
Poly Savi 7310 Monoaural DECT 1880-1900 MHz Headset	8L561AA
Poly Savi 7310 Monoaural DECT 1880-1900 MHz Headset	8L575AA
Poly Savi 7310 Monoaural DECT 1920-1930 MHz Headset	7S430AA
Poly Savi 7310 Monoaural DECT 1920-1930 MHz Headset	8L570AA
Poly Savi 7310 Monoaural DECT 1920-1930 MHz Headset	8L585AA
Poly Savi 7310-M DECT 1880-1900 MHz Single Ear Headset	8D3K7AA
Poly Savi 7310-M DECT 1920-1930 MHz Single Ear Headset	7S439AA
Poly Savi 7320 Stereo DECT 1880-1900 MHz Headset	8D3F7AA
Poly Savi 7320 Stereo DECT 1880-1900 MHz Headset	8L545AA
Poly Savi 7320 Stereo DECT 1880-1900 MHz Headset	8L553AA
Poly Savi 7320 Stereo DECT 1893-1906 MHz Headset	8D3F8AA
Poly Savi 7320 Stereo DECT 1893-1906 MHz Headset	8L546AA
Poly Savi 7320 Stereo DECT 1893-1906 MHz Headset	8L555AA
Poly Savi 7320 Stereo DECT 1910-1920 MHz Headset	8D3G0AA
Poly Savi 7320 Stereo DECT 1920-1930 MHz Headset	7S429AA
Poly Savi 7320 Stereo DECT 1920-1930 MHz Headset	8L549AA



Poly Savi 7320 Stereo DECT 1920-1930 MHz Headset	8L559AA
Poly Savi 7320-M Stereo DECT 1880-1900 MHz Headset	8D3J6AA
Poly Savi 7320-M Stereo DECT 1893-1906 MHz Headset	8D3K2AA
Poly Savi 7320-M Stereo DECT 1910-1920 MHz Headset	8D3K0AA
Poly Savi 7320-M Stereo DECT 1920-1930 MHz Headset	7S435AA
Poly Savi 8210 DECT 1880-1900 MHz USB-A Headset	8D3E9AA
Poly Savi 8210 DECT 1880-1900 MHz USB-A Headset	8D3F1AA
Poly Savi 8210 DECT 1920-1930 MHz USB-A Headset	77T29AA
Poly Savi 8210 DECT 1920-1930 MHz USB-A Headset	77T31AA
Poly Savi 8220 DECT 1880-1900 MHz USB-A Headset	8D3F2AA
Poly Savi 8220 DECT 1880-1900 MHz USB-A Headset	8D3F5AA
Poly Savi 8220 DECT 1920-1930 MHz USB-A Headset	77T33AA
Poly Savi 8220 DECT 1920-1930 MHz USB-A Headset	77Y82AA
Poly Savi 8220 Stereo DECT 1880-1900 MHz Top	8Y9C4AA
Poly Savi 8245 DECT 1880-1900 MHz Headset	8D3H2AA
Poly Savi 8245 DECT 1880-1900 MHz USB-A Headset	8D3F4AA
Poly Savi 8410 Monaural DECT 1880-1900 MHz Headset	8L5A7AA
Poly Savi 8410 Monaural DECT 1880-1900 MHz Headset	8L5A9AA
Poly Savi 8410 Monaural DECT 1920-1930 MHz Headset	8L7E6AA
Poly Savi 8410 Monaural DECT 1920-1930 MHz Headset	8L7E9AA
Poly Savi 8420 Stereo DECT 1880-1900 MHz Headset	8L5B2AA
Poly Savi 8420 Stereo DECT 1880-1900 MHz Headset	8L5B3AA
Poly Savi 8420 Stereo DECT 1920-1930 MHz Headset	8L7F2AA
Poly Savi 8420 Stereo DECT 1920-1930 MHz Headset	8L7F5AA
Poly Savi 8445 DECT 1880-1900 MHz Convertible Headset	8L5B4AA
Poly Savi 8445 DECT 1880-1900 MHz Convertible Headset	8L5B6AA
Poly Savi 8445 DECT 1920-1930 MHz Convertible Headset	8L7F1AA
Poly Savi 8445 DECT 1920-1930 MHz Convertible Headset	8L7F8AA
Poly Voyager 4310 Headset	77Y93AA
Poly Voyager 4310 Monaural Headset	77Y92AA
Poly Voyager 4310 USB-A Headset	76U48AA
Poly Voyager 4310 USB-A Headset	77Y91AA
Poly Voyager 4310 USB-C Headset	77Y94AA



	Poly Voyager 4310 USB-C Headset	77Y95AA	
	Poly Voyager 4310 USB-C Headset	77Y96AA	
	Poly Voyager 4310-M USB-C Headset	77Y97AA	
	Poly Voyager 4320 Headset	77Z00AA	
	Poly Voyager 4320 Stereo USB-A Headset	77Y99AA	
	Poly Voyager 4320 USB-A Headset	76U49AA	
	Poly Voyager 4320 USB-A Headset	77Y98AA	
	Poly Voyager 4320 USB-C Headset	76U50AA	
	Poly Voyager 4320 USB-C Headset	77Z30AA	
	Poly Voyager 4320 USB-C Headset	77Z31AA	
	Poly Voyager 4320-M Headset	77Z32AA	
	Poly Voyager Focus 2 USB-C-C Headset	9T9J3AA	
	Poly Voyager Focus 2 USB-C-C Headset	9T9J5AA	
	Poly Voyager Focus 2 USB-C-C Headset	9T9J6AA	
	Poly Voyager Legend 50 Headset UC	AT9M9AA,AT9M9UT	
	Poly Voyager Legend 50-M Headset UC	AJ8V4AA,AJ8V4UT	
	Poly Voyager Surround 80 USB-C Headset	8G7T9AA	
	Poly Voyager Surround 80 USB-C Headset	8G7U0AA	
	Poly Voyager Surround 85 USB-C Headset	8G7T7AA	
	Poly Voyager Surround 85 USB-C Headset	8G7T8AA	
Audio - Speaker phone	Poly Sync 10 Speakerphone	77P34AA	
	Poly Sync 20 Speakerphone USB-C/A Adapter	B95VJUT	
	Poly Sync 20+ Speakerphone	B95VKAA	
	Poly Sync 20+M Speakerphone USB-C/A Adapter	B95VLAA	
	Poly Sync 20-M Speakerphone USB-C/A Adapter	B95VMUT	
	Poly Sync 40 Speakerphone	77P35AA	
	Poly Sync 40+ USB-A USB-C Speakerphone	77P36AA	
	Poly Sync 40+ USB-A USB-C Speakerphone	772C5AA	
	Poly Sync 60 Speakerphone	772C2AA	
	Poly Sync 60 Speakerphone	77P41AA	
	Poly Sync USB-A USB-C 10 Speakerphone	772C3AA	
	Poly Sync USB-A USB-C 40 Speakerphone	772C4AA	
	Camera	HP 625 Webcam	6Y7L1AA



Cases

HP USB-A 325 Webcam	53X27AA
HP 14 Convertible Laptop Backpack Tote	9C2H1AA
HP 14 Modular Laptop Sleeve	9J499AA
HP 15.6 Modular Laptop Backpack	9J496AA
HP 15.6 Modular Laptop Bag	9J497AA
HP 15.6 Modular Laptop Sleeve	9J498AA
HP Campus blue Backpack	7K0E5AA
HP Campus Core 16 blue Laptop Backpack	B9RB4AA
HP Campus Core 16 green Laptop Backpack	B9RB5AA
HP Campus green Backpack	7K0E4AA
HP Campus XL Marble Stone Backpack	7K0E2AA
HP Campus XL Tie Dye Backpack	7K0E3AA
HP Convertible Laptop Stand	9C2H2AA
HP Everyday 14 odyssey gray Laptop Bag	A08KJAA
HP Everyday 14 odyssey gray Laptop Briefcase	A08KGAA
HP Everyday 16 odyssey gray Laptop Backpack	A08KLUT
HP Everyday 16 odyssey gray Laptop Bag	A08KKAA
HP Everyday 16 odyssey gray Laptop Briefcase	A08KHUT
HP Modern 14-inch moonless Night Laptop Briefcase	CJ8D0AA
HP Modern 14-inch navy blazer Laptop Briefcase	CJ8F8AA
HP Prelude 15.6 Backpack	1E7D6AA,1E7D6UT,50P32AA
HP Prelude 15.6 Top Load	1E7D7AA,50P31AA
HP Prelude Pro Recycled 15.6 Backpack	1X644AA
HP Prelude Pro Recycled 15.6 Top Load	1X645AA
HP Protective 13-14 atmospheric blue Laptop Sleeve	C3TR3UT
HP Protective 13-14 meteor silver Laptop Sleeve	C3TR2UT
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	3E2U5UT
HP Renew Business 17.3 Laptop Bag	3E2U6AA
HP Renew Executive 14.1 Laptop Sleeve	6B8Y3AA
HP Renew Executive 16 Laptop Backpack	6B8Y1UT



	HP Renew Executive 16 Laptop Bag	6B8Y2AA
	HP Travel 18 Liter 15.6 iron gray Laptop Backpack	6H2D9AA
	HP Travel 25 Liter 15.6 iron gray Laptop Backpack	6H2D8AA
	HP Travel Plus 15 Liter 14 Laptop Bag	A2CE2AA
	HP Travel Plus 22 Liter 16 Laptop Bag	A2CE1AA
	HP Travel Plus 30 Liter 17 Laptop Backpack	A2CE0AA
Commodity	HP USB DVD-Writer External ODD	F2B56AA
	HP Combination Nano Cable Lock	63B28AA
	HP Essential Combination Nano Cable Lock	63B31AA
	HP Nano Keyed Cable Lock	1AJ39AA
	HP Nano Master Keyed Cable Lock	1AJ40AA
	HP SureKey Standard/Nano/Wedge Cable Lock	6UW42AA
Docking	HP Thunderbolt™ 100W G6 Dock	9X472AA,9X472UT
	HP Thunderbolt™ 180W G6 Dock	9X481AA,9X481UT
	HP Thunderbolt™ 280W G6 Dock	AW5L5AA,AW5M5UT
	HP USB-C™ 100W G6 Dock	9X3V1AA,9X3V1UT
Hub	HP 4K USB-C Multiport Hub	6G843AA,6G843UT
	HP Portable USB-C 4K HDMI Hub	BR1U0UT
	HP Portable USB-C Hub	B8SU8UT
	HP Universal USB-C Hub and Laptop Charger Combo	9H0H9AA
	HP Universal USB-C Multiport Hub	50H55UT
	HP USB-C to USB-A Hub	Z6A00AA
	HP USB-C Travel Hub G3	86S97AA,86S97UT
Keyboard	HP 125 G2 Wired Keyboard	AY2Y7AA
	HP 225 Wireless Keyboard	805T1AA
	HP 320K G2 Wired Keyboard	9SR37UT
	HP 355 Compact Multi-Device Keyboard	692S9AA
	HP 405 Backlit Wired Keyboard	7N7C1AA,7N7C1UT
	HP 435 Programmable Wireless Keypad	7N7C3AA
	HP 475 Dual-Mode Wireless Keyboard	7N7B9AA,7N7B9UT
	HP 485 Comfort Wired Keyboard	8T6M2AA
	HP Multi-Device Dual-Mode Keyboard 495K	BD5F5UT
	HP Multi-Device Dual-Mode Keyboard with Palm Rest 585K	BD5F7AA



Keyboard & Mouse Combo

HP 685 Comfort Dual-Mode Keyboard	8T6L9UT
HP 725 Multi-Device Rechargeable Wireless Keyboard	9T5B2AA
HP 965 black Ergonomic Wireless Keyboard	7E756AA
HP 975 Dual-Mode USB+Bluetooth Wireless Keyboard	3Z726AA
HP 225 Wired Mouse and Keyboard Combo	AX2Y7AA
HP 225 Wired Mouse and Keyboard Combo Cashmere White	AW5S6AA
HP 235 Wireless Mouse and Keyboard Combo	1Y4D0AA,1Y4D0UT
HP 685 Comfort Dual-Mode Keyboard and Mouse Combo	8T6L7UT
HP 725 Multi-Device Rechargeable Wireless Keyboard and Mouse Combo	9T5B0UT
HP Multi-Device Dual-Mode Mouse and Keyboard Combo 495C	BE1Q0UT
HP Multi-Device Dual-Mode Mouse and Keyboard Combo 495C White	BE1M6AA
HP Multi-Device Dual-Mode Mouse and Keyboard Combo with Palm Rest 585C	BD5F3AA

Mouse

HP Wired Desktop 320MK Mouse and Keyboard	9SR36UT
HP 105 Black Wired Mouse	822M9UT
HP 105 Mouse Pad	8X595AA
HP 125 Wired Mouse	265A9UT
HP 128 Laser Wired Mouse	265D9AA
HP 205 Desk Mat	8X597AA
HP 235 Slim Wireless Mouse	4E407UT
HP 245 Black Bluetooth Mouse	81S67AA,81S67UT
HP 255 Dual Wireless Mouse	8R3U1AA,8R3U1UT
HP 285 Silent Wireless Mouse	6G4E6AA
HP 320M Wired Mouse	9VA80AA
HP 405 Quiet Black Wireless Mouse	AZ7B3AA
HP 425 Programmable Wireless Mouse	7M1D5AA
HP 435 Multi-Device Wireless Mouse	3B4Q5UT
HP 515 Ultra-Fast Rechargeable Wireless Mouse	9C2F7AA
HP 685 Comfort Dual-Mode Mouse	8T6M0UT
HP 695 Qi-Charging Wireless Mouse	8F1Y4AA
HP 705 Rechargeable Wireless Mouse	AZ7B1AA



Power

HP 715 Rechargeable Multi-Device Bluetooth Mouse	6E6F0AA
HP 925 Ergonomic Vertical Wireless Mouse	6H1A5AA
HP Tilt Ergonomic Mouse 725M	BH0Z5AA
HP Travel USB Mouse	G1K28AA
HP Ultra-Fast Scroll Wireless Mouse 785M	B8YX4AA
HP 110W USB-C Laptop Charger	8B3Y2UT
HP 140W USB-C Laptop Charger	B7NK0AA
HP 65W Gallium Nitride USB-C LC Laptop Charger	9Y3X5AA,9Y3X5UT
HP 65W LC USB-C AC power adapter	1P3K6AA
HP 65W LC HF USB-C AC power adapter	AJ7X5AA
HP 65W USB-C Laptop Charger	600Q8UT
HP 65W USB-C Laptop Charger	671R3UT



CHANGELOG

Date of change	Version History		Description of change
March 17 2026	V1 to V2	Added	Battery Life
April 6, 2026	V2 to V3	Updated	Power Section
April 10, 2026	V3 to V4	Updated	Weight and Dimensions
May 7, 2026	V4 to V5	Updated	Processor Section
June 1, 2026	V5 to V6	Updated	Environmental Section

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