

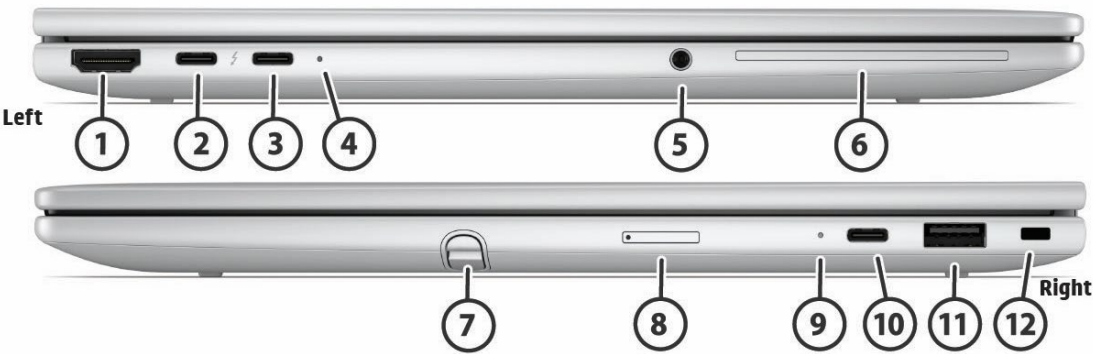
HP EliteBook 8 Flip G2i 13 inch Notebook Next Gen AI PC



Front

- |   |                      |   |                    |
|---|----------------------|---|--------------------|
| 1 | ACS & ALS Sensor     | 5 | Camera Shutter     |
| 2 | Microphone (2)       | 6 | IR LEDS (optional) |
| 3 | IR Camera (optional) | 7 | Web Cam LED        |
| 4 | Web Cam              | 8 | Touchpad           |





Sides

|   |                                                                                               |    |                                                                          |
|---|-----------------------------------------------------------------------------------------------|----|--------------------------------------------------------------------------|
| 1 | HDMI 2.1                                                                                      | 7  | Pen garage (optional)                                                    |
| 2 | Thunderbolt™ 4 with USB Type-C® 40Gbps signaling rate (USB Power Delivery, DisplayPort™ 2.1)¹ | 8  | Nano SIM card slot (optional)                                            |
| 3 | Thunderbolt™ 4 with USB Type-C® 40Gbps signaling rate (USB Power Delivery, DisplayPort™ 2.1)¹ | 9  | Power Indicator LED                                                      |
| 4 | Power Indicator LED                                                                           | 10 | USB Type-C® 10Gbps signaling rate (USB Power Delivery, DisplayPort™ 1.4) |
| 5 | Headphone/mic combo jack                                                                      | 11 | USB Type-A 5Gbps signaling rate (Powered)                                |
| 6 | Smart Card Reader (optional)                                                                  | 12 | Nano Security slot                                                       |

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

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### PRODUCT NAME

HP EliteBook 8 Flip G2i 13 inch Notebook Next Gen AI PC

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#### OPERATING SYSTEM

##### Preinstalled

FreeDOS

Windows 11 Home - HP recommends Windows 11 Pro for business <sup>1</sup>

Windows 11 Home Single Language - HP recommends Windows 11 Pro for business <sup>1</sup>

Windows 11 Pro <sup>1</sup>

Windows 11 Pro Education<sup>1</sup>

Windows 11 Pro (Windows 11 Enterprise available with a Volume Licensing Agreement) <sup>1</sup>

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>

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PROCESSORS

| Processor <sup>2,3,4,5,6</sup>     | Cores    | Number of P-cores | Number of E-cores | Number of LP E-cores | Threads | Smart Cache | Max Turbo Frequency <sup>3</sup> |          |            | Intel SIPP/ vPro® Enterprise | Integrated Graphic | NPU     |
|------------------------------------|----------|-------------------|-------------------|----------------------|---------|-------------|----------------------------------|----------|------------|------------------------------|--------------------|---------|
|                                    |          |                   |                   |                      |         |             | P-cores                          | E-cores  | LP E-cores |                              |                    |         |
| Intel® Core™ Ultra7 processor 366H | 16 cores | 4                 | 8                 | 4                    | 16      | 18 MB       | 4.80 GHz                         | 3.60 GHz | 3.40 GHz   | X                            | Intel® Graphics    | 50 TOPS |
| Intel® Core™ Ultra7 processor 356H | 16 cores | 4                 | 8                 | 4                    | 16      | 18 MB       | 4.70 GHz                         | 3.50 GHz | 3.30 GHz   |                              | Intel® Graphics    | 50 TOPS |
| Intel® Core™ Ultra7 processor 365  | 8 cores  | 4                 | 0                 | 4                    | 16      | 12 MB       | 4.80 GHz                         | NA       | 3.60 GHz   | X                            | Intel® Graphics    | 49 TOPS |
| Intel® Core™ Ultra7 processor 355  | 8 cores  | 4                 | 0                 | 4                    | 8       | 12 MB       | 4.70 GHz                         | NA       | 3.50 GHz   |                              | Intel® Graphics    | 49 TOPS |
| Intel® Core™ Ultra5 processor 335  | 8 cores  | 4                 | 0                 | 4                    | 8       | 12 MB       | 4.60 GHz                         | NA       | 3.40 GHz   | X                            | Intel® Graphics    | 47 TOPS |
| Intel® Core™ Ultra5 processor 325  | 8 cores  | 4                 | 0                 | 4                    | 8       | 12 MB       | 4.50 GHz                         | NA       | 3.40 GHz   |                              | Intel® Graphics    | 47 TOPS |
| Intel® Core™ Ultra5 processor 332  | 6 cores  | 2                 | 0                 | 4                    | 6       | 12 MB       | 4.40 GHz                         | NA       | 3.30 GHz   | X                            | Intel® Graphics    | 46 TOPS |
| Intel® Core™ Ultra5 processor 322  | 6 cores  | 2                 | 0                 | 4                    | 6       | 12 MB       | 4.40 GHz                         | NA       | 3.30 GHz   |                              | Intel® Graphics    | 46 TOPS |

Processor Family

Intel® Core™ Ultra7 processor

Intel® Core™ Ultra5 processor

2. 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® numbering, branding, naming are not a measurement of clock speed.
  3. Intel® Turbo Boost 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. For full Intel® vPro® functionality, Windows 10 (or higher) Pro or Enterprise 64 bit edition, a vPro supported processor, vPro enabled chipset, vPro enabled wired LAN and/or WLAN card and TPM 2.0 are required. Some functionality requires additional 3rd party software in order to run. See <http://intel.com/vpro>
- 



### GRAPHICS

#### Integrated

Intel® Graphics

#### Supported Protocols

Support DirectX®12, HDCP 2.3, HDMI 2.1 (up to 4K 60Hz)

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

#### Codec

Hardware Acceleration HEVC (H.265) CODEC is supported

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DISPLAY

Availability may vary by country.  
Actual brightness will be lower with touchscreen or HP Sure View.

Non-Touch

Touch

- 33.8 cm (13.3") diagonal, WUXGA (1920 x 1200), LCD, Direct Bonding Touch Screen, UWVA, Anti-Glare, Gorilla Glass 5, Low Blue Light, 800 nits, sRGB 100%, Sure View 6 <sup>7</sup>
- 33.8 cm (13.3") diagonal, WUXGA (1920 x 1200), LCD, Direct Bonding Touch Screen, UWVA, BrightView, Gorilla Glass 5, Low Blue Light, 800 nits, sRGB 100%, Sure View 6 <sup>7</sup>
- 33.8 cm (13.3") diagonal, WUXGA (1920 x 1200), LCD, Direct Bonding Touch Screen, UWVA, Anti-Glare, Gorilla Glass 5, WLED+Low Blue Light, 400 nits, Low Power, sRGB 100%
- 33.8 cm (13.3") diagonal, WUXGA (1920 x 1200), LCD, Direct Bonding Touch Screen, UWVA, BrightView, Gorilla Glass 5, WLED+Low Blue Light, 400 nits, Low Power, sRGB 100%
- 33.8 cm (13.3") diagonal, WUXGA (1920 x 1200), LCD, Direct Bonding Touch Screen, UWVA, BrightView, Gorilla Glass 5, WLED, 300 nits, sRGB 62.5%

Display Size (Diagonal)

33.8 cm (13.3")

Aspect Ratio

16:10

Screen to Body Ratio

Up to 85.00%

Max Hinge Open Angle

360°

7. 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 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@ 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.

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).

Up to 180W of power delivery via Thunderbolt 4 cable to notebooks that support PD 3.1.

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 (2) 8K @ 60Hz running TBT host or running a non-TBT host in high resolution mode @30Hz

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STORAGE AND DRIVES

All SSDs on this system run at Gen4 speed.

Storage

- 2 TB PCIe® Gen5 NVMe™ SSD Value <sup>8</sup>
- 1 TB PCIe®-5x4 NVMe™ Self Encrypted OPAL2 SSD <sup>8</sup>
- 1 TB PCIe® Gen5 NVMe™ SSD Value <sup>8</sup>
- 1 TB PCIe® NVMe™ SSD Value <sup>8</sup>
- 512 GB PCIe® Gen5 NVMe™ Self Encrypted OPAL2 SSD Value <sup>8</sup>
- 512 GB PCIe® Gen5 NVMe™ SSD Value <sup>8</sup>
- 512 GB PCIe® NVMe™ SSD Value <sup>8</sup>
- 256 GB PCIe® NVMe™ Self Encrypted OPAL2 SSD Value <sup>8</sup>
- 256 GB PCIe® NVMe™ SSD Value <sup>8</sup>

8. 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) <sup>9</sup>

### Memory

64GB LPDDR5X-8533 MT/s (onboard) <sup>9</sup>

32GB LPDDR5X-8533 MT/s (onboard) <sup>9</sup>

24GB LPDDR5X-8533 MT/s (onboard) <sup>9</sup>

16GB LPDDR5X-8533 MT/s (onboard) <sup>9</sup>

### Memory Slots

No memory slots. Memory soldered down.

System runs at 7467 MT/s

Supports Dual Channel Memory.

Memory is non-accessible / non-upgradeable.

<sup>9</sup>. 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.

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## NETWORKING / COMMUNICATIONS

Items below may be optional.

### WLAN

Intel® AX211 Wi-Fi 6E Bluetooth® 5.3 WW WLAN <sup>10,11</sup>

Intel® BE211 Wi-Fi 7 Bluetooth® 6.0 non-vPro® WW WLAN <sup>12</sup>

Intel® BE211 Wi-Fi 7 Bluetooth® 6.0 vPro® WW WLAN <sup>12</sup>

### WWAN

HP 5G NR Sub-6 CAT19 <sup>13</sup>

HP 5G NR Sub-6 CAT19 HP Go Solution <sup>13</sup>

### LPWAN

HP RW220-GL LTE (Low Power) (CAT-1bis) <sup>14</sup>

### NFC

NFC Mirage WNC XRAV-1

### Miracast

Native Miracast Support <sup>15</sup>

10. 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. Available in countries where Wi-Fi 6E is supported.

11. 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.

12. 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.

13. 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.

14. LPWAN (also called Mobile Narrowband) supports HP Protect & Trace with Wolf Connect service through the subscription term, but does not support mobile broadband use.

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

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### AUDIO/MULTIMEDIA

Privacy panel is only available on select models.

#### Audio

Audio by Poly Studio

2 Integrated stereo speakers

Discrete Amplifiers

2 Integrated dual array microphone

Enhanced by AI noise reduction.

#### Speaker Power

1W / 8 ohm per speaker

#### Camera

5MP HDR camera

5MP HDR camera with Image Signal Processing (ISP) and AI Presence Detection, IR camera

#### Sensors

Accelerometer

Ambient Light Sensor <sup>16</sup>

Color Sensor with Ambient Light Sensing <sup>17</sup>

Fingerprint Sensor (optional)

Gyroscope

Hall Effect Sensor

HP Tamper Lock

Magnetometer

Thermal Sensor

16. Ambient light sensor included with Sure View display configurations.

17. Color sensor with Ambient Light Sensing included with OLED displays and LCD displays higher than 300 nits.



## KEYBOARDS/POINTING DEVICES/BUTTONS & FUNCTION KEYS

### Keyboard

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

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

HP Premium Keyboard, spill-resistant, Durakey keyboard

### Pointing Device

Clickpad

Microsoft Precision Touchpad Default Gestures Support

Multi-touch gesture support

### Function Keys

ESC - System information

F1 - Display Switching

F2 - Blank or Privacy

F3 - Brightness Down

F4 - Brightness Up

F5 - Blank or Keyboard Backlight

F6 - Audio Mute

F7 - Volume Down

F8 - Volume Up

F9 - Mic Mute

F10 - Media

F11 - Programmable Key (HP app)

F12 - HOME

Power Button (with LED)

Insert

Delete

End

Page up

Page down

Microsoft Copilot <sup>18</sup>



#### Hidden Function Keys

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

18. 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](https://aka.ms/copilotpluspcs).

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### DIGITAL PEN

#### HP Nested Pen (Select models) Functions

##### Functions

Wake on Pen  
Pen Loss Alert  
One Step Inking  
Pen Application Aware  
Power Savings with Idle Pen  
Pen Loss Adjustable Timer  
Pen as a Magnifier  
Gestures with Pen (onscreen)

##### Charging time

30 seconds

##### Usage time

Up to 120 minutes

##### Dimensions

###### Pen diameter

6.50 mm (0.26 in)

###### Pen length

135 mm (5.31 in)

##### Weight

7 g (0.015 lbs)

##### Pen Protocol

AES 2.0



### SOFTWARE AND SECURITY

#### Application Software

Buy Microsoft Office (Sold Separately)<sup>19</sup>

Edge Customization

HP Connection Optimizer

HP Hotkey Support

HP IQ<sup>20</sup>

HP Notifications

HP PC Hardware Diagnostics UEFI

HP PC Hardware Diagnostics Windows

HP Privacy Settings

HP Services Scan<sup>21</sup>

HP Support Assistant<sup>22</sup>

HSA Fusion for Commercial

HSA Telemetry for Commercial

HP app<sup>23</sup>

Poly Studio Desktop<sup>24</sup>

#### Manageability Features

HP Client Catalog (download)<sup>25</sup>

HP Client Management Script Library (download)<sup>26</sup>

HP Cloud Recovery<sup>27</sup>

HP Connect for Microsoft Endpoint Manager<sup>28</sup>

HP Driver Packs (download)<sup>29</sup>

HP Image Assistant (download)<sup>30</sup>

HP Manageability Integration Kit (download)<sup>31</sup>

HP Patch Assistant (download)<sup>32</sup>

HP Power Manager with Battery Health Manager (download)<sup>33</sup>

#### Security Features

Secured-Core PC Enable<sup>34</sup>

Windows Hello Enhanced Sign-In Security (ESS)



HP Wolf Security for Business which includes: <sup>35</sup>

HP Sure Admin <sup>36</sup>

HP Sure Click <sup>37</sup>

HP Sure Recover <sup>38</sup>

HP Sure Run <sup>39</sup>

HP Sure Sense <sup>40</sup>

HP Sure Start <sup>41</sup>

HP Tamper Lock <sup>42</sup>

#### Security- TPM

##### Model

Model: Nuvoton NPCT760HAEYX

##### Firmware Version

Firmware Version: 7.2.4.1

##### TCG

TCG TPM 2.0

##### FIPS 140-3 Compliant

FIPS 140-3 Compliant: Yes

##### Model

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 <sup>43</sup>

HP BIOS Recovery

BIOS Update via Network

HP BIOSphere <sup>44</sup>

HP DriveLock & Automatic DriveLock

HP Secure Erase <sup>45</sup>

TPM

#### Smartcard Reader

#### Model number

Alcorlink IC, CR, AK9563E66-GAF-GR, QFN28

#### FIPS 201-3 Compliant

FIPS 201-3 Compliant: Yes

#### 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

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

20. 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](https://support.hp.com/us-en/document/ish_13696672-13696717-16)

21. 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>.

22. HP Support Assistant is available on Windows. For more information, please visit [www.support.hp.com/help/hp-support-assistant](http://www.support.hp.com/help/hp-support-assistant).

23. HP app requires Windows 10 or higher OS.

24. Poly Studio Desktop requires a Windows OS.

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

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

27. 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>.

28. 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.

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

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

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

32. 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>.

33. 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](https://support.hp.com/in-en/document/ish_4449597-3519507-16).



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34. 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.
35. HP Wolf Security for Business requires Windows 10 or 11 Pro 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.
36. 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
37. HP Sure Click requires Windows 10 Pro or higher or Enterprise. See [https://bit.ly/2PrLT6A\\_SureClick](https://bit.ly/2PrLT6A_SureClick) for complete details.
38. 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.
39. HP Sure Run is available on select HP PCs and requires Windows 10 and higher.
40. HP Sure Sense is available on select HP PCs with Windows 10 Pro, Windows 10 Enterprise, Windows 11 Pro, or Windows 11 Enterprise OS.
41. HP Sure Start is available on select HP PCs and requires Windows 10 and higher
42. HP Tamper Lock can be Enabled/disabled by customers or IT administrator with administrator authority.
43. 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/>.
44. HP BIOSphere features may vary depending on the platform and configuration.
45. HP Secure Erase implements the methods outlined in the National Institute of Standards and Technology Special.
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## POWER

Power supply availability may vary by country.

Battery is internal and replaceable by customer.

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

Using lower-capacity third-party USB Type-C® power cables may reduce power delivery.

### Power Supply

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

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

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

### Battery

HP Long Life 3 cell, 62Wh Polymer

Compliant with UL 1642/2054 Standard

### Battery Recharge Time

Supports battery HP Fast Charge: approximately 50% in 30 minutes <sup>46</sup>

### Power Cord

3-wired plug- 1.0m for standard type adapter

USB Type-C® Power Cable- 2.0m for wall mount adapter

### Battery life

MM30: Up to 18 hours 30 minutes with 62Whr battery (Intel Core Ultra 7 355, UMA graphic, brightness set to 250nits on a 13X-inch WUXGA 400nits LP LCD display, 16GB LPDDR5X memory, 256GB SSD) <sup>47</sup>

Teams 3x3: Up to 11 hours 45 minutes with 62Whr battery (Intel Core Ultra 7 355, UMA graphic, brightness set to 150nits on a 13X-inch WUXGA 400nits LP LCD display, 16GB LPDDR5X memory, 256GB SSD) <sup>48</sup>

Web Browsing: Up to 21 hours 15 minutes with 62Whr battery (Intel Core Ultra 7 355, UMA graphic, brightness set to 150nits on a 13X-inch WUXGA 400nits LP LCD display, 16GB LPDDR5X memory, 256GB SSD) <sup>49</sup>

<sup>46</sup>. 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.

47. Test configuration: 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.

48. 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.

49. 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).

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### 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 1.399 kg (3.08 lb) with 62.00 Wh battery

#### Product Dimensions (w x d x h) <sup>50</sup>

Width: 301.8 mm (11.88 in)

Depth: 216.1 mm (8.51 in)

Height Front: 11.85 mm (0.47 in)

Height Rear: 15.50 mm (0.61 in)

Maximum Height: 18.95 mm (0.75 in)

#### Pallet Dimensions (w x d x h)

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](#).

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

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## PORTS/SLOTS

### Left side

2 x Thunderbolt™ 4 with USB Type-C® 40Gbps signaling rate (USB Power Delivery, DisplayPort™ 2.1) <sup>51</sup>

1 x HDMI 2.1

(Support up to 4k60Hz)

1 x headphone/mic combo jack

1 x Smart Card Reader (optional)

### Right side

1 x USB Type-C® 10Gbps signaling rate (USB Power Delivery, DisplayPort™ 1.4)

1 x USB Type-A 5Gbps signaling rate (Powered)

1 x Nano SIM card slot (optional)

1 x Pen garage (optional)

1 x Nano Security Slot

<sup>51</sup>. USB 20Gbps signaling rate is not available with Thunderbolt™ 4. Actual throughput may vary.

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ENVIRONMENTAL DATA

|                    |                                                                     |                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                         |              |              |
|--------------------|---------------------------------------------------------------------|---------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|--------------|--------------|
| 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"><li>• IT ECO declaration</li><li>• US ENERGY STAR®</li><li>• US Federal Energy Management Program (FEMP)</li><li>• EPEAT® Gold registered in the United States. See <a href="http://www.epeat.net">http://www.epeat.net</a> for registration status in your country.</li><li>• TCO Certified</li><li>• China Energy Conservation Program (CECP)</li><li>• China State Environmental Protection Administration (SEPA)</li><li>• Taiwan Green Mark</li><li>• Korea Eco-label</li><li>• Japan PC Green label*</li></ul> |              |              |
|                    | Sustainable Impact Specifications                                   | <ul style="list-style-type: none"><li>• <a href="#">Product Carbon Footprint</a></li><li>• At least 30% ocean bound plastic in the Speaker enclosure<sup>1</sup></li><li>• At least 45% post-consumer recycled plastic<sup>2</sup></li><li>• At least 80% recycled metal<sup>3</sup></li><li>• External Power Supply 90% Efficiency</li><li>• Low Halogen<sup>4</sup></li><li>• 100% of HP paper-based packaging is from recycled or certified sustainable sources<sup>5</sup></li><li>• Bulk packaging available</li></ul>                                                                                                                                                                             |              |              |
|                    | 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)                                        | 2.84 W                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                  | 3.11 W       | 3.18 W       |
|                    | Normal Operation (Long idle)                                        | 0.51 W                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                  | 0.55 W       | 0.50 W       |
|                    | Sleep                                                               | 0.51 W                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                  | 0.55 W       | 0.50 W       |
|                    | Off                                                                 | 0.22 W                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                  | 0.27 W       | 0.28 W       |



|  |                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                           |                                                                                                                                                                                                                                                                           |                                                       |
|--|-----------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|---------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|-------------------------------------------------------|
|  | <p>Note:</p> <p>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> |                                                                                                                                                                                                                                                                           |                                                       |
|  | <b>Heat Dissipation*</b>                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                  | <b>115VAC, 60Hz</b>                                                                                                                                                                                                                                                       | <b>230VAC, 50Hz</b>                                   |
|  | Normal Operation (Short idle)                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                             | 10 BTU/hr                                                                                                                                                                                                                                                                 | 11 BTU/hr                                             |
|  | Normal Operation (Long idle)                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                              | 2 BTU/hr                                                                                                                                                                                                                                                                  | 2 BTU/hr                                              |
|  | Sleep                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                     | 2 BTU/hr                                                                                                                                                                                                                                                                  | 2 BTU/hr                                              |
|  | Off                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                       | 1 BTU/hr                                                                                                                                                                                                                                                                  | 1 BTU/hr                                              |
|  | <p>*NOTE: Heat dissipation is calculated based on the measured watts, assuming the service level is attained for one hour.</p>                                                                                                                                                                                                                                                                                                                                                                                                                            |                                                                                                                                                                                                                                                                           |                                                       |
|  | <b>Declared Noise Emissions<br/>(in accordance with<br/>ISO 7779 and ISO 9296)</b>                                                                                                                                                                                                                                                                                                                                                                                                                                                                        | <b>Sound Power<br/>(L<sub>WAd</sub>, bels)</b>                                                                                                                                                                                                                            | <b>Sound Pressure<br/>(L<sub>pAm</sub>, decibels)</b> |
|  | Typically Configured - Idle                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                               | 3                                                                                                                                                                                                                                                                         | 13                                                    |
|  | Fixed Disk - Random writes                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                | 3                                                                                                                                                                                                                                                                         | 20                                                    |
|  | Active mode - Sequential reads                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                            | 4                                                                                                                                                                                                                                                                         | 29                                                    |
|  | <b>Longevity and Upgrading</b>                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                            | <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> |                                                       |



|  |                               |                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                      |                   |         |
|--|-------------------------------|----------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|-------------------|---------|
|  | <b>Additional Information</b> | <ul style="list-style-type: none"><li>This product is in compliance with the Restrictions of Hazardous Substances (RoHS) directive - 2011/65/EC.</li><li>This HP product is designed to comply with the Waste Electrical and Electronic Equipment (WEEE) Directive - 2002/96/EC.</li><li>This product is in compliance with California Proposition 65 (State of California; Safe Drinking Water and Toxic Enforcement Act of 1986).</li><li>This product is in compliance with the IEEE 1680 (EPEAT) standard at the Gold level, see <a href="http://www.epeat.net">www.epeat.net</a></li><li>Plastics parts weighing over 25 grams used in the product are marked per ISO11469 and ISO1043.</li><li>This product is 95.2% recycle-able when properly disposed of at end of life.</li></ul>                                                                                                                                                                                                                                                                                                                          |                   |         |
|  | <b>Packaging Materials</b>    | <b>External:</b>                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                     | PAPER/Corrugated  | 220 g   |
|  |                               |                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                      | PAPER/Molded Pulp | 99 g    |
|  |                               |                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                      | PAPER/Paper       | 23.50 g |
|  |                               | The plastic packaging material contains at least 0.00% recycled content.                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                             |                   |         |
|  |                               | The corrugated paper packaging materials contains at least 52% recycled content.                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                     |                   |         |
|  | <b>RoHS Compliance</b>        | <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 <a href="#">HP RoHS position statement</a>.</p> |                   |         |



|  |                       |                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                  |
|--|-----------------------|------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|
|  | <b>Material Usage</b> | <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 <a href="https://h20195.www2.hp.com/v2/GetDocument.aspx?docname=c05998906">https://h20195.www2.hp.com/v2/GetDocument.aspx?docname=c05998906</a>):</p> <ul style="list-style-type: none"><li>• Asbestos</li><li>• Certain Azo Colorants</li><li>• Certain Brominated Flame Retardants - may not be used as flame retardants in plastics</li><li>• Cadmium</li><li>• Chlorinated Hydrocarbons</li><li>• Chlorinated Paraffins</li><li>• Bis(2-Ethylhexyl) phthalate (DEHP)</li><li>• Benzyl butyl phthalate (BBP)</li><li>• Dibutyl phthalate (DBP)</li><li>• Diisobutyl phthalate (DIBP)</li><li>• Formaldehyde</li><li>• Halogenated Diphenyl Methanes</li><li>• Lead carbonates and sulfates</li><li>• Lead and Lead compounds</li><li>• Mercuric Oxide Batteries</li><li>• Nickel - finishes must not be used on the external surface designed to be frequently handled or carried by the user.</li><li>• Ozone Depleting Substances</li><li>• Polybrominated Biphenyls (PBBs)</li><li>• Polybrominated Biphenyl Ethers (PBBEs)</li><li>• Polybrominated Biphenyl Oxides (PBBOs)</li><li>• Polychlorinated Biphenyl (PCB)</li><li>• Polychlorinated Terphenyls (PCT)</li><li>• Polyvinyl Chloride (PVC) - except for wires and cables, and certain retail packaging has been voluntarily removed from most applications.</li><li>• Radioactive Substances</li><li>• Tributyl Tin (TBT), Triphenyl Tin (TPT), Tributyl Tin Oxide (TBTO)</li></ul> |
|--|-----------------------|------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|



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



|  |                                                     |                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                              |
|--|-----------------------------------------------------|------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|
|  | <b>HP, Inc. Corporate Environmental Information</b> | <p>For more information about HP’s commitment to the environment:</p> <ul style="list-style-type: none"><li>• Sustainable Impact Report<ul style="list-style-type: none"><li>○ <a href="https://h20195.www2.hp.com/v2/GetDocument.aspx?docname=c06040843">https://h20195.www2.hp.com/v2/GetDocument.aspx?docname=c06040843</a></li></ul></li><li>• Eco-label certifications<ul style="list-style-type: none"><li>○ <a href="https://www.hp.com/us-en/sustainable-impact/document-reports.html#filters_documents_reports=-document_type-type_energy_star,type_epeat,type_tcolSO">https://www.hp.com/us-en/sustainable-impact/document-reports.html#filters_documents_reports=-document_type-type_energy_star,type_epeat,type_tcolSO</a></li></ul></li><li>• ISO 14001 certificates<ul style="list-style-type: none"><li>○ <a href="https://h20195.www2.hp.com/v2/GetDocument.aspx?docname=c04777932">https://h20195.www2.hp.com/v2/GetDocument.aspx?docname=c04777932</a></li></ul></li></ul>                                                                                                                                                                                                                                                                                 |
|  | <b>Footnotes</b>                                    | <ol style="list-style-type: none"><li>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.</li><li>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.</li><li>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.</li><li>4. External power supplies, WWAN modules, power cords, cables and peripherals excluded. Service parts obtained after purchase may not be Low Halogen.</li><li>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 &gt;90% recycled plastic.</li></ol> |



#### SERVICE AND SUPPORT <sup>52</sup>

1-year warranty and 90 day software limited warranty options depending on country. HP Worldwide Limited Warranty for the battery is aligned with the warranty period of the HP Hardware Product. 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>.

52. HP Care Packs are sold separately. Service levels and response times for HP Care Packs may vary depending on your geographic location. Service starts on date of hardware purchase. Restrictions and limitations apply. For details, visit <http://www.hp.com/go/cpc>. HP services are governed by the applicable HP terms and conditions of service provided or indicated to Customer at the time of purchase. Customer may have additional statutory rights according to applicable local laws, and such rights are not in any way affected by the HP terms and conditions of service or the HP Limited Warranty provided with your HP Product.

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SYSTEM UNIT

Stand - Alone Power Requirements (AC Power)

|                           |            |
|---------------------------|------------|
| Nominal Operating Voltage | 20.0 V     |
| Max Operating Power       | UMA < 65 W |

Temperature

|                 |                                                                                    |
|-----------------|------------------------------------------------------------------------------------|
| Operating       | 0° to 35° C (32° to 95° F)System performance may be reduced above 32°C (89.6°F)    |
| Non - operating | -20° to 60° C (-4° to 140° F)System performance may be reduced above 32°C (89.6°F) |

Relative Humidity

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

Shock

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

Random Vibration

|                 |            |
|-----------------|------------|
| Operating       | 1.043 grms |
| Non - operating | 3.500 grms |

Altitude(unpressurized)

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

Industry Standard Certifications

|                         |                                                          |
|-------------------------|----------------------------------------------------------|
| Regulatory Model Number | HSN-I62C                                                 |
| CSA/UL 62368-1          | Yes                                                      |
| ENERGY STAR® 1          | Yes                                                      |
| FCC/ICES/CISPR/VCCI     | Yes                                                      |
| CE MARKING              | Yes                                                      |
| GS Mark                 | Yes.                                                     |
|                         | Related commodity should comply with ISO 9241 Standards. |
| 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 <sup>2</sup>                           | 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 <sup>3</sup>                    | 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 EPEAT® registration according to IEEE 1680.1-2018 EPEAT®. EPEAT® status 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

|                                                                                                                                                                                                                 |                                  |                            |
|-----------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|----------------------------------|----------------------------|
| <b>33.8 cm (13.3") diagonal,<br/>WUXGA (1920 x 1200), LCD,<br/>Direct Bonding Touch<br/>Screen, UWVA, Anti-Glare,<br/>Gorilla Glass 5, Low Blue<br/>Light, 800 nits, sRGB 100%,<br/>Sure View 6<sup>1</sup></b> | <b>Active Area</b>               | 286.042 x 178.776 mm (typ) |
|                                                                                                                                                                                                                 | <b>Dimensions (W x H)</b>        | 291.340 x 188.180 mm (max) |
|                                                                                                                                                                                                                 | <b>Weight</b>                    | 330 g (max)                |
|                                                                                                                                                                                                                 | <b>Diagonal Size</b>             | 13.3 inch                  |
|                                                                                                                                                                                                                 | <b>Surface Treatment</b>         | Anti-Glare                 |
|                                                                                                                                                                                                                 | <b>Touch Enabled</b>             | Yes                        |
|                                                                                                                                                                                                                 | <b>Contrast Ratio</b>            | 1,500:1 (typ)              |
|                                                                                                                                                                                                                 | <b>Refresh Rate</b>              | 60/40 Hz                   |
|                                                                                                                                                                                                                 | <b>Brightness</b>                | 800 nits (typ)             |
|                                                                                                                                                                                                                 | <b>Pixel Resolution</b>          | RGB                        |
|                                                                                                                                                                                                                 | <b>Pixel Resolution - Format</b> | 1920x1200 (WUXGA)          |
|                                                                                                                                                                                                                 | <b>Aspect Ratio</b>              | 16:10                      |
|                                                                                                                                                                                                                 | <b>Backlight</b>                 | WLED                       |
|                                                                                                                                                                                                                 | <b>Color Gamut Coverage</b>      | sRGB 100%                  |
|                                                                                                                                                                                                                 | <b>Color Depth</b>               | 8                          |
|                                                                                                                                                                                                                 | <b>Viewing Angle</b>             | UWVA 89/89/89/89           |
|                                                                                                                                                                                                                 | <b>Low Blue Light</b>            | Yes                        |
|                                                                                                                                                                                                                 | <b>Power Consumption</b>         | EBL@150nits:1.50 W (Max)   |

|                                                                                                                                                                                                                 |                           |                            |
|-----------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|---------------------------|----------------------------|
| <b>33.8 cm (13.3") diagonal,<br/>WUXGA (1920 x 1200), LCD,<br/>Direct Bonding Touch<br/>Screen, UWVA, BrightView,<br/>Gorilla Glass 5, Low Blue<br/>Light, 800 nits, sRGB 100%,<br/>Sure View 6<sup>1</sup></b> | <b>Active Area</b>        | 286.042 x 178.776 mm (typ) |
|                                                                                                                                                                                                                 | <b>Dimensions (W x H)</b> | 291.340 x 188.180 mm (max) |
|                                                                                                                                                                                                                 | <b>Weight</b>             | 330 g (max)                |
|                                                                                                                                                                                                                 | <b>Diagonal Size</b>      | 13.3 inch                  |
|                                                                                                                                                                                                                 | <b>Surface Treatment</b>  | BrightView                 |
|                                                                                                                                                                                                                 | <b>Touch Enabled</b>      | Yes                        |
|                                                                                                                                                                                                                 | <b>Contrast Ratio</b>     | 1,500:1 (typ)              |
|                                                                                                                                                                                                                 | <b>Refresh Rate</b>       | 60/40 Hz                   |
|                                                                                                                                                                                                                 | <b>Brightness</b>         | 800 nits (typ)             |
|                                                                                                                                                                                                                 | <b>Pixel Resolution</b>   | RGB                        |

|                                                                                                                                                                                                        |                                  |                                                      |
|--------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|----------------------------------|------------------------------------------------------|
|                                                                                                                                                                                                        | <b>Pixel Resolution - Format</b> | 1920x1200 (WUXGA)                                    |
|                                                                                                                                                                                                        | <b>Aspect Ratio</b>              | 16:10                                                |
|                                                                                                                                                                                                        | <b>Backlight</b>                 | WLED                                                 |
|                                                                                                                                                                                                        | <b>Color Gamut Coverage</b>      | sRGB 100%                                            |
|                                                                                                                                                                                                        | <b>Color Depth</b>               | 8                                                    |
|                                                                                                                                                                                                        | <b>Viewing Angle</b>             | UWVA 89/89/89/89                                     |
|                                                                                                                                                                                                        | <b>Low Blue Light</b>            | Yes                                                  |
|                                                                                                                                                                                                        | <b>Power Consumption</b>         | EBL@150nits:1.50 W (Max)                             |
| <b>33.8 cm (13.3") diagonal,<br/>WUXGA (1920 x 1200), LCD,<br/>Direct Bonding Touch<br/>Screen, UWVA, Anti-Glare,<br/>Gorilla Glass 5, WLED+Low<br/>Blue Light, 400 nits, Low<br/>Power, sRGB 100%</b> | <b>Active Area</b>               | 286.040 x 178.780 mm (typ)                           |
|                                                                                                                                                                                                        | <b>Dimensions (W x H)</b>        | 295.800 x 205.429 mm (max)                           |
|                                                                                                                                                                                                        | <b>Weight</b>                    | 265 g (max)                                          |
|                                                                                                                                                                                                        | <b>Diagonal Size</b>             | 13.3 inch                                            |
|                                                                                                                                                                                                        | <b>Surface Treatment</b>         | Anti-Glare                                           |
|                                                                                                                                                                                                        | <b>Touch Enabled</b>             | Yes                                                  |
|                                                                                                                                                                                                        | <b>Contrast Ratio</b>            | 1,200:1 (typ)                                        |
|                                                                                                                                                                                                        | <b>Refresh Rate</b>              | 60 Hz                                                |
|                                                                                                                                                                                                        | <b>Brightness</b>                | 400 nits (typ)                                       |
|                                                                                                                                                                                                        | <b>Pixel Resolution</b>          | RGB                                                  |
|                                                                                                                                                                                                        | <b>Pixel Resolution - Format</b> | 1920x1200 (WUXGA)                                    |
|                                                                                                                                                                                                        | <b>Aspect Ratio</b>              | 16:10                                                |
|                                                                                                                                                                                                        | <b>Backlight</b>                 | WLED                                                 |
|                                                                                                                                                                                                        | <b>Color Gamut Coverage</b>      | sRGB 100%                                            |
|                                                                                                                                                                                                        | <b>Color Depth</b>               | 8                                                    |
|                                                                                                                                                                                                        | <b>Viewing Angle</b>             | UWVA 89/89/89/89                                     |
|                                                                                                                                                                                                        | <b>Low Blue Light</b>            | Yes                                                  |
|                                                                                                                                                                                                        | <b>Power Consumption</b>         | EBL@150nits:1.20 W (Max)<br>EBL@200nits:1.50 W (Max) |
| <b>33.8 cm (13.3") diagonal,<br/>WUXGA (1920 x 1200), LCD,<br/>Direct Bonding Touch<br/>Screen, UWVA, BrightView,</b>                                                                                  | <b>Active Area</b>               | 286.040 x 178.780 mm (typ)                           |
|                                                                                                                                                                                                        | <b>Dimensions (W x H)</b>        | 295.800 x 205.429 mm (max)                           |
|                                                                                                                                                                                                        | <b>Weight</b>                    | 265 g (max)                                          |
|                                                                                                                                                                                                        | <b>Diagonal Size</b>             | 13.3 inch                                            |



|                                                                                                                                                |                           |                                                      |
|------------------------------------------------------------------------------------------------------------------------------------------------|---------------------------|------------------------------------------------------|
| Gorilla Glass 5, WLED+Low Blue Light, 400 nits, Low Power, sRGB 100%                                                                           | Surface Treatment         | BrightView                                           |
|                                                                                                                                                | Touch Enabled             | Yes                                                  |
|                                                                                                                                                | Contrast Ratio            | 1,200:1 (typ)                                        |
|                                                                                                                                                | Refresh Rate              | 60 Hz                                                |
|                                                                                                                                                | Brightness                | 400 nits (typ)                                       |
|                                                                                                                                                | Pixel Resolution          | RGB                                                  |
|                                                                                                                                                | Pixel Resolution - Format | 1920x1200 (WUXGA)                                    |
|                                                                                                                                                | Aspect Ratio              | 16:10                                                |
|                                                                                                                                                | Backlight                 | WLED                                                 |
|                                                                                                                                                | Color Gamut Coverage      | sRGB 100%                                            |
|                                                                                                                                                | Color Depth               | 8                                                    |
|                                                                                                                                                | Viewing Angle             | UWVA 89/89/89/89                                     |
|                                                                                                                                                | Low Blue Light            | Yes                                                  |
|                                                                                                                                                | Power Consumption         | EBL@150nits:1.20 W (Max)<br>EBL@200nits:1.50 W (Max) |
| 33.8 cm (13.3") diagonal, WUXGA (1920 x 1200), LCD, Direct Bonding Touch Screen, UWVA, BrightView, Gorilla Glass 5, WLED, 300 nits, sRGB 62.5% | Active Area               | 286.040 x 178.780 mm (typ)                           |
|                                                                                                                                                | Dimensions (W x H)        | 295.800 x 205.429 mm (max)                           |
|                                                                                                                                                | Weight                    | 360 g (max)                                          |
|                                                                                                                                                | Diagonal Size             | 13.3 inch                                            |
|                                                                                                                                                | Surface Treatment         | BrightView                                           |
|                                                                                                                                                | Touch Enabled             | Yes                                                  |
|                                                                                                                                                | Contrast Ratio            | 1,000:1 (typ)                                        |
|                                                                                                                                                | Refresh Rate              | 60 Hz                                                |
|                                                                                                                                                | Brightness                | 300 nits (typ)                                       |
|                                                                                                                                                | Pixel Resolution          | RGB                                                  |
|                                                                                                                                                | Pixel Resolution - Format | 1920x1200 (WUXGA)                                    |
|                                                                                                                                                | Aspect Ratio              | 16:10                                                |
|                                                                                                                                                | Backlight                 | WLED                                                 |
|                                                                                                                                                | Color Gamut Coverage      | sRGB 62.5%                                           |
|                                                                                                                                                | Color Depth               | 8                                                    |
|                                                                                                                                                | Viewing Angle             | UWVA 89/89/89/89                                     |
|                                                                                                                                                | Low Blue Light            | No                                                   |

|                                                                                                                                                                                           |                           |                                                      |
|-------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|---------------------------|------------------------------------------------------|
|                                                                                                                                                                                           | Power Consumption         | EBL@200nits:2.80 W (Max)<br>EBL@250nits:3.40 W (Max) |
|                                                                                                                                                                                           |                           |                                                      |
| 33.8 cm (13.3") diagonal,<br>WUXGA (1920 x 1200), LCD,<br>Direct Bonding Touch<br>Screen, UWVA, BrightView,<br>Gorilla Glass 5, WLED+Low<br>Blue Light, 400 nits, Low<br>Power, sRGB 100% | Active Area               | 286.040 x 178.780 mm (typ)                           |
|                                                                                                                                                                                           | Dimensions (W x H)        | 295.800 x 205.429 mm (max)                           |
|                                                                                                                                                                                           | Weight                    | 265 g (max)                                          |
|                                                                                                                                                                                           | Diagonal Size             | 13.3 inch                                            |
|                                                                                                                                                                                           | Surface Treatment         | BrightView                                           |
|                                                                                                                                                                                           | Touch Enabled             | Yes                                                  |
|                                                                                                                                                                                           | Contrast Ratio            | 1,200:1 (typ)                                        |
|                                                                                                                                                                                           | Refresh Rate              | 60 Hz                                                |
|                                                                                                                                                                                           | Brightness                | 400 nits (typ)                                       |
|                                                                                                                                                                                           | Pixel Resolution          | RGB                                                  |
|                                                                                                                                                                                           | Pixel Resolution - Format | 1920x1200 (WUXGA)                                    |
|                                                                                                                                                                                           | Aspect Ratio              | 16:10                                                |
|                                                                                                                                                                                           | Backlight                 | WLED                                                 |
|                                                                                                                                                                                           | Color Gamut Coverage      | sRGB 100%                                            |
|                                                                                                                                                                                           | Color Depth               | 8                                                    |
|                                                                                                                                                                                           | Viewing Angle             | UWVA 89/89/89/89                                     |
|                                                                                                                                                                                           | Low Blue Light            | Yes                                                  |
|                                                                                                                                                                                           | Power Consumption         | EBL@150nits:1.20 W (Max)<br>EBL@200nits:1.50 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

All SSDs on this system run at Gen4 speed.

|                                                  |                  |                                                                            |
|--------------------------------------------------|------------------|----------------------------------------------------------------------------|
| 2 TB PCIe® Gen5 NVMe™ SSD<br>Value               | Form Factor      | M.2 2280                                                                   |
|                                                  | Capacity         | 2 TB                                                                       |
|                                                  | NAND Type        | Value                                                                      |
|                                                  | Weight           | 10g                                                                        |
|                                                  | Interface        | PCIe Gen5 NVMe                                                             |
|                                                  | Sequential Read  | 7000 MB/s ±20% (in PCIe Gen4x4 slot)                                       |
|                                                  | Sequential Write | 6800 MB/s ±20% (in PCIe Gen4x4 slot)                                       |
|                                                  | Logical Blocks   | 4000797360                                                                 |
|                                                  | Features         | Pyrite 2.0; TRIM; L1.2<br>Not all features are available in all versions   |
| 1 TB PCIe®-5x4 NVMe™ Self<br>Encrypted OPAL2 SSD | Form Factor      | M.2 2280                                                                   |
|                                                  | Capacity         | 1 TB                                                                       |
|                                                  | NAND Type        | Performance                                                                |
|                                                  | Weight           | 10 g                                                                       |
|                                                  | Interface        | PCIe Gen5x4 NVMe                                                           |
|                                                  | Sequential Read  | 7000 MB/s ±20% (in PCIe Gen4x4 slot)                                       |
|                                                  | Sequential Write | 7000 MB/s ±20% (in PCIe Gen4x4 slot)                                       |
|                                                  | Logical Blocks   | 2000409264                                                                 |
|                                                  | Features         | TCG Opal 2.0; TRIM; L1.2<br>Not all features are available in all versions |
| 1 TB PCIe® Gen5 NVMe™ SSD<br>Value               | Form Factor      | M.2 2280                                                                   |
|                                                  | Capacity         | 1 TB                                                                       |
|                                                  | NAND Type        | Value                                                                      |
|                                                  | Weight           | 10 g                                                                       |
|                                                  | Interface        | PCIe Gen5 NVMe                                                             |
|                                                  | Sequential Read  | 7000 MB/s ±20% (in PCIe Gen4x4 slot)                                       |
|                                                  | Sequential Write | 6600 MB/s ±20% (in PCIe Gen4x4 slot)                                       |
|                                                  | Logical Blocks   | 2000409264                                                                 |

|                                                        |                                                                                                                                  |                                                                                                                                                                                                                                   |
|--------------------------------------------------------|----------------------------------------------------------------------------------------------------------------------------------|-----------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|
|                                                        | Features                                                                                                                         | Pyrite 2.0; TRIM; L1.2<br>Not all features are available in all versions                                                                                                                                                          |
| 1 TB PCIe® NVMe™ SSD Value                             | Form Factor<br>Capacity<br>NAND Type<br>Weight<br>Interface<br>Sequential Read<br>Sequential Write<br>Logical Blocks<br>Features | M.2 2280<br>1TB<br>Value<br>10 g<br>PCIe NVMe<br>3500 MB/s ±20%<br>2700 MB/s ±20%<br>2000409264<br>Pyrite 2.0; TRIM; L1.2<br>Not all features are available in all versions                                                       |
| 512 GB PCIe® Gen5 NVMe™ Self Encrypted OPAL2 SSD Value | Form Factor<br>Capacity<br>NAND Type<br>Weight<br>Interface<br>Sequential Read<br>Sequential Write<br>Logical Blocks<br>Features | M.2 2280<br>512 GB<br>Value<br>10 g<br>PCIe Gen5 NVMe<br>7000 MB/s ±20% (in PCIe Gen4x4 slot)<br>6000 MB/s ±20% (in PCIe Gen4x4 slot)<br>1000215216<br>TCG Opal 2.0; TRIM; L1.2<br>Not all features are available in all versions |
| 512 GB PCIe® Gen5 NVMe™ SSD Value                      | Form Factor<br>Capacity<br>NAND Type<br>Weight<br>Interface<br>Sequential Read<br>Sequential Write<br>Logical Blocks             | M.2 2280<br>512 GB<br>Value<br>10g<br>PCIe Gen5 NVMe<br>7000 MB/s ±20% (in PCIe Gen4x4 slot)<br>6000 MB/s ±20% (in PCIe Gen4x4 slot)<br>1000215216                                                                                |

|                                                   |                  |                                                                            |
|---------------------------------------------------|------------------|----------------------------------------------------------------------------|
| 512 GB PCIe® NVMe™ SSD Value                      | Features         | Pyrite 2.0; TRIM; L1.2<br>Not all features are available in all versions   |
|                                                   | Form Factor      | M.2 2280                                                                   |
|                                                   | Capacity         | 512GB                                                                      |
|                                                   | NAND Type        | Value                                                                      |
|                                                   | Weight           | 10g                                                                        |
|                                                   | Interface        | PCIe NVMe                                                                  |
|                                                   | Sequential Read  | 3500 MB/s ±20%                                                             |
|                                                   | Sequential Write | 1600 MB/s ±20%                                                             |
|                                                   | Logical Blocks   | 1000215216                                                                 |
|                                                   | Features         | Pyrite 2.0; TRIM; L1.2<br>Not all features are available in all versions   |
| 256 GB PCIe® NVMe™ Self Encrypted OPAL2 SSD Value | Form Factor      | M.2 2280                                                                   |
|                                                   | Capacity         | 256 GB                                                                     |
|                                                   | NAND Type        | Value                                                                      |
|                                                   | Weight           | 10g                                                                        |
|                                                   | Interface        | PCIe NVMe                                                                  |
|                                                   | Sequential Read  | 3100 MB/s ±20%                                                             |
|                                                   | Sequential Write | 1200 MB/s ±20%                                                             |
|                                                   | Logical Blocks   | 500118192                                                                  |
|                                                   | Features         | TCG Opal 2.0; TRIM; L1.2<br>Not all features are available in all versions |
| 256 GB PCIe® NVMe™ SSD Value                      | Form Factor      | M.2 2280                                                                   |
|                                                   | Capacity         | 256GB                                                                      |
|                                                   | NAND Type        | Value                                                                      |
|                                                   | Weight           | 10 g                                                                       |
|                                                   | Interface        | PCIe NVMe                                                                  |
|                                                   | Sequential Read  | 3100 MB/s ±20%                                                             |
|                                                   | Sequential Write | 1200 MB/s ±20%                                                             |
|                                                   | Logical Blocks   | 500118192                                                                  |

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.



NETWORKING / COMMUNICATION

|                                        |                        |                                            |
|----------------------------------------|------------------------|--------------------------------------------|
| Intel® AX211 Wi-Fi 6E                  | Wireless LAN Standards | IEEE 802.11a                               |
| Bluetooth® 5.3 WW WLAN <sup>1, 2</sup> |                        | IEEE 802.11ac                              |
|                                        |                        | IEEE 802.11ax                              |
|                                        |                        | IEEE 802.11b                               |
|                                        |                        | IEEE 802.11d                               |
|                                        |                        | IEEE 802.11e                               |
|                                        |                        | IEEE 802.11g                               |
|                                        |                        | IEEE 802.11h                               |
|                                        |                        | IEEE 802.11i                               |
|                                        |                        | IEEE 802.11k                               |
|                                        |                        | IEEE 802.11n                               |
|                                        |                        | IEEE 802.11r                               |
|                                        |                        | IEEE 802.11v                               |
|                                        |                        | Wi-Fi certified                            |
| Interoperability                       |                        |                                            |
| Frequency Band                         |                        | 802.11b/g/n/ax/be                          |
|                                        |                        | 2.402 - 2.482 GHz                          |
|                                        |                        |                                            |
|                                        |                        | 802.11a/n/ac/ax/be                         |
|                                        |                        | 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                          |
| Data Rates                             |                        | 6.435 - 6.515 GHz                          |
|                                        |                        | 6.535 - 6.875 GHz                          |
|                                        |                        | 6.895 - 7.115 GHz                          |
|                                        |                        | 802.11b: 1, 2, 5.5, 11 Mbps                |
|                                        |                        | 802.11g: 6, 9, 12, 18, 24, 36, 48, 54 Mbps |
|                                        |                        | 802.11a: 6, 9, 12, 18, 24, 36, 48, 54 Mbps |
|                                        |                        | 802.11n: max 300Mbps                       |
|                                        |                        | 802.11ac : 1733Mbps802.11ax : max 2.4Gbps  |
|                                        |                        |                                            |
|                                        |                        |                                            |

|                                   |                                                                                                                                                                                                                                                                                                                                                                                                                                                                |
|-----------------------------------|----------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|
| Modulation                        | Direct Sequence Spread Spectrum<br>OFDM, BPSK, QPSK, CCK, 16-QAM, 64-QAM, 256-QAM, 1024QAM                                                                                                                                                                                                                                                                                                                                                                     |
| Security                          | WPA3 personal and enterprise including WPA2 transition mode.<br>802.1X EAP-TLS, EAP-TTLS/MSCHAPv2, PEAPv0 -MSCHAPv2 (EAP-SIM, EAP-AKA, EAP-AKA')                                                                                                                                                                                                                                                                                                               |
| Network Architecture              | 128-bit AES-CCMP, 256-bit AES-GCMP                                                                                                                                                                                                                                                                                                                                                                                                                             |
| Models                            | Ad-hoc (Peer to Peer)                                                                                                                                                                                                                                                                                                                                                                                                                                          |
| Roaming                           | Infrastructure (Access Point Required)                                                                                                                                                                                                                                                                                                                                                                                                                         |
| Output Power                      | IEEE 802.11 compliant roaming between access points                                                                                                                                                                                                                                                                                                                                                                                                            |
|                                   | 802.11b : +17dBm minimum<br>802.11g : +16dBm minimum<br>802.11a : +17dBm minimum<br>802.11n HT20(2.4GHz) : +14dBm minimum<br>802.11n HT40(2.4GHz) : +13dBm minimum<br>802.11n HT20(5GHz) : +14dBm minimum<br>802.11n HT40(5GHz) : +13dBm minimum<br>802.11ac VHT80(5GHz) : +10dBm minimum<br>802.11ac VHT160(5GHz) : +10dBm minimum<br>802.11ax HE40(2.4GHz) : +12dBm minimum<br>802.11ax HE80(5GHz) : +10dBm minimum<br>802.11ax HE160(5GHz) : +10dBm minimum |
| Power Consumption                 | Transmit mode : 2.0 W<br>Receive mode : 1.6 W<br>Idle mode (PSP) : 180 mW (WLAN Associated)<br>Idle mode: 50 mW (WLAN unassociated)<br>Connected Standby/Modern Standby : 10 mW<br>Radio disabled : 8 mW                                                                                                                                                                                                                                                       |
| Power Management                  | ACPI and PCI Express® compliant power management                                                                                                                                                                                                                                                                                                                                                                                                               |
| Receiver Sensitivity <sup>4</sup> | 802.11 compliant power saving mode<br>802.11b, 1Mbps : -93.5dBm maximum<br>802.11b, 11Mbps : -84dBm maximum<br>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<br>Two embedded tri-band 2.4/5/6 GHz antennas are provided to the card to support WLAN MIMO communications and Bluetooth communications                                                                                                                               |
| Form Factor                  | PCI Express® M.2                                                                                                                                                                                                                                                                                                     |
| Dimensions                   | 2.30 x 22.00 x 30.00 mm (0.09 x 0.87 x 1.18 inch)                                                                                                                                                                                                                                                                    |
| Weight                       | Type 2230: 2.8 g(0.099 oz)                                                                                                                                                                                                                                                                                           |
| Operating Voltage            | 3.3 v +/- 9 %                                                                                                                                                                                                                                                                                                        |
| Bluetooth® Specification     | Integrated Bluetooth® specifications<br>4.0/4.1/4.2/5.0/5.1/5.2/5.3Compliant                                                                                                                                                                                                                                         |
| Frequency Band               | 2402 to 2480 MHz                                                                                                                                                                                                                                                                                                     |
| Number of Available Channels | Legacy : 0~79 (1 MHz/CH)<br>BLE : 0~39 (2 MHz/CH)                                                                                                                                                                                                                                                                    |
| Data Rates and Throughput    | Legacy : 3 Mbps data rate; throughput up to 2.17 Mbps<br>BLE : 1 Mbps data rate; throughput up to 0.2 Mbps<br>Legacy : Synchronous Connection Oriented links up to 3, 64 kbps, voice channels<br>Legacy : Asynchronous Connection Less links 2178.1 kbps/177.1 kbps asymmetric (3-DH5) or 864 kbps symmetric (3-EV5) |
| Transmit Power               | The Bluetooth component shall operate as a Class II Bluetooth device with a maximum transmit power of + 9.5 dBm for BR and EDR.                                                                                                                                                                                      |



|                               |                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                       |
|-------------------------------|-----------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|
| Power Consumption             | Peak (Tx): 330 mW<br>Peak (Rx): 230 mW<br>Selective Suspend: 17 mW                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                    |
| Bluetooth® Software           | Microsoft Windows Bluetooth® Software                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                 |
| Supported Link Topology       |                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                       |
| Power Management              | ACPI and PCI Express compliant power management<br>802.11 compliant power saving mode                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                 |
| Certifications                | FCC (47 CFR) Part 15C/E, Section 15.247, 15.249, 15.407<br>ETSI 300 328, ETSI 301 893, ETSI 303 687                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                   |
| FIPS 140-3 Compliant          | Yes                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                   |
| Bluetooth® Profiles Supported | BT4.1-ESR 5/6/7 Compliance<br>LE Link Layer Ping<br>LE Dual Mode<br>LE Link Layer<br>LE Low Duty Cycle Directed Advertising<br>LE L2CAP Connection Oriented Channels<br>Train Nudging & Interlaced Scan<br>BT4.2 ESR08 Compliance<br>LE Secure Connection- Basic/Full<br>LE Privacy 1.2 –Link Layer Privacy<br>LE Privacy 1.2 –Extended Scanner Filter Policies<br>LE Data Packet Length Extension<br>FAX Profile (FAX)<br>Basic Imaging Profile (BIP)2<br>Headset Profile (HSP)<br>Hands Free Profile (HFP)<br>Advanced Audio Distribution Profile (A2DP)<br>BT5.2<br>ESR9/10 Compliance<br>LE Advertisement Extensions<br>Channel Selection Algo<br>Limited High Duty Cycle Non-Connectable Advertising<br>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 |
|                             |                        | Periodic Advertisement interval                                      |
| Intel® BE211 Wi-Fi 7        | Wireless LAN Standards | IEEE 802.11a                                                         |
| Bluetooth® 6.0 non-vPro® WW |                        | IEEE 802.11b                                                         |
| WLAN <sup>3</sup>           |                        | IEEE 802.11g                                                         |
|                             |                        | IEEE 802.11n                                                         |
|                             |                        | IEEE 802.11ac                                                        |
|                             |                        | IEEE 802.11ax                                                        |
|                             |                        | IEEE 802.11be                                                        |
|                             |                        | 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         | 802.11b/g/n/ax/be                                                    |
|                             |                        | 2.402 - 2.482 GHz                                                    |
|                             |                        | 802.11a/n/ac/ax/be                                                   |
|                             |                        | 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                                                    |

|                             |                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                     |
|-----------------------------|---------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|
| <b>Data Rates</b>           | 802.11b: 1, 2, 5.5, 11 Mbps<br>802.11g: 6, 9, 12, 18, 24, 36, 48, 54 Mbps<br>802.11a: 6, 9, 12, 18, 24, 36, 48, 54 Mbps<br>802.11n: max 300Mbps<br>802.11ac : 1733Mbps<br>802.11ax : max 2.4Gbps<br>802.11be : max 5.76Gbps                                                                                                                                                                                                                                                                                                                                                                                                                                         |
| <b>Modulation</b>           | Direct Sequence Spread Spectrum<br>OFDM, BPSK, QPSK, CCK, 16-QAM, 64-QAM, 256-QAM, 1024QAM, 4096QAM                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                 |
| <b>Security</b>             | WPA3 personal and enterprise including WPA2 transition mode.<br>802.1X EAP-TLS, EAP-TTLS/MSCHAPv2, PEAPv0 -MSCHAPv2 (EAP-SIM, EAP-AKA, EAP-AKA')<br>128-bit AES-CCMP, 256-bit AES-GCMP"                                                                                                                                                                                                                                                                                                                                                                                                                                                                             |
| <b>Network Architecture</b> | Ad-hoc (Peer to Peer)                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                               |
| <b>Models</b>               | Infrastructure (Access Point Required)                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                              |
| <b>Roaming</b>              | IEEE 802.11 compliant roaming between access points                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                 |
| <b>Output Power</b>         | 802.11b, 1Mbps : +17dBm minimum<br>802.11g, 6Mbps : +16dBm minimum<br>802.11a, 6Mbps : +17dBm minimum<br>802.11n, MCS7(HT20) : +14dBm minimum<br>802.11n, MCS7(HT40) : +13.5dBm minimum<br>802.11ac MCS9(VHT20) : 13.5dBm minimum<br>802.11ac MCS9(VHT40) : +13.5dBm minimum<br>802.11ac MCS9(VHT80) : +12.5dBm minimum<br>802.11ac MCS9(VHT160) : +10.5dBm minimum<br>802.11ax MCS11(HE20)(6GHz) : +11.5dBm minimum<br>802.11ax MCS11(HE40)(6GHz) : +7.5dBm minimum<br>802.11ax MCS11(HE80)(6GHz) : +7.5dBm minimum<br>802.11ax MCS11(HE160)(6GHz) : +7.5dBm minimum<br>802.11be MCS13(EHT20)(6GHz) : +4dBm minimum<br>802.11be MCS13(EHT40)(6GHz) : +7dBm minimum |



|                                   |                                                  |
|-----------------------------------|--------------------------------------------------|
|                                   | 802.11be MCS13(EHT80)(6GHz) : +10dBm minimum     |
|                                   | 802.11be MCS13(EHT160)(6GHz) : +13dBm minimum    |
|                                   | 802.11be MCS13(EHT320)(6GHz) : +16dBm minimum    |
| Power Consumption                 | Transmit mode 3.1 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 <sup>4</sup> | 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 |
|                                   | 802.11be, MCS13(EHT320)(6GHz) : -45.5dBm maximum |
| Antenna Type                      | High efficiency antenna with spatial diversity   |



|                                             |                                                                                                                                           |
|---------------------------------------------|-------------------------------------------------------------------------------------------------------------------------------------------|
|                                             | Two embedded tri-band 2.4/5/6 GHz antennas are provided to the card to support WLAN MIMO communications and Bluetooth communications      |
| Form Factor                                 | PCI-Express M.2                                                                                                                           |
| Dimensions                                  | 1. Type 2230 : 2.3 x 22.0 x 30.0 mm<br>2. Type 1216: 1.67 x 12.0 x 16.0 mm                                                                |
| Weight                                      | 1. Type 2230 : 2.99g<br>2. Type 1216: 0.72g                                                                                               |
| Operating Voltage                           | 3.3v +/- 9%                                                                                                                               |
| Bluetooth® Specification                    | <b>Integrated Bluetooth® specifications</b><br>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)<br>BLE : 0~39 (2 MHz/CH)                                                                                         |
| Data Rates and Throughput                   | Bluetooth 4.x : 1Mbps (LE); 3Mbps (EDR)<br>Bluetooth 5.x : 2Mbps (LE); 3Mbps (EDR)<br>Bluetooth 6.0 : 2Mbps (LE); 3Mbps (EDR)             |
| 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<br>Peak (Rx): 230 mW<br>Selective Suspend: 17 mW                                                                        |
| Bluetooth® Software Supported Link Topology | 1. Microsoft Windows Bluetooth Software                                                                                                   |
| Power Management                            | ACPI and PCI Express compliant power management<br>802.11 compliant power saving mode                                                     |
| Certifications                              | FCC (47 CFR) Part 15C/E, Section 15.247, 15.249, 15.407<br>ETSI 300 328, ETSI 301 893, ETSI 303 687                                       |
| FIPS 140-3 Compliant                        | Yes                                                                                                                                       |
| Bluetooth® Profiles Supported               | BT4.1-ESR 5/6/7 Compliance<br>LE Link Layer Ping<br>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 |
|                         |                        | Periodic Advertisement interval                                      |
| Intel® BE211 Wi-Fi 7    | Wireless LAN Standards | IEEE 802.11a                                                         |
| Bluetooth® 6.0 vPro® WW |                        | IEEE 802.11b                                                         |
| WLAN <sup>3</sup>       |                        | IEEE 802.11g                                                         |
|                         |                        | IEEE 802.11n                                                         |
|                         |                        | IEEE 802.11ac                                                        |
|                         |                        | IEEE 802.11ax                                                        |



|                  |                                                                                  |
|------------------|----------------------------------------------------------------------------------|
|                  | IEEE 802.11be                                                                    |
|                  | 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   | 802.11b/g/n/ax/be                                                                |
|                  | 2.402 - 2.482 GHz                                                                |
|                  | 802.11a/n/ac/ax/be                                                               |
|                  | 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                                                                |
| Data Rates       | 802.11b: 1, 2, 5.5, 11 Mbps                                                      |
|                  | 802.11g: 6, 9, 12, 18, 24, 36, 48, 54 Mbps                                       |
|                  | 802.11a: 6, 9, 12, 18, 24, 36, 48, 54 Mbps                                       |
|                  | 802.11n: max 300Mbps                                                             |
|                  | 802.11ac : 1733Mbps                                                              |
|                  | 802.11ax : max 2.4Gbps                                                           |
|                  | 802.11be : max 5.76Gbps                                                          |
| Modulation       | Direct Sequence Spread Spectrum                                                  |
|                  | OFDM, BPSK, QPSK, CCK, 16-QAM, 64-QAM, 256-QAM, 1024QAM, 4096QAM                 |
| Security         | WPA3 personal and enterprise including WPA2 transition mode.                     |
|                  | 802.1X EAP-TLS, EAP-TTLS/MSCHAPv2, PEAPv0 -MSCHAPv2 (EAP-SIM, EAP-AKA, EAP-AKA') |



|                                          |                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                       |
|------------------------------------------|-----------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|
|                                          | 128-bit AES-CCMP, 256-bit AES-GCMP                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                    |
| <b>Network Architecture</b>              | Ad-hoc (Peer to Peer)                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                 |
| <b>Models</b>                            | Infrastructure (Access Point Required)                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                |
| <b>Roaming</b>                           | IEEE 802.11 compliant roaming between access points                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                   |
| <b>Output Power</b>                      | 802.11b, 1Mbps : +17dBm minimum<br>802.11g, 6Mbps : +16dBm minimum<br>802.11a, 6Mbps : +17dBm minimum<br>802.11n, MCS7(HT20) : +14dBm minimum<br>802.11n, MCS7(HT40) : +13.5dBm minimum<br>802.11ac MCS9(VHT20) : 13.5dBm minimum<br>802.11ac MCS9(VHT40) : +13.5dBm minimum<br>802.11ac MCS9(VHT80) : +12.5dBm minimum<br>802.11ac MCS9(VHT160) : +10.5dBm minimum<br>802.11ax MCS11(HE20)(6GHz) : +11.5dBm minimum<br>802.11ax MCS11(HE40)(6GHz) : +7.5dBm minimum<br>802.11ax MCS11(HE80)(6GHz) : +7.5dBm minimum<br>802.11ax MCS11(HE160)(6GHz) : +7.5dBm minimum<br>802.11be MCS13(EHT20)(6GHz) : +4dBm minimum<br>802.11be MCS13(EHT40)(6GHz) : +7dBm minimum<br>802.11be MCS13(EHT80)(6GHz) : +10dBm minimum<br>802.11be MCS13(EHT160)(6GHz) : +13dBm minimum<br>802.11be MCS13(EHT320)(6GHz) : +16dBm minimum |
| <b>Power Consumption</b>                 | Transmit mode 3.1 W<br>Receive mode 1.8 W<br>Idle mode (PSP) 180 mW (WLAN Associated)<br>Idle mode 50 mW (WLAN unassociated)<br>Connected Standby 10mW<br>Radio disabled 8 mW                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                         |
| <b>Power Management</b>                  | ACPI and PCI Express compliant power management<br>802.11 compliant power saving mode                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                 |
| <b>Receiver Sensitivity</b> <sup>4</sup> | 802.11b, 1Mbps : -93.5dBm maximum<br>802.11b, 11Mbps : -85dBm maximum<br>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                                                                                                                                       |
|                              | 802.11be, MCS13(EHT320)(6GHz) : -45.5dBm maximum                                                                                                                                       |
| Antenna Type                 | High efficiency antenna with spatial diversity<br>Two embedded tri-band 2.4/5/6 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<br>2. Type 1216: 1.67 x 12.0 x 16.0 mm                                                                                                             |
| Weight                       | 1. Type 2230 : 2.99g<br>2. Type 1216: 0.72g                                                                                                                                            |
| Operating Voltage            | 3.3v +/- 9%                                                                                                                                                                            |
| Bluetooth® Specification     | Integrated Bluetooth® specifications<br>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)<br>BLE : 0~39 (2 MHz/CH)                                                                                                                                      |



|                                  |                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                              |
|----------------------------------|------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|
| <b>Data Rates and Throughput</b> | Bluetooth 4.x : 1Mbps (LE); 3Mbps (EDR)<br>Bluetooth 5.x : 2Mbps (LE); 3Mbps (EDR)<br>Bluetooth 6.0 : 2Mbps (LE); 3Mbps (EDR)                                                                                                                                                                                                                                                                                                                                                                                                |
| <b>Transmit Power</b>            | 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.                                                                                                                                                                                                                                                                                                                                                                                    |
| <b>Power Consumption</b>         | Peak (Tx): 330 mW<br>Peak (Rx): 230 mW<br>Selective Suspend: 17 mW                                                                                                                                                                                                                                                                                                                                                                                                                                                           |
| <b>Bluetooth® Software</b>       | 1. Microsoft Windows Bluetooth Software                                                                                                                                                                                                                                                                                                                                                                                                                                                                                      |
| <b>Supported Link Topology</b>   |                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                              |
| <b>Power Management</b>          | ACPI and PCI Express compliant power management<br>802.11 compliant power saving mode                                                                                                                                                                                                                                                                                                                                                                                                                                        |
| <b>Certifications</b>            | FCC (47 CFR) Part 15C/E, Section 15.247, 15.249, 15.407<br>ETSI 300 328, ETSI 301 893, ETSI 303 687                                                                                                                                                                                                                                                                                                                                                                                                                          |
| <b>FIPS 140-3 Compliant</b>      | Yes                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                          |
| <b>Bluetooth® Profiles</b>       | BT4.1-ESR 5/6/7 Compliance                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                   |
| <b>Supported</b>                 | LE Link Layer Ping<br>LE Dual Mode<br>LE Link Layer<br>LE Low Duty Cycle Directed Advertising<br>LE L2CAP Connection Oriented Channels<br>Train Nudging & Interlaced Scan<br>BT4.2 ESR08 Compliance<br>LE Secure Connection- Basic/Full<br>LE Privacy 1.2 -Link Layer Privacy<br>LE Privacy 1.2 -Extended Scanner Filter Policies<br>LE Data Packet Length Extension<br>FAX Profile (FAX)<br>Basic Imaging Profile (BIP)2<br>Headset Profile (HSP)<br>Hands Free Profile (HFP)<br>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
- Periodic Advertisement interval

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. Available in countries where Wi-Fi 6E is supported.
2. 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.
3. 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.
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).

HP 5G NR Sub-6 CAT19 <sup>5</sup>

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)
- n12: 699 to 716 MHz (UL), 729 to 746 MHz (DL)
- n14: 788 to 798 MHz (UL), 758 to 768 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)
- 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<br>DL 4.67Gbps/UL 1.25Gbps<br>Sub-6 NSA Peak<br>DL 3.74Gbps/UL 835Mbps<br>LTE Peak<br>DL 1.6Gbps (CAT19)/UL 211Mbps (CAT18)<br>UMTS/HSPA+<br>DL DC-HSPA+: 42 Mbps (CAT24)/UL 11.5 Mbps (CAT7)                                                                                                                                                                                          |
|                                                  | Maximum Output Power                    | NR :<br>23 dBm in all band except (n30 = 22dBm & n48=21dBm & n77=25dBm & n41/n77/n78 = 26dBm)<br>LTE:<br>23 dBm in all band except (B30 = 22dBm & B48=21dBm & B41=26dBm)<br>UMTS:<br>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 × 30 mm × 2.3 mm                                                                                                                                                                                                                                                                                                                                                                               |
|                                                  | Embedded eSIM                           | Support                                                                                                                                                                                                                                                                                                                                                                                              |
| HP 5G NR Sub-6 CAT19 HP Go Solution <sup>5</sup> | Technology Operating Bands              | WCDMA/HSPA+ operating bands:<br>Band 1: 1920 to 1980 MHz (UL), 2110 to 2170 MHz (DL)<br>Band 2: 1850 to 1910 MHz (UL), 1930 to 1990 MHz (DL)<br>Band 4: 1710 to 1755 MHz (UL), 2110 to 2155 MHz (DL)<br>Band 5: 824 to 849 MHz (UL), 869 to 894 MHz (DL)<br>Band 8: 880 to 915 MHz (UL), 925 to 960 MHz (DL)<br>LTE FDD/TDD operating bands:<br>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)
- n12: 699 to 716 MHz (UL), 729 to 746 MHz (DL)
- n14: 788 to 798 MHz (UL), 758 to 768 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)
- 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<br>DL 4.67Gbps/UL 1.25Gbps<br>Sub-6 NSA Peak<br>DL 3.74Gbps/UL 835Mbps<br>LTE Peak<br>DL 1.6Gbps (CAT19)/UL 211Mbps (CAT18)<br>UMTS/HSPA+<br>DL DC-HSPA+: 42 Mbps (CAT24)/UL 11.5 Mbps (CAT7) |
| Maximum Output Power                    | NR :<br>23 dBm in all band except (n30 = 22dBm & n48=21dBm & n77=25dBm & n41/n77/n78 = 26dBm)<br>LTE:<br>23 dBm in all band except (B30 = 22dBm & B48=21dBm & B41=26dBm)<br>UMTS:<br>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 × 30 mm × 2.3 mm                                                                                                                                                                                      |
| Embedded eSIM                           | Support                                                                                                                                                                                                     |

5. 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.

|                       |                                 |                                                   |
|-----------------------|---------------------------------|---------------------------------------------------|
| 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                                            |
|                       | Card Emulation Mode (PICC-VICC) | Jewel and Topaz                                   |
|                       |                                 | ISO/IEC 14443 A                                   |
|                       |                                 | ISO/IEC 14443 B and B'                            |
|                       |                                 | MIFARE                                            |
|                       | Frequency                       | FeliCa                                            |
|                       |                                 | 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)                       |

|                                 |                                                                                          |
|---------------------------------|------------------------------------------------------------------------------------------|
| <b>Storage Temperature</b>      | 125°C to 125°C (-4°F to 257°F)                                                           |
| <b>Humidity</b>                 | Operating: 10 - 90%<br>Non-Operating: 5 - 95%                                            |
| <b>Supply Operating Voltage</b> | 4.35 to 5.25 Volts                                                                       |
| <b>I/O Voltage</b>              | 1.8V or 3.3V                                                                             |
| <b>Power Consumption</b>        | Booster enable, VBAT= 3.3V, VCC_BOOST = 5V                                               |
| <b>Mode</b>                     | Power Consumption, Typical                                                               |
| <b>Polling</b>                  | 7.3 mA                                                                                   |
| <b>Detected Test Tag Type 1</b> | Total 283.8 mA<br>Net Module 236.8 mA                                                    |
| <b>Detected Test Tag Type 2</b> | Total 288.8 mA<br>Net Module 241.8 mA                                                    |
| <b>Detected Test Tag Type 3</b> | Total 287.7 mA<br>Net Module 240.7 mA                                                    |
| <b>Detected Test Tag Type 4</b> | Total 282.3 mA<br>Net Module 235.3 mA                                                    |
| <b>Antenna</b>                  | Antenna connector, 0.5mm pitch, 7 connector FPC. Antenna matching is external to module. |

|                                                           |                                    |                                                                                                                                                                                                                                                                                                                                                                                                                                   |
|-----------------------------------------------------------|------------------------------------|-----------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|
| <b>HP RW220-GL LTE (Low Power) (CAT-1bis)<sup>6</sup></b> | <b>Technology/Operating bands</b>  | 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)<br><br>WIFI Scan : 802.11b                                                                                                                                                                                                                                            |
|                                                           | <b>Wireless Protocol Standards</b> | -3GPP TS 51.010-1 V12.9.0: Mobile Station (MS) conformance specification; Part 1: Conformance specification<br>-3GPP TS 36.521-1 V13.3.0: User Equipment (UE) conformance specification; Radio transmission and reception; Part 1: Conformance testing<br>-3GPP TS 21.111 V10.0.0: USIM and IC card requirements<br>-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<br>Uplink: 5Mbps                                                                                                                                                 |
| Maximum Output Power                    | B1/3: 23 +/-2dBm,<br>B5/8/12/18/19/20/26/28: 24 +1.7/-2dBm                                                                                                                        |
| Maximum Power Consumption               | Peak Current: 290.945mA<br>Average current: 8.035mA                                                                                                                               |
| Form Factor                             | M.2                                                                                                                                                                               |
| Weight                                  | 3.9g                                                                                                                                                                              |
| Dimensions (Length x Width x Thickness) | 42.0 mm × 22.0 mm × 2.3 mm                                                                                                                                                        |
| Embedded eSIM                           | Support                                                                                                                                                                           |



6. 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.

Battery is internal and replaceable by customer.

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

Using lower-capacity third-party USB Type-C® power cables may reduce power delivery.

|                                                                        |                                      |                                                                                                                                                              |
|------------------------------------------------------------------------|--------------------------------------|--------------------------------------------------------------------------------------------------------------------------------------------------------------|
| HP 100W Wall Mount USB<br>Type-C® GaN Halogen Free<br>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:<br>2018, EN62368-1:2014+A11, UL62368-1<br>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

|                                                                        |                                      |                                                                                                                                                                                                                   |
|------------------------------------------------------------------------|--------------------------------------|-------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|
| HP 100W Wall Mount USB<br>Type-C® GaN Halogen Free<br>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<br>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                                                                                                                    |
| HP 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<br>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

|                                                                        |                                      |                                                                                                                                                                                                                                                                                                                                           |
|------------------------------------------------------------------------|--------------------------------------|-------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|
| <b>HP 65W Wall Mount USB Type-C® GaN Halogen Free AC power adapter</b> | 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                                                                                                                                                                                                                                                                                                                |
|                                                                        | <b>Output</b>                        |                                                                                                                                                                                                                                                                                                                                           |
|                                                                        | 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                                                                                                                                                                                                                                                                                                                              |
|                                                                        | <b>Connector</b>                     |                                                                                                                                                                                                                                                                                                                                           |
|                                                                        | Connector                            | Foldable for 2 prong                                                                                                                                                                                                                                                                                                                      |
|                                                                        | <b>Environmental Design</b>          |                                                                                                                                                                                                                                                                                                                                           |
|                                                                        | Operating temper ature               | 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:<br>2018, EN62368-1:2014+A11, UL62368-1<br>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                                                                                                                                                                                                                                                                                                                                        |
| HP 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<br>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

|                                      |                                   |                                     |
|--------------------------------------|-----------------------------------|-------------------------------------|
| HP Long Life 3 cell, 62Wh<br>Polymer | Weight                            | 292 g ± 10 g (0.64 lb)              |
|                                      | Cells / Type                      | 3 cell Lithium-Ion Polymer / 645974 |
|                                      | Energy                            |                                     |
|                                      | Voltage                           | 11.58 V                             |
|                                      | Amp - hour capacity               | 5.355 Ah                            |
|                                      | Watt - hour capacity              | 62Wh.0.00 Wh                        |
|                                      | Temperature                       |                                     |
|                                      | Operating (Charging)              | 0°C to 45°C (32°F to 113°F)         |
|                                      | Operating (Discharging)           | -10°C to 65°C (14°F to 149°F)       |
|                                      | Optional Travel Battery Available | No                                  |

AUDIO

|                            |                                                                                                                                                                                                      |
|----------------------------|------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|
| Codec                      | Realtek ALC3315                                                                                                                                                                                      |
| Audio I/O Ports            | 3.5mm Headset: CTIA only; Headphone-out                                                                                                                                                              |
| Internal Speaker Amplifier | TI TAS2783A 23-V Soundwire Mono Smart 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.<br><br>Following Microsoft behavior. |
| Sampling                   | DAC: Supports resolutions from 16-bit to 24-bit;48.0 kHz to 48.0 kHz<br>ADC: Supports resolutions from 16-bit to 24-bit;44.1 kHz to 48.0 kHz                                                         |
| Internal Speaker           | Yes                                                                                                                                                                                                  |

#### FINGERPRINT READER

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

|                                    |                                    |
|------------------------------------|------------------------------------|
| <b>Sensor vendor</b>               | ELAN                               |
| <b>Sensor type</b>                 | Capacitive                         |
| <b>DPI resolution</b>              | 363 DPI                            |
| <b>Scan area</b>                   | 56 x 56 pixels                     |
| <b>False Rejection Rate</b>        | < 3%                               |
| <b>False Acceptance Rate</b>       | < 0.001%                           |
| <b>Mobile Voltage Operation</b>    | 2.8 V ~ 3.6 V                      |
| <b>Operating Temperature</b>       | -20°C ~ 80°C (-4°F ~ 176°F)        |
| <b>Current Consumption Image</b>   | 100 mA max                         |
| <b>Low Latency Wait For Finger</b> | 300 uA                             |
| <b>Capture Rate</b>                | 50 frames/sec                      |
| <b>ESD Resistance</b>              | IEC 61000-4-2 4B (+15KV)           |
| <b>Detection Matrix</b>            | 363 dpi / 4.0 x 4.0 mm sensor area |

|                       |            |
|-----------------------|------------|
| <b>Sensor vendor</b>  | Goodix     |
| <b>Sensor type</b>    | Capacitive |
| <b>DPI resolution</b> | 500 DPI    |



|                             |                                    |
|-----------------------------|------------------------------------|
| Scan area                   | 176x 54 pixels                     |
| False Rejection Rate        | <2%                                |
| False Acceptance Rate       | < 0.001%                           |
| Mobile Voltage Operation    | 2.8 V ~ 3.6 V                      |
| Operating Temperature       | -40°C~125°C (-40°F ~ 257°F)        |
| Current Consumption Image   | 50 mA max                          |
| Low Latency Wait For Finger | 360 uA                             |
| Capture Rate                | 50 frames/sec                      |
| ESD Resistance              | IEC 61000-4-2 4B (+15KV)           |
| Detection Matrix            | 500 dpi / 8.9 x 2.7 mm sensor area |



## OPTIONS

| Container Name         | Description                                | Part Number |
|------------------------|--------------------------------------------|-------------|
| <b>Adapters</b>        | 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     |
| <b>Audio - Earbuds</b> | Poly Voyager Free 60+ Carbon Black Earbuds | 7Y8G4AA     |
|                        | Poly Voyager Free 60+ Carbon Black Earbuds | 7Y8H0AA     |
| <b>Audio - Headset</b> | 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 |



#### Audio - Speaker phone

|                                             |                 |
|---------------------------------------------|-----------------|
| 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         |
| 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         |
| HP 625 Webcam                               | 6Y7L1AA         |
| HP USB-A 325 Webcam                         | 53X27AA,53X27UT |

#### Camera



|              |                                                    |                         |
|--------------|----------------------------------------------------|-------------------------|
| <b>Cases</b> | 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 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                 |



|                                   |                                                         |                 |
|-----------------------------------|---------------------------------------------------------|-----------------|
| <b>Commodity</b>                  | 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         |
| <b>Docking</b>                    | 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 |
| <b>Hub</b>                        | HP 4K USB-C Multiport Hub                               | 6G843AA         |
|                                   | 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         |
| <b>Keyboard</b>                   | HP USB-C Travel Hub G3                                  | 86S97UT         |
|                                   | HP 125 G2 Wired Keyboard                                | AY2Y7AA         |
|                                   | HP 125 Wired Keyboard                                   | 266C9AA         |
|                                   | HP 320K G2 Wired Keyboard                               | 9SR37UT         |
|                                   | HP 320K USB Wired Keyboard                              | 9SR37UT         |
|                                   | 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 495K Multi-Device Keyboard                           | BD5F5UT         |
|                                   | HP 585K Multi-Device Keyboard with Palm Rest            | BD5F7AA         |
|                                   | 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         |
| <b>Keyboard &amp; Mouse Combo</b> | HP 225 Wired Mouse and Keyboard Combo G2                | AX2Y7AA         |
|                                   | HP 225 Wired Mouse and Keyboard Combo Cashmere White G2 | AW5S6AA         |



|              |                                                                        |                 |
|--------------|------------------------------------------------------------------------|-----------------|
| <b>Mouse</b> | 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         |
|              | 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         |
| <b>Pen</b>   | HP 685 Comfort Dual-Mode Mouse                                         | 8T6M0UT         |
|              | HP 695 Qi-Charging Wireless Mouse                                      | 8F1Y4AA         |
|              | HP 705 Rechargeable Wireless Mouse                                     | AZ7B1AA         |
|              | HP 715 Rechargeable Multi-Device Bluetooth Mouse                       | 6E6F0AA         |
|              | HP 925 Ergonomic Vertical Wireless Mouse                               | 6H1A5AA         |
| <b>Power</b> | HP Tilt Ergonomic Mouse 725M                                           | BH0Z5AA         |
|              | HP Ultra-Fast Scroll Wireless Mouse 785M                               | B8YX4AA         |
|              | HP 705 Rechargeable Multi Pen                                          | 93Z28AA         |
|              | HP Active Rechargeable AES 2 G3 Pen                                    | 6SG43AA         |
|              | HP 110W USB-C Laptop Charger                                           | 8B3Y2UT         |



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|                                                |                 |
|------------------------------------------------|-----------------|
| 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 USB-C AC power adapter               | AJ7X5AA         |
| HP 65W Gallium Nitride USB-C Laptop Charger    | 600Q8UT         |
| HP 65W USB-C Laptop Charger                    | 671R3UT         |
| HP 62Wh Replaceable Laptop Battery             | BW7P2AA         |

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CHANGELOG

| Date of change | Version History |         | Description of change              |
|----------------|-----------------|---------|------------------------------------|
| March 26, 2026 | V1 to V2        | Added   | Battery Life Section               |
| April 6, 2026  | V2 to V3        | Updated | Power Section                      |
| May 12, 2026   | V3 to V4        | Updated | Processor Section                  |
| May 29, 2026   | V4 to V5        | Updated | Networking /Communications Section |
| June 8, 2026   | V5 to V6        | Updated | Digital Pen Section                |
| June 12, 2026  | V6 to V7        | Updated | Storage and Drives Section         |
| June 19, 2026  | V7 to V8        | Updated | Power Section                      |

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