

### Overview

#### HP Elite Dragonfly 13.5 inch Chromebook



#### Left

- |                              |   |
|------------------------------|---|
| 1. Dual Edge Microphones (2) | 6. Volume buttons   |
| 2. Ambient light sensor      | 7. Power button   |
| 3. HP Privacy Camera Shutter | 8. MicroSD memory card reader (Memory card is not included)   |
| 4. 5MP camera                | 9. Thunderbolt™ 4 with USB4 Type-C® 40Gbps signaling rate (USB Power Delivery, DisplayPort™ 1.4) <sup>1</sup> |
| 5. Haptic Trackpad           | 10. HDMI port (Cable not included)  |

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

### Overview



#### Right

1. Global Microphone Mute Key
2. Audio Combo Jack
3. SuperSpeed USB Type-A 10Gbps signaling rate (USB 3.2 Gen 2)<sup>1</sup>
4. Thunderbolt™ 4 with USB4 Type-C® 40Gbps signaling rate (USB Power Delivery, DisplayPort™ 1.4)<sup>2</sup>
5. Nano Lock Slot (Lock sold separately)
6. WWAN SIM slot (Only for units with WWAN)
7. HP Wireless Rechargeable USI Pen G2
8. Magnetic Area to attach Pen and Wireless Charge Pen (Pen is sold separately)
9. Fingerprint Sensor

1. SuperSpeed USB 20Gbps is not available.

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

### Overview



1. HP Wireless Rechargeable USI Pen G2

2. Magnetic Area to attach Pen and Wireless Charge Pen (Pen is sold separately)



## Overview



### Overview

#### AT A GLANCE

- Premium and light-weight x360 design with hybrid Mg/Al
- See more in a 13.5" diagonal 3:2 aspect ratio with up to QHD+ (2256x1504) resolution (optional) with Ambient Light Sensor (also with WUVGA+)
- 5MP camera catches more visually, making corrections for low light easier and more effective.
- Immersive haptic trackpad of which size simulates the 3:2 aspect ratio on-screen experience.
- Capture your voice with top-edge mics and suppress background noise with AI-based noise reduction for an enhanced conferencing experience.
- Audio by Bang & Olufsen and four speakers with discrete smart amps work together to create a powerfully rich sound experience.
- Magnetically attached and wirelessly charged, HP Wireless Rechargeable USI Pen G2 <sup>1</sup> is always ready and within reach.
- 5G<sup>2</sup> delivers super-fast data uploads and transfers, while Wi-Fi 6E<sup>3</sup> and Bluetooth® connectivity provide speed and stability on crowded networks.
- Instantly block prying eyes' ability to view your screen with optional HP Sure View Reflect <sup>4</sup> and physically block your camera with the handy HP Privacy Camera shutter.
- Transfer documents, photos, videos, and more between your mobile devices and your Chromebook using HP QuickDrop<sup>5</sup>.

1. HP Wireless Rechargeable USI Pen is optional.

2. Intel® 5G module is optional and must be configured at the factory.

3. Wi-Fi 6E module is optional and must be configured at the factory.

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

5. HP Quick Drop requires Internet access and Windows 10 or higher PC preinstalled with HP QuickDrop app and either an Android device (phone or tablet) running Android 7 or higher with the Android HP QuickDrop app, and /or an iOS device (phone or tablet) running iOS 12 or higher with the iOS HP QuickDrop app.

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

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### Technical Specifications

#### PRODUCT NAME

HP Elite Dragonfly 13.5 inch Chromebook

#### OPERATING SYSTEM

Preinstalled Chrome OS

#### PROCESSORS

| Processor <sup>1,2,3,4</sup> | Cores | Number of P-cores | Number of E-cores | Threads | L3 Cache | Max Turbo Frequency |         | Base Frequency |         | Intel SIPP/vPro <sup>®</sup> Enterprise |
|------------------------------|-------|-------------------|-------------------|---------|----------|---------------------|---------|----------------|---------|---|
|                              |       |                   |                   |         |          | P-cores             | E-cores | P-cores        | E-cores |   |
| Intel® Core™ i7-1265U        | 10    | 2                 | 8                 | 12      | 12MB     | 4.8 GHz             | 3.6 GHz | 1.8 GHz        | 1.3 GHz | X                                       |
| Intel® Core™ i7-1255U        | 10    | 2                 | 8                 | 12      | 12MB     | 4.7 GHz             | 3.5 GHz | 1.7 GHz        | 1.2 GHz |   |
| Intel® Core™ i5-1245U        | 10    | 2                 | 8                 | 12      | 12MB     | 4.4 GHz             | 3.3 GHz | 1.2 GHz        | 1.2 GHz | X                                       |
| Intel® Core™ i5-1235U        | 10    | 2                 | 8                 | 12      | 12MB     | 4.4 GHz             | 3.3 GHz | 1.3 GHz        | 0.9 GHz |   |
| Intel® Core™ i3-1215U        | 6     | 2                 | 4                 | 8       | 10MB     | 4.4 GHz             | 3.3 GHz | 1.2 GHz        | 0.9 GHz |   |

1. Multicore is designed to improve performance of certain software products. Not all customers or software applications will necessarily benefit from use of this technology. Performance and clock frequency will vary depending on application workload and your hardware and software configurations. Intel’s numbering, branding and/or naming is not a measurement of higher performance.

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

3. Intel® Turbo Boost performance varies depending on hardware, software and overall system configuration. See [www.intel.com/technology/turboboost](http://www.intel.com/technology/turboboost) for more information.

4. Intel vPro<sup>®</sup> requires Chrome OS R99 or after, a vPro supported processor, vPro enabled wired LAN and/or WLAN card, Wi-Fi 6E and H1 Security Chip are required. Some functionality requires additional 3rd party software in order to run. Features of vPro<sup>®</sup> Essentials and Enterprise vary. See <http://intel.com/vpro>

#### CHIPSET

Chipset is integrated with processor

### Technical Specifications

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#### GRAPHICS

##### Integrated

Intel® Iris® X<sup>e</sup> Graphics <sup>5,6</sup>

Intel® UHD Graphics

##### Supports

Support HD decode, DX12, HDMI 2.0 <sup>5</sup>

5. HD content required to view HD images.

6. Intel® Iris® X<sup>e</sup> Graphics capabilities require system to be configured with Intel® Core™ i5 or i7 processors and dual channel memory. Intel® Iris® X<sup>e</sup> Graphics with Intel® Core™ i5 or 7 processors and single channel memory will only function as UHD graphics.

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#### DISPLAY

##### Touch

34.3 cm (13.5") diagonal, QHD+ (2256 x 1504), touch, IPS Bright View, micro-edge, 400 nits, 72% NTSC, eDP 1.4+PSR2 <sup>5,7,8,9</sup>

34.3 cm (13.5") diagonal, WUXGA+ (1920 x 1280), touch, Low Blue Light, IPS anti-glare, micro-edge, 400 nits, 72% NTSC, eDP 1.4+PSR2 with HP Eye Ease <sup>5,7,8,9</sup>

34.3 cm (13.5") diagonal, WUXGA+ (1920 x 1280), HP SureView Reflect, touch, Low Blue Light, IPS BrightView, micro-edge, 1000 nits, 72% NTSC, PrivacyG4 Plus eDP 1.3+PSR with HP Eye Ease <sup>5,7,8,9</sup>

34.3 cm (13.5") diagonal, WUXGA+ (1920 x 1280), touch, Low Blue Light, IPS BrightView, micro-edge, 400 nits, 72% NTSC, eDP 1.4+PSR2 with HP Eye Ease <sup>5,7,8,9</sup>

##### Displays support

Support extended displays through HP docks

##### Display Size (Diagonal)

13.5"

34.3 cm

5. HD content required to view HD images.

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

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

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

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#### DOCKING (Sold Separately)

Docking station model #1

HP USB-C Dock G5

Docking station model #2

HP USB-C/A Universal Dock G2

### Technical Specifications

**Docking station model #3**

HP Thunderbolt Dock G2

[For additional aftermarket options and docking specs please see page 36.](#)

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### STORAGE AND DRIVES

#### Primary M.2 Storage

512 GB PCIe® NVMe™ M.2 SSD <sup>10</sup>

256 GB PCIe® NVMe™ M.2 SSD <sup>10</sup>

128 GB PCIe® NVMe™ M.2 SSD <sup>10</sup>

10. For storage drives, GB = 1 billion bytes. Actual formatted capacity is less. For 512GB drive, 48.64GB is not user accessible. For 256GB drive, 17.53GB is not user accessible. For 128GB drive, 8.76GB is not user accessible.

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### MEMORY

#### Maximum Memory

32 GB LPDDR4x-4266 MHz SDRAM <sup>11</sup>

#### Memory

32 GB LPDDR4x-4266 MHz SDRAM <sup>11</sup>

16 GB LPDDR4x-4266 MHz SDRAM <sup>11</sup>

8 GB LPDDR4x-4266 MHz SDRAM <sup>11</sup>

#### Memory Slots

On-board system memory

Supports Dual Channel Memory

11. 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

#### WLAN

Intel® AX211 Wi-Fi 6E Bluetooth® 5.2 WLAN <sup>12</sup>

Intel® AX211 Wi-Fi 6E Bluetooth® 5.2 vPro WLAN <sup>12</sup>

MU-MIMO supported

HP Extended Range WLAN supported

#### WWAN

Intel® 5000 5G Solution WWAN <sup>13</sup>

Intel® XMM 7360 LTE-Advanced WWAN (Cat 9) <sup>14</sup>

#### Miracast





### Technical Specifications

Chromecast Support <sup>15</sup>

12. Wi-Fi 6E requires a Wi-Fi 6E router, sold separately, to function in the 6GHz band. Availability of public wireless access points limited. Wi-Fi 6E is backwards compatible with prior 802.11 specs. And available in countries where Wi-Fi 6E is supported.

13. Intel vPro® requires Chrome OS R99 or after, a vPro supported processor, vPro enabled wired LAN and/or WLAN card, Wi-Fi 6E and H1 Security Chip are required. Some functionality requires additional 3rd party software in order to run. Features of vPro® Essentials and Enterprise vary. See <http://intel.com/vpro>

14. LTE module is optional, must be configured at the factory, requires activation and separately purchased service contract. Check with service provider for coverage and availability in your area. Connection, upload and download speeds will vary due to network, location, environment, network conditions, and other factors. 4G LTE not available on all products, in all regions.

15. Chromecast must be purchased separately.

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### AUDIO/MULTIMEDIA

#### Audio

Audio by Bang & Olufsen

4 Integrated speakers with discrete smart amps

Dual Edge Microphones

#### Speaker Power

2W/4ohm Per speaker

#### Camera

5 MP camera

HP Privacy Camera Shutter

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### KEYBOARDS/POINTING DEVICES/BUTTONS & FUNCTION KEYS

#### Keyboard

Full-size island-style backlit, spill-resistant keyboard

#### Pointing Device

Haptic trackpad with multi-touch gesture support















#### Function Keys

esc    ESC key

←    Go to the previous page

↻    Refresh your current page

### Technical Specifications

-  Make your page take up the full screen
-  Show all open windows
-  Take a screenshot
-  Decrease screen brightness
-  Increase screen brightness
-  [for SureView sku]: Turn on SureView
-  [for non-SureView sku]: Keyboard backlight on/off
-  [for SureView sku]: Keyboard backlight on/off
-  [for non-SureView sku]: Play/pause
-  Global microphone mute/unmute
-  Turn off the sound
-  Lower the volume
-  Raise the volume
-  Lock Screen

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## SOFTWARE AND SECURITY

### Preinstalled Software

HP QuickDrop <sup>17</sup>

### Manageability Features

Zero Touch Enrollment <sup>18</sup>

Chrome Enterprise Upgrade <sup>18,19</sup>

Chrome Education Upgrade <sup>18,20</sup>

**NOTE:** To enhance brightness, level go to the Intel® Graphics Command Center app, click on System and turn off the Display Power Savings function.

### Security Management

Nano lock slot (Lock sold separately) <sup>18</sup>

Fingerprint Sensor<sup>21</sup>

### Security

#### TPM

Titan C security chip

### IPv6 Support

N/A

### FirstNet Certified

N/A

### Technical Specifications

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

17. HP Quick Drop requires Internet access and Chrome OS device preinstalled with HP QuickDrop app and either an Android device (phone or tablet) running Android 7 or higher with the Android HP QuickDrop app, and /or an iOS device (phone or tablet) running iOS 12 or higher with the iOS HP QuickDrop app.
  18. Sold separately.
  19. Chrome Enterprise Upgrade requires one-time setup, subscription, Google Admin Console, and your organization's domain. Please see <https://support.google.com/a/topic/1409901>.
  20. Chrome Education Upgrade requires one-time setup, subscription, Google Admin Console, and your organization's domain. Please see <https://support.google.com/a/answer/60216>.
  21. HP Fingerprint sensor is an optional feature that must be configured at purchase.
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### Technical Specifications

#### POWER

##### Power Supply

HP Smart 65 W USB Type-C adapter <sup>22</sup>

HP Smart 65 W Slim USB Type-C adapter <sup>22</sup>

HP Smart 45 W USB Type-C adapter <sup>22</sup>

##### Battery

HP Long Life 4-cell, 50 Wh Polymer <sup>23,24</sup>

Support HP Fast Charge Technology (90 mins to 90%) <sup>25</sup>

##### Power Cord

3-wire plug - 1m

##### Battery Life

Up to 10 hours (Intel i3-1215U/8GB/128GB SSD/WUXGA+) <sup>26</sup>

##### Battery Weight

0.52lb

235g

22. Availability may vary by country.

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

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

25. Recharges up to 90% within 90 minutes when the system is off or in standby mode when used with the power adapter provided with the notebook. After charging has reached 90% capacity, charging will return to normal. Charging time may vary +/-10% due to System tolerance.

26. Testing conducted by HP using Google Chrome OS power\_LoadTest. Battery life will vary and the maximum capacity of the battery will naturally decrease with time and usage and battery optimization activation. See <http://www.chromium.org/chromium-os/testing/power-testing> for test details. Battery configuration and charge capacity is optimized to improve battery health over time based upon charging patterns and temperature.

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#### WEIGHTS & DIMENSIONS

##### Product Weight

Starting at 2.8 lb <sup>27</sup>

Starting at 1.27 kg<sup>27</sup>

##### Product Dimensions (W x D x H)

11.59 x 8.73 x 0.65 in

29.45 x 22.18 x 1.66 cm

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

### Technical Specifications

#### PORTS/SLOTS

- 2 Thunderbolt™ 4 with USB4 Type-C® 40Gbps signaling rate (USB Power Delivery, DisplayPort™ 1.4) <sup>28</sup>
- 1 SuperSpeed USB Type-A 10Gbps signaling rate (USB 3.2 Gen 2)<sup>29</sup>
- 1 stereo headphone/microphone combo jack
- 1 HDMI 2.0 <sup>30</sup>

#### Expansion Slots

- 1 Micro SD multi-format digital media reader <sup>31</sup>  
Supports SD, SDHC, SDXC

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

29. SuperSpeed USB 20Gbps is not available.

30. HDMI cable sold separately.

31. Memory card sold separately.

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### Technical Specifications

#### SERVICE AND SUPPORT

HP Services offers 1-year or 3-year limited warranties and 90 day software limited warranty options depending on country. Batteries have a default one year limited warranty. Refer to <http://www.hp.com/support/batterywarranty/> for additional battery information. On-site service and extended coverage is also available. HP Care Pack Services are optional extended service contracts that go beyond the standard limited warranties. To choose the right level of service for your HP product, use the HP Care Pack Services Lookup Tool at: <http://www.hp.com/go/cpc>.<sup>32</sup>

32. 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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## Technical Specifications

### SYSTEM UNIT

|  |   |
|--|---|
| <b>Stand-Alone Power Requirements (AC Power)</b> | USB-C 45W and 65W adapter                       |
| Nominal Operating Voltage                        | 5V/9V/12V/15V                                   |
| Average Operating Power                          | < 45W   |
| Integrated graphics                              | Yes   |
| Discrete Graphics                                | N/A   |
| Max Operating Power                              | UMA < 45W                                       |
| <b>Temperature</b>                               |   |
| Operating  | 32° to 95° F (0° to 35° C)                      |
| Non-operating                                    | 41° to 95° F (5° to 35° C)                      |
| <b>Relative Humidity</b>                         |   |
| Operating  | 10% to 90%                                      |
| Non-operating                                    | 5% to 95%                                       |
| <b>Shock</b>                                     |   |
| Operating  | 40 G, 2 ms, half-sine                           |
| Non-operating                                    | 240 G, 2 ms, half-sine                          |
| <b>Random Vibration</b>                          |   |
| Operating  | 1.043 grams                                     |
| Non-operating                                    | 3.5 grams                                       |
| <b>Altitude (unpressurized)</b>                  |   |
| Operating  | -50 to 10,000 ft (-15 to 3,048 m)               |
| Non-operating                                    | -50 to 40,000 ft (-15 to 12,192 m)              |
| <b>Planned Industry Standard Certifications</b>  |   |
| Regulatory Model Number                          | TPN-Q273  |
| UL   | Yes   |
| CSA  | No  |
| FCC Compliance                                   | Yes   |
| ENERGY STAR® 8.0                                 | Yes <sup>33</sup>                               |
| EPEAT®   | Yes, EPEAT® Gold in United States <sup>34</sup> |
| TCO certified                                    | Yes   |
| ICES   | Yes   |
| Australia / NZ A-Tick Compliance                 | Yes   |
| CCC  | Yes   |
| Japan VCCI Compliance                            | Yes   |
| KC   | Yes   |
| BSMI   | Yes   |
| CE Marking Compliance                            | Yes   |
| BNCI or BELUS                                    | No  |
| CIT  | No  |
| EAC Certificate                                  | Yes   |
| GOST   | Yes (EAC)                                       |
| Saudi Arabian Compliance (ICCP)                  | Yes   |
| SABS   | Yes   |
| UKRSERTCOMPUTER                                  | No  |

33. Configurations of the HP Elite Dragonfly Chromebook that are ENERGY STAR® qualified are identified as HP Elite Dragonfly Chromebook ENERGY STAR on HP websites and on <http://www.energystar.gov>.

### Technical Specifications

34. Based on US EPEAT® registration according to IEEE 1680.1-2018 EPEAT®. EPEAT® status varies by country. Visit <http://www.epeat.net> for more information.

#### DISPLAYS

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

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

|  |                                       |                          |
|--|---------------------------------------|--------------------------|
| <b>13.5 in WUXGA+ (1920 x 1280) HP SureView Reflect+1000nits</b> | <b>Outline Dimensions (W x H x D)</b> | 290.189 x 199.970 (max)  |
|  | <b>Active Area</b>                    | 284.890 x 189.930 (typ.) |
|  | <b>Weight</b>                         | 255 g(max)               |
|  | <b>Diagonal Size</b>                  | 13.5 (inch)              |
|  | <b>Thickness</b>                      | 2.2 mm/3.9mm (max)       |
|  | <b>Interface</b>                      | eDP1.4                   |
|  | <b>Surface Treatment</b>              | Bright View              |
|  | <b>Touch Enabled</b>                  | No                       |
|  | <b>Contrast Ratio</b>                 | 1500:1(typ.)             |
|  | <b>Refresh Rate</b>                   | 60Hz                     |
|  | <b>Brightness</b>                     | 1000 nits                |
|  | <b>Pixel Resolution - Format</b>      | 1920 x1280 (FHD)         |
|  | <b>Backlight</b>                      | WLED                     |
|  | <b>Pixel Resolution</b>               | RGB                      |
|  | <b>Color Gamut Coverage</b>           | sRGB 100%                |
|  | <b>Color Depth</b>                    | 8                        |
|  | <b>Viewing Angle</b>                  | UWVA 85/85/85/85         |
| <b>Low Blue Light</b>  | Yes                                   |                          |
| <b>Power Consumption (W, EBL@ 150nits max/ 200nits max)</b>      | 2.03 (max)/2.32(max)                  |                          |

|  |                                       |                              |
|--|---------------------------------------|------------------------------|
| <b>13.5" WUXGA+ (1920 x 1280) Anti-Glare 400nits</b> | <b>Outline Dimensions (W x H x D)</b> | 290.200 x 199.970 max        |
|  | <b>Active Area</b>                    | 284.889 x 189.926 mm (typ.)  |
|  | <b>Weight</b>                         | 200g                         |
|  | <b>Diagonal Size</b>                  | 13.5(inch)                   |
|  | <b>Thickness</b>                      | 2.05mm / 3.85mm (w/ PCB) max |
|  | <b>Interface</b>                      | eDP1.4                       |
|  | <b>Surface Treatment</b>              | Anti-Glare                   |
|  | <b>Touch Enabled</b>                  | No                           |
|  | <b>Contrast Ratio</b>                 | 1500:1 (typ.)                |
|  | <b>Refresh Rate</b>                   | 60Hz                         |
|  | <b>Brightness</b>                     | 400nits (typ.)               |
|  | <b>Pixel Resolution - Format</b>      | 1920 x 1280 (WUXGA+)         |
|  | <b>Backlight</b>                      | WLED                         |
|  | <b>Pixel Resolution</b>               | RGB                          |
| <b>Color Gamut Coverage</b>                          | sRGB 100%                             |                              |

### Technical Specifications

|   |                        |
|---|------------------------|
| <b>Color Depth</b>  | 8bit                   |
| <b>Viewing Angle</b>  | UWVA 89/89/89/89       |
| <b>Low Blue Light</b>                                       | Yes                    |
| <b>Power Consumption (W, EBL@ 150nits max/ 200nits max)</b> | 1.42W(max)/ 1.71W(max) |

#### 13.5" WUXGA+ (1920 x 1280) Bright View 400nits

|   |                              |
|---|------------------------------|
| <b>Outline Dimensions (W x H x D)</b>                       | 290.200 x 199.970 max        |
| <b>Active Area</b>  | 284.889 x 189.926 mm (typ.)  |
| <b>Weight</b>   | 200g                         |
| <b>Diagonal Size</b>  | 13.5(inch)                   |
| <b>Thickness</b>  | 2.05mm / 3.85mm (w/ PCB) max |
| <b>Interface</b>  | eDP1.4                       |
| <b>Surface Treatment</b>                                    | Bright View                  |
| <b>Touch Enabled</b>  | No                           |
| <b>Contrast Ratio</b>                                       | 1500:1 (typ.)                |
| <b>Refresh Rate</b>   | 60Hz                         |
| <b>Brightness</b>   | 400nits (typ.)               |
| <b>Pixel Resolution - Format</b>                            | 1920 x 1280 (WUXGA+)         |
| <b>Backlight</b>  | WLED                         |
| <b>Pixel Resolution</b>                                     | RGB                          |
| <b>Color Gamut Coverage</b>                                 | sRGB 100%                    |
| <b>Color Depth</b>  | 8bit                         |
| <b>Viewing Angle</b>  | UWVA 89/89/89/89             |
| <b>Low Blue Light</b>                                       | Yes                          |
| <b>Power Consumption (W, EBL@ 150nits max/ 200nits max)</b> | 1.42W(max)/ 1.71W(max)       |

#### 13.5" WUXGA+ (1920 x 1280) Bright View 400nits

|                                       |                              |
|---------------------------------------|------------------------------|
| <b>Outline Dimensions (W x H x D)</b> | 290.200 x 199.970 max        |
| <b>Active Area</b>                    | 284.889 x 189.926 mm (typ.)  |
| <b>Weight</b>                         | 200g                         |
| <b>Diagonal Size</b>                  | 13.5(inch)                   |
| <b>Thickness</b>                      | 2.05mm / 3.85mm (w/ PCB) max |
| <b>Interface</b>                      | eDP1.4                       |
| <b>Surface Treatment</b>              | Bright View                  |
| <b>Touch Enabled</b>                  | No                           |
| <b>Contrast Ratio</b>                 | 1500:1 (typ.)                |
| <b>Refresh Rate</b>                   | 60Hz                         |
| <b>Brightness</b>                     | 400nits (typ.)               |
| <b>Pixel Resolution - Format</b>      | 1920 x 1280 (WUXGA+)         |
| <b>Backlight</b>                      | WLED                         |
| <b>Pixel Resolution</b>               | RGB                          |
| <b>Color Gamut Coverage</b>           | sRGB 100%                    |

### Technical Specifications

|   |                        |
|---|------------------------|
| <b>Color Depth</b>  | 8bit                   |
| <b>Viewing Angle</b>  | UWVA 89/89/89/89       |
| <b>Low Blue Light</b>                                       | Yes                    |
| <b>Power Consumption (W, EBL@ 150nits max/ 200nits max)</b> | 1.42W(max)/ 1.71W(max) |

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|   |   |                             |
|---|---|-----------------------------|
| <b>13.5" QHD+ (2256 x 1504) 400nits</b> | <b>Outline Dimensions (W x H x D)</b>                       | 290.230 × 201.210 (max)     |
|   | <b>Active Area</b>  | 284.93mm × 189.9mm (typ)    |
|   | <b>Weight</b>   | 200g (max)                  |
|   | <b>Diagonal Size</b>  | 13.5 inch                   |
|   | <b>Thickness</b>  | 2.0mm/ 3.8mm (w/ PCB) (max) |
|   | <b>Interface</b>  | eDP1.4                      |
|   | <b>Surface Treatment</b>                                    | Bright View                 |
|   | <b>Touch Enabled</b>  | No                          |
|   | <b>Contrast Ratio</b>                                       | 1500:1 typ                  |
|   | <b>Refresh Rate</b>   | 60Hz                        |
|   | <b>Brightness</b>   | 400 nits(typ)               |
|   | <b>Pixel Resolution - Format</b>                            | 2256x1504(QHD+)             |
|   | <b>Backlight</b>  | WLED                        |
|   | <b>Pixel Resolution</b>                                     | RGB                         |
|   | <b>Color Gamut Coverage</b>                                 | sRGB 100%                   |
|   | <b>Color Depth</b>  | 8bit                        |
|   | <b>Viewing Angle</b>  | UWVA 85/85/85/85            |
|   | <b>Low Blue Light</b>                                       | No                          |
|   | <b>Power Consumption (W, EBL@ 150nits max/ 200nits max)</b> | 1.65(max)/ 2.0(max)         |

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### Technical Specifications

#### STORAGE AND DRIVES

For storage drives, GB = 1 billion bytes. Actual formatted capacity is less. For 512GB drive, 48.64GB is not user accessible. For 256GB drive, 17.53GB is not user accessible. For 128GB drive, 8.76GB is not user accessible.

|  |                                 |  |
|--|---------------------------------|--|
| <b>SSD 128GB 2230 PCIe NVMe Value (SSD 128GB 2230 PCIe NVMe Value)</b> | <b>Form Factor</b>              | M.2 2230                                 |
|  | <b>Capacity</b>                 | 128GB                                    |
|  | <b>NAND Type</b>                | NVMe                                     |
|  | <b>Height</b>                   | 0.09 in (2.3 mm)                         |
|  | <b>Width</b>                    | 0.87 in (22 mm)                          |
|  | <b>Weight</b>                   | 0.02 lb (10 g)                           |
|  | <b>Interface</b>                | Value                                    |
|  | <b>Maximum Sequential Read</b>  | Up to 3000                               |
|  | <b>Maximum Sequential Write</b> | Up to 1400                               |
|  | <b>Logical Blocks</b>           | 250,069,680                              |
|  | <b>Operating Temperature</b>    | 32° to 158°F (0° to 70°C) [ambient temp] |
| <b>Features</b>  | Pyrite                          |  |

|  |                                 |  |
|--|---------------------------------|--|
| <b>SSD 256GB 2230 PCIe NVMe Value (SSD 256GB 2230 PCIe NVMe Value)</b> | <b>Form Factor</b>              | M.2 2230                                 |
|  | <b>Capacity</b>                 | 256GB                                    |
|  | <b>NAND Type</b>                | NVMe                                     |
|  | <b>Height</b>                   | 0.09 in (2.3 mm)                         |
|  | <b>Width</b>                    | 0.87 in (22 mm)                          |
|  | <b>Interface</b>                | Value                                    |
|  | <b>Maximum Sequential Read</b>  | Up to 3000                               |
|  | <b>Maximum Sequential Write</b> | Up to 1800                               |
|  | <b>Logical Blocks</b>           | 500,118,192                              |
|  | <b>Operating Temperature</b>    | 32° to 158°F (0° to 70°C) [ambient temp] |
|  | <b>Features</b>                 | Pyrite                                   |
| <b>Form Factor</b>   | M.2 2230                        |  |

|  |                                 |  |
|--|---------------------------------|--|
| <b>SSD 512GB 2280 PCIe NVMe Value (512GB 2280 PCIe NVMe Value 2nd M.2 India Solid State Drive)</b> | <b>Form Factor</b>              | M.2 2280                                 |
|  | <b>Capacity</b>                 | 512GB                                    |
|  | <b>NAND Type</b>                | NVMe                                     |
|  | <b>Height</b>                   | 0.09 in (2.3 mm)                         |
|  | <b>Width</b>                    | 0.87 in (22 mm)                          |
|  | <b>Interface</b>                | Value                                    |
|  | <b>Maximum Sequential Read</b>  | Up to 3200                               |
|  | <b>Maximum Sequential Write</b> | Up to 2700                               |
|  | <b>Logical Blocks</b>           | 1,000,215,216                            |
|  | <b>Operating Temperature</b>    | 32° to 158°F (0° to 70°C) [ambient temp] |
|  | <b>Features</b>                 | Pyrite                                   |

### Technical Specifications

#### NETWORKING/COMMUNICATIONS

|   |                                      |   |
|---|--------------------------------------|---|
| <p>Intel® AX211 Wi-Fi 6E +<br/>Bluetooth® 5.2 M.2<br/>160MHz CNVi World-wide<br/>WLAN vPro®<sup>1</sup></p> | <p><b>Wireless LAN Standards</b></p> | <p>IEEE 802.11a<br/>IEEE 802.11b<br/>IEEE 802.11g<br/>IEEE 802.11n<br/>IEEE 802.11ac<br/>IEEE 802.11ax<br/>IEEE 802.11d<br/>IEEE 802.11e<br/>IEEE 802.11h<br/>IEEE 802.11i<br/>IEEE 802.11k<br/>IEEE 802.11r<br/>IEEE 802.11v</p>   |
|   | <p><b>Interoperability</b></p>       | <p>Wi-Fi certified</p>  |
|   | <p><b>Frequency Band</b></p>         | <ul style="list-style-type: none"> <li>• 802.11b/g/n/ax<br/>2.402 – 2.482 GHz</li> <li>• 802.11a/n/ac/ax<br/>4.9 – 4.95 GHz (Japan)<br/>5.15 – 5.25 GHz<br/>5.25 – 5.35 GHz<br/>5.47 – 5.725 GHz<br/>5.825 – 5.850 GHz<br/>5.955 – 6.415 GHz<br/>6.435 – 6.515 GHz<br/>6.535 – 6.875 GHz<br/>6.895 – 7.115 GHz</li> </ul>   |
|   | <p><b>Data Rates</b></p>             | <ul style="list-style-type: none"> <li>• 802.11b: 1, 2, 5.5, 11 Mbps</li> <li>• 802.11g: 6, 9, 12, 18, 24, 36, 48, 54 Mbps</li> <li>• 802.11a: 6, 9, 12, 18, 24, 36, 48, 54 Mbps</li> <li>• 802.11n: max 300Mbps</li> <li>• 802.11ac : 1733Mbps</li> <li>• 802.11ax : max 2.4Gbps</li> </ul>  |
|   | <p><b>Modulation</b></p>             | <p>Direct Sequence Spread Spectrum<br/>OFDM, BPSK, QPSK, CCK, 16-QAM, 64-QAM, 256-QAM, 1024QAM</p>  |
|   | <p><b>Security<sup>3</sup></b></p>   | <ul style="list-style-type: none"> <li>• IEEE and WiFi compliant 64 / 128 bit WEP encryption for a/b/g mode only</li> <li>• AES-CCMP: 128 bit in hardware</li> <li>• 802.1x authentication</li> <li>• WPA, WPA2: 802.1x. WPA-PSK, WPA2-PSK, TKIP, and AES.</li> <li>• WPA2 certification</li> <li>• WPA3 certification</li> <li>• IEEE 802.11i</li> <li>• WAPI</li> </ul> |
|   | <p><b>Network Architecture</b></p>   | <p>Ad-hoc (Peer to Peer)</p>  |

## Technical Specifications

|   |   |
|---|---|
| <b>Models</b>                           | Infrastructure (Access Point Required)  |
| <b>Roaming</b>                          | IEEE 802.11 compliant roaming between access points   |
| <b>Output Power<sup>2</sup></b>         | <ul style="list-style-type: none"> <li>• 802.11b : +17dBm minimum</li> <li>• 802.11g : +16dBm minimum</li> <li>• 802.11a : +17dBm minimum</li> <li>• 802.11n HT20(2.4GHz) : +14dBm minimum</li> <li>• 802.11n HT40(2.4GHz) : +13dBm minimum</li> <li>• 802.11n HT20(5GHz) : +14dBm minimum</li> <li>• 802.11n HT40(5GHz) : +13dBm minimum</li> <li>• 802.11ac VHT80(5GHz) : +10dBm minimum</li> <li>• 802.11ac VHT160(5GHz) : +10dBm minimum</li> <li>• 802.11ax HE40(2.4GHz) : +12dBm minimum</li> <li>• 802.11ax HE80(5GHz) : +10dBm minimum</li> <li>• 802.11ax HE160(5GHz) : +10dBm minimum</li> </ul>                        |
| <b>Power Consumption</b>                | <ul style="list-style-type: none"> <li>• Transmit mode 2.0 W</li> <li>• Receive mode 1.6 W</li> <li>• Idle mode (PSP) 180 mW (WLAN Associated)</li> <li>• Idle mode 50 mW (WLAN unassociated)</li> <li>• Connected Standby 10mW</li> <li>• Radio disabled 8 mW</li> </ul>   |
| <b>Power Management</b>                 | ACPI and PCI Express compliant power management<br>802.11 compliant power saving mode   |
| <b>Receiver Sensitivity<sup>4</sup></b> | <ul style="list-style-type: none"> <li>• 802.11b, 1Mbps : -93.5dBm maximum</li> <li>• 802.11b, 11Mbps : -84dBm maximum</li> <li>• 802.11a/g, 6Mbps : -86dBm maximum</li> <li>• 802.11a/g, 54Mbps : -72dBm maximum</li> <li>• 802.11n, MCS07 : -67dBm maximum</li> <li>• 802.11n, MCS15 : -64dBm maximum</li> <li>• 802.11ac, MCS0(VHT80) : -84dBm maximum</li> <li>• 802.11ac, MCS9(VHT80) : -59dBm maximum</li> <li>• 802.11ac, MCS9(VHT160) : -58.5dBm maximum</li> <li>• 802.11ax, MCS11(HE40): -57dBm maximum</li> <li>• 802.11ax, MCS11(HE80): -54dBm maximum</li> <li>• 802.11ax, MCS11(HE160): -53.5dBm maximum</li> </ul> |
| <b>Antenna type</b>                     | High efficiency antenna with spatial diversity, mounted in the display enclosure<br>Two embedded dual band 2.4/5 GHz antennas are provided to the card to support WLAN MIMO communications and Bluetooth communications   |
| <b>Form Factor</b>                      | PCI-Express M.2 MiniCard  |
| <b>Dimensions</b>                       | 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   |
| <b>Weight</b>                           | 1. Type 2230: 2.8g<br>2. Type 1216: 1.3g  |
| <b>Operating Voltage</b>                | 3.3v +/- 9%   |
| <b>Temperature</b>                      | <b>Operating</b> 14° to 158° F (-10° to 70° C)  |

### Technical Specifications

|                 |                      |   |
|-----------------|----------------------|---|
| <b>Humidity</b> | <b>Non-operating</b> | −40° to 176° F (−40° to 80° C)            |
|                 | <b>Operating</b>     | 10% to 90% (non-condensing)               |
|                 | <b>Non-operating</b> | 5% to 95% (non-condensing)                |
| <b>Altitude</b> | <b>Operating</b>     | 0 to 10,000 ft (3,048 m)                  |
|                 | <b>Non-operating</b> | 0 to 50,000 ft (15,240 m)                 |
|                 | <b>LED Activity</b>  | LED Amber – Radio OFF; LED OFF – Radio ON |

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

|                                     |  |
|-------------------------------------|--|
| <b>Bluetooth Specification</b>      | 4.0/4.1/4.2/5.0/5.1/5.2 Compliant  |
| <b>Frequency Band</b>               | 2402 to 2480 MHz   |
| <b>Number of Available Channels</b> | Legacy: 0~79 (1 MHz/CH)<br>BLE: 0~39 (2 MHz/CH)  |
| <b>Data Rates and Throughput</b>    | 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) |
| <b>Transmit Power</b>               | The Bluetooth component shall operate as a Class II Bluetooth device with a maximum transmit power of + 9.5 dBm for BR and EDR.  |

1. Wi-Fi 6E requires a Wi-Fi 6E router, sold separately, to function in the 6GHz band. Availability of public wireless access points limited. Wi-Fi 6E is backwards compatible with prior 802.11 specs. And available in countries where Wi-Fi 6E is supported.
2. The FCC has declared as of September 1, 2014 products that utilize passive scanning on channel 12/13 and are capable of transmitting must fully comply with requirements of 15.247 or otherwise disable those channels.
3. Check latest software/driver release for updates on supported security features.
4. Receiver sensitivity is measured at a packet error rate of 8% for 802.11b (CKK modulation) and a packet error rate of 10% for 802.11a/g (OFDM modulation).

### Technical Specifications

|   |                                      |   |
|---|--------------------------------------|---|
| <p>Intel® AX211 Wi-Fi 6E +<br/>Bluetooth® 5.2 M.2<br/>160MHz CNVi World-wide<br/>WLAN non-vPro®<sup>1</sup></p> | <p><b>Wireless LAN Standards</b></p> | <p>IEEE 802.11a<br/>IEEE 802.11b<br/>IEEE 802.11g<br/>IEEE 802.11n<br/>IEEE 802.11ac<br/>IEEE 802.11ax<br/>IEEE 802.11d<br/>IEEE 802.11e<br/>IEEE 802.11h<br/>IEEE 802.11i<br/>IEEE 802.11k<br/>IEEE 802.11r<br/>IEEE 802.11v</p>   |
|   | <p><b>Interoperability</b></p>       | <p>Wi-Fi certified</p>  |
|   | <p><b>Frequency Band</b></p>         | <ul style="list-style-type: none"> <li>• 802.11b/g/n/ax<br/>2.402 – 2.482 GHz</li> <li>• 802.11a/n/ac/ax<br/>4.9 – 4.95 GHz (Japan)<br/>5.15 – 5.25 GHz<br/>5.25 – 5.35 GHz<br/>5.47 – 5.725 GHz<br/>5.825 – 5.850 GHz<br/>5.955 – 6.415 GHz<br/>6.435 – 6.515 GHz<br/>6.535 – 6.875 GHz<br/>6.895 – 7.115 GHz</li> </ul>   |
|   | <p><b>Data Rates</b></p>             | <ul style="list-style-type: none"> <li>• 802.11b: 1, 2, 5.5, 11 Mbps</li> <li>• 802.11g: 6, 9, 12, 18, 24, 36, 48, 54 Mbps</li> <li>• 802.11a: 6, 9, 12, 18, 24, 36, 48, 54 Mbps</li> <li>• 802.11n: max 300Mbps</li> <li>• 802.11ac : 1733Mbps</li> <li>• 802.11ax : max 2.4Gbps</li> </ul>  |
|   | <p><b>Modulation</b></p>             | <p>Direct Sequence Spread Spectrum<br/>OFDM, BPSK, QPSK, CCK, 16-QAM, 64-QAM, 256-QAM, 1024QAM</p>  |
|   | <p><b>Security<sup>3</sup></b></p>   | <ul style="list-style-type: none"> <li>• IEEE and WiFi compliant 64 / 128 bit WEP encryption for a/b/g mode only</li> <li>• AES-CCMP: 128 bit in hardware</li> <li>• 802.1x authentication</li> <li>• WPA, WPA2: 802.1x. WPA-PSK, WPA2-PSK, TKIP, and AES.</li> <li>• WPA2 certification</li> <li>• WPA3 certification</li> <li>• IEEE 802.11i</li> <li>• WAPI</li> </ul> |
|   | <p><b>Network Architecture</b></p>   | <p>Ad-hoc (Peer to Peer)</p>  |
|   | <p><b>Models</b></p>                 | <p>Infrastructure (Access Point Required)</p>   |



## Technical Specifications

|   |   |
|---|---|
| <b>Roaming</b>                          | IEEE 802.11 compliant roaming between access points   |
| <b>Output Power<sup>2</sup></b>         | <ul style="list-style-type: none"> <li>• 802.11b : +17dBm minimum</li> <li>• 802.11g : +16dBm minimum</li> <li>• 802.11a : +17dBm minimum</li> <li>• 802.11n HT20(2.4GHz) : +14dBm minimum</li> <li>• 802.11n HT40(2.4GHz) : +13dBm minimum</li> <li>• 802.11n HT20(5GHz) : +14dBm minimum</li> <li>• 802.11n HT40(5GHz) : +13dBm minimum</li> <li>• 802.11ac VHT80(5GHz) : +10dBm minimum</li> <li>• 802.11ac VHT160(5GHz) : +10dBm minimum</li> <li>• 802.11ax HE40(2.4GHz) : +12dBm minimum</li> <li>• 802.11ax HE80(5GHz) : +10dBm minimum</li> <li>• 802.11ax HE160(5GHz) : +10dBm minimum</li> </ul>                        |
| <b>Power Consumption</b>                | <ul style="list-style-type: none"> <li>• Transmit mode 2.0 W</li> <li>• Receive mode 1.6 W</li> <li>• Idle mode (PSP) 180 mW (WLAN Associated)</li> <li>• Idle mode 50 mW (WLAN unassociated)</li> <li>• Connected Standby 10mW</li> <li>• Radio disabled 8 mW</li> </ul>   |
| <b>Power Management</b>                 | ACPI and PCI Express compliant power management<br>802.11 compliant power saving mode   |
| <b>Receiver Sensitivity<sup>4</sup></b> | <ul style="list-style-type: none"> <li>• 802.11b, 1Mbps : -93.5dBm maximum</li> <li>• 802.11b, 11Mbps : -84dBm maximum</li> <li>• 802.11a/g, 6Mbps : -86dBm maximum</li> <li>• 802.11a/g, 54Mbps : -72dBm maximum</li> <li>• 802.11n, MCS07 : -67dBm maximum</li> <li>• 802.11n, MCS15 : -64dBm maximum</li> <li>• 802.11ac, MCS0(VHT80) : -84dBm maximum</li> <li>• 802.11ac, MCS9(VHT80) : -59dBm maximum</li> <li>• 802.11ac, MCS9(VHT160) : -58.5dBm maximum</li> <li>• 802.11ax, MCS11(HE40): -57dBm maximum</li> <li>• 802.11ax, MCS11(HE80): -54dBm maximum</li> <li>• 802.11ax, MCS11(HE160): -53.5dBm maximum</li> </ul> |
| <b>Antenna type</b>                     | High efficiency antenna with spatial diversity, mounted in the display enclosure<br>Two embedded dual band 2.4/5 GHz antennas are provided to the card to support WLAN MIMO communications and Bluetooth communications   |
| <b>Form Factor</b>                      | PCI-Express M.2 MiniCard  |
| <b>Dimensions</b>                       | <ol style="list-style-type: none"> <li>1. Type 2230 : 2.3 x 22.0 x 30.0 mm</li> <li>2. Type 1216: 1.67 x 12.0 x 16.0 mm</li> </ol>  |
| <b>Weight</b>                           | <ol style="list-style-type: none"> <li>1. Type 2230 : 2.8g</li> <li>2. Type 1216: 1.3g</li> </ol>   |
| <b>Operating Voltage</b>                | 3.3v +/- 9%   |
| <b>Temperature</b>                      | <b>Operating</b> 14° to 158° F (-10° to 70° C)<br><b>Non-operating</b> -40° to 176° F (-40° to 80° C)   |

### Technical Specifications

|                     |   |                             |
|---------------------|---|-----------------------------|
| <b>Humidity</b>     | <b>Operating</b>                          | 10% to 90% (non-condensing) |
|                     | <b>Non-operating</b>                      | 5% to 95% (non-condensing)  |
| <b>Altitude</b>     | <b>Operating</b>                          | 0 to 10,000 ft (3,048 m)    |
|                     | <b>Non-operating</b>                      | 0 to 50,000 ft (15,240 m)   |
| <b>LED Activity</b> | LED Amber – Radio OFF; LED OFF – Radio ON |                             |

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

|                                     |   |
|-------------------------------------|---|
| <b>Bluetooth Specification</b>      | 4.0/4.1/4.2/5.0/5.1/5.2 Compliant   |
| <b>Frequency Band</b>               | 2402 to 2480 MHz  |
| <b>Number of Available Channels</b> | Legacy: 0~79 (1 MHz/CH)<br>BLE: 0~39 (2 MHz/CH)   |
| <b>Data Rates and Throughput</b>    | 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) |
| <b>Transmit Power</b>               | The Bluetooth component shall operate as a Class II Bluetooth device with a maximum transmit power of + 9.5 dBm for BR and EDR.   |

1. Wi-Fi 6E requires a Wi-Fi 6E router, sold separately, to function in the 6GHz band. Availability of public wireless access points limited. Wi-Fi 6E is backwards compatible with prior 802.11 specs. And available in countries where Wi-Fi 6E is supported.
2. The FCC has declared as of September 1, 2014 products that utilize passive scanning on channel 12/13 and are capable of transmitting must fully comply with requirements of 15.247 or otherwise disable those channels.
3. Check latest software/driver release for updates on supported security features.
4. Receiver sensitivity is measured at a packet error rate of 8% for 802.11b (CKK modulation) and a packet error rate of 10% for 802.11a/g (OFDM modulation).

### Technical Specifications

|  |  |  |
|--|--|--|
| <b>Intel® XMM™ 7360 LTE-Advanced (CAT 9)<sup>1</sup></b> | <b>Technology/Operating bands</b>              | FDD LTE: 2100 (Band 1), 1900 (Band 2), 1800 (Band 3), 1700/2100 (Band 4), 850 (Band 5), 2600 (Band 7), 900 (Band 8), 700 (Band 12 lower), 700 (Band 13 upper), 700 (Band 17 lower), 850 (Band 18 lower), 850 (Band 19 upper), 800 (Band 20), 850 (Band 26), 700 (Band 28), 700 (Band 29 RX only), 2300 (Band 30), 1700/2100 (Band 66), 600 (Band 38), 1900 (Band 39), 2400 (Band 40), 2500 (Band 41),<br>HSPA+: 2100 (Band 1), 1900 (Band 2), 1700/2100 (Band 4), 850 (Band 5), 900 (Band 8) MHz |
|  | <b>Wireless protocol standards</b>             | 3GPP Release 11 LTE Specification DL-CAT.9, DL 60MHz BW throughput up to 450Mbps; UL-CAT.3 50Mbps<br>WCDMA R99, 3GPP Release 5, 6, 7 and 8 UMTS Specification  |
|  | <b>GPS</b>                                     | Standalone GPS/Beidou/Glonass, A-GPS (MS-A, MS-B)  |
|  | <b>GPS bands</b>                               | GPS 1575.42 MHz ± 1.023 MHz, GLONASS 1596-1607MHz, Beidou 1561.098 MHz   |
|  | <b>Maximum data rates</b>                      | LTE: 450Mbps (Download), 50 Mbps (Upload)<br>DC-HSPA+: 42 Mbps (Download), 5.76 Mbps (Upload)  |
|  | <b>Maximum output power</b>                    | LTE: 23 dBm in all bands<br>HSPA+: 23.5 dBm  |
|  | <b>Maximum power consumption</b>               | LTE: 1,300 mA (peak); 880 mA (average)<br>HSPA+: 800 mA (peak); 650 mA (average)   |
|  | <b>Form Factor</b>                             | M.2, 3042-S3 Key B   |
|  | <b>Weight</b>                                  | 6.2 g  |
|  | <b>Dimensions (Length x Width x Thickness)</b> | 42 x 30 x 2.3 mm   |

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

|                                  |                                   |  |
|----------------------------------|-----------------------------------|--|
| <b>Intel(R) 5G Solution 5000</b> | <b>Technology/Operating bands</b> | 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)<br>Band 2: 1850 to 1910 MHz (UL), 1930 to 1990 MHz (DL)<br>Band 3: 1710 to 1785 MHz (UL), 1805 to 1880 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) |
|----------------------------------|-----------------------------------|--|

## Technical Specifications

Band 7: 2500 to 2570 MHz (UL), 2620 to 2690 MHz (DL)  
 Band 8: 880 to 915 MHz (UL), 925 to 960 MHz (DL)  
 Band 12: 699 to 716 MHz (UL), 729 to 746 MHz (DL)  
 Band 13: 777 to 787 MHz (UL), 746 to 756 MHz (DL)  
 Band 14: 788 to 798 MHz (UL), 758 to 768 MHz (DL)  
 Band 17: 704 to 716 MHz (UL), 734 to 746 MHz (DL)  
 Band 18: 815 to 830 MHz (UL), 860 to 875 MHz (DL)  
 Band 19: 830 to 845 MHz (UL), 875 to 890 MHz (DL)  
 Band 20: 832 to 862 MHz (UL), 791 to 821 MHz (DL)  
 Band 25: 1850 to 1915 MHz (UL), 1930 to 1995 MHz (DL)  
 Band 26: 814 to 849 MHz (UL), 859 to 894 MHz (DL)  
 Band 28: 703 to 748 MHz (UL), 758 to 803 MHz (DL)  
 Band 29: 717 to 728 MHz (DL)  
 Band 30: 2305 to 2315 MHz (UL) 2350 to 2360 MHz (DL)  
 Band 32: 1452 to 1496 MHz (DL)  
 Band 34: 2010 to 2025 MHz (UL/DL)  
 Band 38: 2570 to 2620 MHz (UL/DL)  
 Band 39: 1880 to 1920 MHz (UL/DL)  
 Band 40: 2300 to 2400 MHz (UL/DL)  
 Band 41: 2496 to 2690 MHz (UL/DL)  
 Band 42: 3400 to 3600 MHz (UL/DL)  
 Band 43: 3400 to 3800 MHz (UL/DL)  
 Band 46: 5150 to 5925 MHz (DL)  
 Band 48: 3550 to 3700 MHz (UL/DL)  
 Band 66: 1710 to 1800 MHz (UL), 2110 to 2200 MHz (DL)  
 Band 71: 663 to 698 MHz (UL), 617 to 652 MHz (DL)  
 5G NR Sub 6GHz  
 n1: 1920 to 1980 MHz (UL), 2110 to 2170 MHz (DL)  
 n2: 1850 to 1910 MHz (UL), 1930 to 1990 MHz (DL)  
 n3: 1710 to 1785 MHz (UL), 1805 to 1880 MHz (DL)  
 n5: 824 to 849 MHz (UL), 869 to 894 MHz (DL)  
 n7: 2500 to 2570 MHz (UL), 2620 to 2690 MHz (DL)  
 n8: 880 to 915 MHz (UL), 925 to 960 MHz (DL)  
 n20: 832 to 862 MHz (UL), 791 to 821 MHz (DL)  
 n25: 1850 to 1915 MHz (UL), 1930 to 1995 MHz (DL)  
 n28: 703 to 748 MHz (UL), 758 to 803 MHz (DL)  
 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)  
 5G NR Air Interface  
 3GPP Rel15 5G NR sub-6

**Wireless protocol  
standards**

## Technical Specifications

|  |  |
|--|--|
|  | LTE Rel14  |
|  | 20 layers and 2 Gbps downlink (DL) throughput – 4 × 4 MIMO across 5x CA  |
|  | 200 Mbps/uplink (UL) throughput – 40 MHz ULCA and 256 QAM WCDMA R99,   |
|  | 3GPP Release 5, 6, 7 and 8 UMTS Specification  |
| <b>GPS</b>                                     | Standalone, A-GPS (MS-A, MS-B)   |
| <b>GPS bands</b>                               | GPS: L1 (1575.42MHz)<br>GLONASS: L1 (1602MHz)<br>BeidouB1(1561.098MHz)<br>Galileo E1 (1575.42)<br>QZSS(1575.42 MHz)  |
| <b>Maximum data rates</b>                      | SA 5G/NR sub-6 Peak: DL4.67Gbps/ UL 1.25Gbps<br>5G NSA sub 6G : DL: 3.8 Gbps/UL 700Mbps<br>LTE: ue-CategoryDL 19, (DL : 1.6 Gbps )<br>ue-CategoryUL 13 , (UL: 150Mbps)   |
| <b>Maximum output power</b>                    | DC-HSPA+: 42 Mbps (Download), 11.5 Mbps (Upload)<br>LTE: 23 dBm in all band except B41<br>LTE B41 HPUE = 26dBm<br>NR: 23 dBm in all band except n41, n77, n78 and n79<br>LTE n41, n77, n78 and n79 HPUE = 26dBm<br>HSPA+: 23.5 dBm |
| <b>Maximum power consumption</b>               | 5G Sub 6: 2500 mA<br>LTE: 1,300 mA (peak); 1100 mA (average)<br>HSPA+: 1,100 mA (peak); 800 mA (average)   |
| <b>Form Factor</b>                             | M.2, 3042-S3 Key B   |
| <b>Weight</b>                                  | 8 g  |
| <b>Dimensions (Length x Width x Thickness)</b> | 52 mm × 30 mm × 2.6 mm   |
| <b>Embedded eSIM</b>                           | Support  |

1. Intel(R) 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.

### Technical Specifications

#### POWER

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

|                       |  |   |
|-----------------------|--|---|
| <b>45W PD adapter</b> | <b>Dimensions</b>                          | 3.74 x 1.69 x 1.08 in (9.5cm x 4.3cm x 2.75cm)  |
|                       | <b>Weight</b>                              | 0.44 lb (200 g) max (Not including power cord. Power cord varies by country.)   |
|                       | <b>Input</b>                               | 100 to 240 VAC  |
|                       | <b>Input Efficiency</b>                    | Average Efficiency of 25%, 50%, 75%, 100% load condition with 115Vac/230Vac Spec:<br>5V : 81.5%<br>9V : 86.7%<br>12V : 87.41%<br>15V : 87.8%  |
|                       | <b>Input frequency range</b>               | 47 ~ 63 Hz  |
|                       | <b>Input AC current</b>                    | Max. 1.4 A at 90 Vac  |
|                       | <b>Output</b>                              |   |
|                       | <b>Output power</b>                        | 5V/15W<br>9V/27W<br>12V/36W<br>15V/45W  |
|                       | <b>DC output</b>                           | 5V/9V/12V/15V   |
|                       | <b>Hold-up time</b>                        | 5ms at 115 Vac input  |
|                       | <b>Output current limit</b>                | <5.0A   |
|                       | <b>Connector</b>                           | USB Type-C  |
|                       | <b>Operating temperature</b>               | 32°F to 95°F (0° to 35°C)   |
|                       | <b>Non-operating (storage) temperature</b> | -4°F to 185°F (-20° to 85°C)  |
|                       | <b>Altitude</b>                            | 0 to 16,400 ft (0 to 5000m)   |
|                       | <b>Humidity</b>                            | 20% to 95%  |
|                       | <b>Storage Humidity</b>                    | 10% to 95%  |
|                       | <b>EMI and Safety Certifications</b>       | Eg:<br>*CE Mark - full compliance with LVD and EMC directives<br>* Worldwide safety standards - IEC60950-1 and/or IEC62368-1, EN60950-1 and/or EN62368-1, UL60950-1 and/or UL62368-1 , Class1, SELV;<br>Agency approvals - C-UL-US, NORDICS, DENAN, EN55032 Class B, FCC Class B, CISPR32 Class B, CCC, NOM-001 NYCE.<br>* MTBF - over 200,000 hours at 25°C ambient condition. |

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|                       |                   |  |
|-----------------------|-------------------|--|
| <b>65W PD adapter</b> | <b>Dimensions</b> | 3.46 x 2.1 x 0.83 in (8.8 x 5.35 x 2.1 cm)                                     |
|                       | <b>Weight</b>     | 0.485 lb (220 g) max (Not including power cord. Power cord varies by country.) |
|                       | <b>Input</b>      | 100 to 240 VAC   |

### Technical Specifications

|  |   |
|--|---|
| <b>Input Efficiency</b>                    | 81.5% min at 115 Vac/ 230Vac @ 5V/3A<br>86.7% min at 115 Vac/ 230Vac @ 9V/3A<br>88% min at 115 Vac/ 230Vac @ 12V/5A<br>89% min at 115 Vac/ 230Vac @ 15V/4.33A<br>89% min at 115 Vac/ 230Vac @ 20V/3.25A   |
| <b>Input frequency range</b>               | 47 ~ 63 Hz  |
| <b>Input AC current</b>                    | 1.6 A at 90 VAC and maximum load  |
| <b>Output</b>                              |   |
| <b>Output power</b>                        | 5V/15W<br>9V/27W<br>12V/60W<br>15V/65W<br>20V/65W   |
| <b>DC output</b>                           | 5V/9V/12V/15V/20V   |
| <b>Hold-up time</b>                        | 5ms at 115 Vac input  |
| <b>Output current limit</b>                | <8.0A   |
| <b>Connector</b>                           | USB Type-C  |
| <b>Operating temperature</b>               | 32°F to 95°F (0° to 35°C)   |
| <b>Non-operating (storage) temperature</b> | -4°F to 185°F (-20° to 85°C)  |
| <b>Altitude</b>                            | 0 to 16,400 ft (0 to 5000m)   |
| <b>Humidity</b>                            | 20% to 95%  |
| <b>Storage Humidity</b>                    | 10% to 95%  |
| <b>EMI and Safety Certifications</b>       | Eg:<br>*CE Mark - full compliance with LVD and EMC directives<br>* Worldwide safety standards - IEC60950-1 and/or IEC62368-1, EN60950-1 and/or EN62368-1, UL60950-1 and/or UL62368-1 , Class1, SELV;<br>Agency approvals - C-UL-US, NORDICS, DENAN, EN55032 Class B, FCC Class B, CISPR32 Class B, CCC, NOM-001 NYCE.<br>* MTBF - over 200,000 hours at 25°C ambient condition. |

|                       |                              |  |
|-----------------------|------------------------------|--|
| <b>65W PD adapter</b> | <b>Dimensions</b>            | 3.54 x 2.0 x 1.12 in (9.0 x 5.1 x 2.85 cm)   |
|                       | <b>Weight</b>                | 0.55 lb (250 g) max (Not including power cord. Power cord varies by country.)  |
|                       | <b>Input</b>                 | 100 to 240 VAC   |
|                       | <b>Input Efficiency</b>      | 81.5% min at 115 Vac/ 230Vac @ 5V/3A<br>86.7% min at 115 Vac/ 230Vac @ 9V/3A<br>88% min at 115 Vac/ 230Vac @ 12V/5A<br>89% min at 115 Vac/ 230Vac @ 15V/4.33A<br>89% min at 115 Vac/ 230Vac @ 20V/3.25A" |
|                       | <b>Input frequency range</b> | 47 ~ 63 Hz   |
|                       | <b>Input AC current</b>      | 1.6 A at 90 VAC and maximum load   |
|                       | <b>Output</b>                |  |

### Technical Specifications

|  |   |
|--|---|
| <b>Output power</b>                        | 5V/15W<br>9V/27W<br>12V/60W<br>15V/65W<br>20V/65W   |
| <b>DC output</b>                           | 5V/9V/12V/15V/20V   |
| <b>Hold-up time</b>                        | 5ms at 115 Vac input  |
| <b>Output current limit</b>                | <8.0A   |
| <b>Connector</b>                           | USB Type-C  |
| <b>Operating temperature</b>               | 32°F to 95°F (0° to 35°C)   |
| <b>Non-operating (storage) temperature</b> | -4°F to 185°F (-20° to 85°C)  |
| <b>Altitude</b>                            | 0 to 16,400 ft (0 to 5000m)   |
| <b>Humidity</b>                            | 20% to 95%  |
| <b>Storage Humidity</b>                    | 10% to 95%  |
| <b>EMI and Safety Certifications</b>       | Eg:<br>*CE Mark - full compliance with LVD and EMC directives<br>* Worldwide safety standards - IEC60950-1 and/or IEC62368-1, EN60950-1 and/or EN62368-1, UL60950-1 and/or UL62368-1 , Class1, SELV;<br>Agency approvals - C-UL-US, NORDICS, DENAN, EN55032 Class B, FCC Class B, CISPR32 Class B, CCC, NOM-001 NYCE.<br>* MTBF - over 200,000 hours at 25°C ambient condition. |

|   |  |  |
|---|--|--|
| <b>HP 4-cell Long Life Li-Ion (50 Wh)<sup>1</sup></b> | <b>Dimensions (H x W x L)</b>            | 4.65 x 249.1 x 85.2 mm (0.183 x 9.8 x 3.35 inch) |
|   | <b>Weight</b>                            | 0.205 Kg (0.45 lb)                               |
|   | <b>Cells/Type</b>                        | 4cell Lithium-Ion Polymer cell / 4041B3          |
|   | <b>Energy</b>                            |  |
|   | <b>Voltage</b>                           | 7.7V   |
|   | <b>Amp-hour capacity</b>                 | 6.62Ah   |
|   | <b>Watt-hour capacity</b>                | 50.97Wh  |
|   | <b>Temperature</b>                       |  |
|   | <b>Operating (Charging)</b>              | 32° to 113° F (0° to 45° C)                      |
|   | <b>Operating (Discharging)</b>           | 14° to 122° F (-10° to 60° C)                    |
|   | <b>Fuel Gauge LED</b>                    | NA   |
|   | <b>Warranty</b>                          | 1-year   |
|   | <b>Optional Travel Battery Available</b> | No   |



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## Technical Specifications

### AUDIO

|                                   |  |
|-----------------------------------|--|
| <b>HD Stereo Codec</b>            | Realtek ALC5682I-VS  |
| <b>Audio I/O Ports</b>            | Headset connector supports both CTIA and OMTP style headset  |
| <b>Internal Speaker Amplifier</b> | Maxim MAX98390A x4, up to 6W class-D mono smart amplifier    |
| <b>Multi-streaming Capable</b>    | Follow ChromeOS behavior<br>(NOT SUPPORT in current version) |
| <b>Sampling</b>                   | Follow ChromeOS behavior                                     |
| <b>Wavetable Syntheses</b>        | N/A  |
| <b>Analog Audio</b>               | Stereo headphone out by 3.5mm audio jack only.               |
| <b># of Channels on Line-Out</b>  | Headphone L/R, No Line-Out                                   |
| <b>Internal Speaker</b>           | Yes  |

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### FINGERPRINT READER

|                                    |                               |
|------------------------------------|-------------------------------|
| <b>Sensor vendor</b>               | Model: FINGERPRINTS FPC1025   |
| <b>Sensor type</b>                 | Capacitive                    |
| <b>DPI resolution</b>              | 508 dpi                       |
| <b>Scan area</b>                   | 160x160                       |
| <b>False Rejection Rate</b>        | CLKfreq 8kHz~19kHz            |
| <b>False Acceptance Rate</b>       | n/a                           |
| <b>Mobile Voltage Operation</b>    | 1.62V to 1.98V (Typical 1.8V) |
| <b>Operating Temperature</b>       | -40° to +85°C                 |
| <b>Current Consumption</b>         | < 6 mA                        |
| <b>Image</b>                       |                               |
| <b>Low Latency Wait For Finger</b> | 2.1 mA                        |
| <b>Capture Rate</b>                |                               |
| <b>ESD Resistance</b>              | +/- 30kV                      |
| <b>Detection Matrix</b>            | 160 x 160 pixels              |

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### Technical Specifications

#### ENVIRONMENTAL DATA

|  |  |                     |                     |
|--|--|---------------------|---------------------|
| <b>Eco-Label Certifications &amp; declarations</b>                         | <p>This product has received or is in the process of being certified to the following approvals and may be labeled with one or more of these marks:</p> <ul style="list-style-type: none"> <li>• IT ECO declaration</li> <li>• US ENERGY STAR®</li> <li>• US Federal Energy Management Program (FEMP)</li> <li>• EPEAT<sup>®</sup> 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> |                     |                     |
| <b>Sustainable Impact Specifications</b>                                   | <ul style="list-style-type: none"> <li>• Ocean-bound plastic in Speaker</li> <li>• 25% post-consumer recycled plastic</li> <li>• Low halogen</li> <li>• Outside Box and corrugated cushions are 100% sustainably sourced and recyclable</li> <li>• Molded Paper Pulp Cushion inside box is 100% sustainably sourced and recyclable</li> <li>• Bulk packaging available</li> </ul>  |                     |                     |
| <b>System Configuration</b>  | <p>The configuration used for the Energy Consumption and Declared Noise Emissions data for the Notebook model is based on a “Typically Configured Notebook”.</p>   |                     |                     |
| <b>Energy Consumption (in accordance with US ENERGY STAR® test method)</b> | <b>115VAC, 60Hz</b>  | <b>230VAC, 50Hz</b> | <b>100VAC, 50Hz</b> |
| Normal Operation (Sort idle)   | 4.91 W   | 4.93 W              | 4.81 W              |
| Normal Operation (Long idle)   | 2.59 W   | 2.82 W              | 2.52 W              |
| Sleep  | 0.59 W   | 0.16 W              | 0.6 W               |
| Off  | 0.26 W   | 0.29 W              | 0.26 W              |
|  | <p>Note:<br/>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> | <b>100VAC, 50Hz</b> |
| Normal Operation (Short idle)  | 16.8 BTU/hr  | 16.9 BTU/hr         | 16.5 BTU/hr         |

### Technical Specifications

|  |  |  |            |
|--|--|--|------------|
| Normal Operation (Long idle)   | 8.9 BTU/hr   | 9.6 BTU/hr                                   | 8.6 BTU/hr |
| Sleep  | 2 BTU/hr   | 0.5 BTU/hr                                   | 2.1 BTU/hr |
| Off  | 0.9 BTU/hr   | 1 BTU/hr                                     | 0.9 BTU/hr |
|  | *NOTE: Heat dissipation is calculated based on the measured watts, assuming the service level is attained for one hour.  |  |            |
| <b>Declared Noise Emissions (in accordance with ISO 7779 and ISO 9296)</b> | Sound Power (L <sub>WAd</sub> , bels)  | Sound Pressure (L <sub>pAm</sub> , decibels) |            |
| Typically Configured – Idle  | 2.7  | 23.8   |            |
| Fixed Disk – Random writes   | 2.7  | 23.9   |            |
| Optical Drive – Sequential reads   | N/A  | N/A  |            |
| <b>Longevity and Upgrading</b>   | This product can be upgraded, possibly extending its useful life by several years. Upgradeable features and/or components contained in the   |  |            |
|  | Spare parts are available throughout the warranty period and or for up to “5” years after the end of production.   |  |            |
| <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 92.4% recycle-able when properly disposed of at end of life.</li> </ul> |  |            |
| <b>Packaging Materials</b>   | <b>External:</b>   | PAPER/Corrugated                             | 230 g      |
|  |  | PAPER/Paperboard                             | 51 g       |
|  |  | PAPER/Molded Pulp                            | 102 g      |
|  | <b>Internal:</b>   | PLASTIC/Polyethylene low density - LDPE      | 9 g        |
|  | The plastic packaging material contains at least 100.0% recycled content.  |  |            |
|  | The corrugated paper packaging materials contains at least 35.6% 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—</p>   |  |            |

### Technical Specifications

|                              |  |
|------------------------------|--|
|                              | <p>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>  |
| <p><b>Material Usage</b></p> | <p>This product does not contain any of the following substances in excess of regulatory limits (refer to the HP General Specification for the Environment at <a href="http://www.hp.com/hpinfo/globalcitizenship/environment/supplychain/gen_specifications.html">http://www.hp.com/hpinfo/globalcitizenship/environment/supplychain/gen_specifications.html</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> |

### Technical Specifications

|   |   |
|---|---|
| <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="http://www.hp.com/go/reuse-recycle">http://www.hp.com/go/reuse-recycle</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="http://www.hp.com/go/recyclers">http://www.hp.com/go/recyclers</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> <p>Global Citizenship Report<br/> <a href="http://www.hp.com/hpinfo/globalcitizenship/gcreport/index.html">http://www.hp.com/hpinfo/globalcitizenship/gcreport/index.html</a></p> <p>Eco-label certifications<br/> <a href="http://www8.hp.com/us/en/hp-information/environment/ecolabels.html">http://www8.hp.com/us/en/hp-information/environment/ecolabels.html</a></p> <p>ISO 14001 certificates:<br/> <a href="http://h20195.www2.hp.com/V2/GetDocument.aspx?docname=c04755842">http://h20195.www2.hp.com/V2/GetDocument.aspx?docname=c04755842</a><br/> and<br/> <a href="http://www.hp.com/hpinfo/globalcitizenship/environment/pdf/cert.pdf">http://www.hp.com/hpinfo/globalcitizenship/environment/pdf/cert.pdf</a></p>  |
| <b>footnotes</b>                                    | <ul style="list-style-type: none"> <li>• Percentage of ocean-bound plastic contained in each component varies by product</li> <li>• Recycled plastic content percentage is based on the definition set in the IEEE 1680.1-2018 standard.</li> <li>• External power supplies, WWAN modules, power cords, cables and peripherals excluded.</li> <li>• 100% outer box packaging and corrugated cushions made from sustainably sourced certified and recycled fibers.</li> <li>• Fiber cushions made from 100% recycled wood fiber and organic materials.</li> </ul>  |

### COUNTRY OF ORIGIN

China

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

#### DOCKING (Sold Separately)

|  |  |
|--|--|
| <b>Docking station model #1</b>  | HP USB-C Dock G5   |
| <b>Total number of supported displays (incl. the notebook display)</b> | 3  |
| <b>Max. resolutions supported</b>                                      | Dual 5K@ 30Hz + (1) 4K UHD (multi-function mode)   |
| <b>Dock Connectors</b>   | 1xHDMI, 2xDP   |
| <b>Technical limitations</b>   | <p>Highest resolution with dual displays is two 8K@ 60Hz host in High Resolution mode.</p> <p>Three maximum displays supported are two 5K@ 30 Hz on DP ports plus one 4K UHD@ 30 Hz on HDMI in Multi-function mode</p> <p>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.</p>  |
| <b>Docking station model #2</b>  | HP USB-C/A Universal Dock G2   |
| <b>Total number of supported displays (incl. the notebook display)</b> | 3  |
| <b>Max. resolutions supported</b>                                      | Triple 4K UHD@ 60Hz  |
| <b>Dock Connectors</b>   | 1xHDMI, 2xDP   |
| <b>Technical limitations</b>   | <p>The best resolution for dual or triple displays is 4K UHD@ 60Hz.</p> <p>For use with the USB-A adapter that comes in the box the maximum number of displays supported is (2) 4k x 60 Hz on the Type-A Gen 1 connection from the host</p>  |
| <b>Docking station model #3</b>  | HP Thunderbolt Dock G2   |
| <b>Total number of supported displays (incl. the notebook display)</b> | 4  |
| <b>Max. resolutions supported</b>                                      | <p>Dual 4K @30Hz or dual 4K UHD @ 60Hz is supported</p> <p>Single 8K@ 30Hz (multiple tiles) for Thunderbolt hosts</p>  |
| <b>Dock Connectors</b>   | 2xDP, 1xVGA, 1xTB, 1xUSB-C alt-mode  |
| <b>Technical limitations</b>   | <p>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 multifunction mode the maximum resolution for (3) displays is (2) 5K single cable @ 30Hz + (1) 4K UHD @ 30Hz.</p> |

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

| Category                    | Description                           | Part Number |
|-----------------------------|---------------------------------------|-------------|
| <b>Audio/Video</b>          | HP Wired USB-A Stereo Headset         | 428K6AA     |
|                             | HP Wired 3.5mm Stereo Headset         | 428K7AA     |
| <b>Cases</b>                | HP Executive 15.6 Backpack            | 6KD07AA     |
|                             | HP Executive 15.6 Top Load            | 6KD06AA     |
|                             | HP Executive Slim 14.1 Top Load       | 6KD04AA     |
|                             | HP Prelude G2 15.6 Backpack           | 1E7D6AA     |
|                             | HP Prelude G2 15.6 Top Load           | 1E7D7AA     |
|                             | HP Prelude Pro Recycled 15.6 Backpack | 1X644AA     |
|                             | HP Prelude Pro Recycled 15.6 Top Load | 1X645AA     |
|                             | HP Mobility 14" Laptop Case           | 4U9G9AA     |
|                             | HP Renew Business 14.1" Bag           | 3E5F9AA     |
|                             | HP Renew Business 17.3" Backpack      | 3E2U5AA     |
|                             | HP Renew Business 14.1" Sleeve        | 3E2U7AA     |
|                             | HP Renew Business 15.6" Bag           | 3E5F8AA     |
| HP Renew Business 17.3" Bag | 3E2U6AA                               |             |
| <b>Docking</b>              | HP USB-C Dock G5                      | 5TW10AA     |
|                             | HP USB-C/A Universal Dock G2          | 5TW13AA     |
| <b>Hub</b>                  | HP USB-C Mini Dock                    | 1PM64AA     |
|                             | HP Universal USB-C Multiport Hub      | 50H55AA     |
|                             | HP USB-C Travel Dock G2               | 7PJ38AA     |
|                             | HP USB-C to USB-A Hub                 | Z6A00AA     |
| <b>Adapter</b>              | HP HDMI to DVI Adapter                | F5A28AA     |
|                             | HP HDMI to VGA Adapter                | H4F02AA     |
|                             | HP USB to Gigabit RJ45 Adapter        | N7P47AA     |
|                             | HP USB-C to DisplayPort Adapter       | N9K78AA     |
|                             | HP USB-C to HDMI 2.0 Adapter          | 1WC36AA     |
|                             | HP USB-C to RJ45 Adapter              | V7W66AA     |
|                             | HP USB-C to USB 3.0 Adapter           | N2Z63AA     |
|                             | HP USB-C to VGA Adapter               | N9K76AA     |
| <b>Digital Pen</b>          | HP Active RECHBL Pen USI Galantis     | 235N6AA     |
| <b>Keyboard/Combo</b>       | HP 325 Chrome BT Keyboard             | 45U14AA     |
| <b>Mouse</b>                | HP USB Premium Wireless Mouse         | 1JR31AA     |
|                             | HP 435 Multi-Device Wireless Mouse    | 3B4Q5AA     |
|                             | HP 125 USB-A Wired Mouse              | 265A9AA     |
|                             | HP 128 USB Laser Wired Mouse          | 265D9AA     |
|                             | HP 320M USB-A Wired Mouse             | 9VA80AA     |

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

|                  |  |         |
|------------------|--|---------|
|                  | HP Creator USB-A+Bluetooth 935 Wireless Mouse Black      | 1D0K8AA |
|                  | HP USB-A+Bluetooth Multi-Device 635 Wireless Mouse Black | 1D0K2AA |
|                  | HP USB-A+Bluetooth Travel Bluetooth Mouse                | 6SP30AA |
| <b>Power</b>     | HP 45W USB-C G2 AC Power Adapter                         | 1HE07AA |
|                  | HP 45W USB-C LC AC Power Adapter                         | 1MZ01AA |
|                  | HP 65W USB-C AC Power Adapter                            | 5TQ76AA |
|                  | HP 65W USB-C AC Power Adapter                            | 1HE08AA |
|                  | HP 65W USB-C LC AC Power Adapter                         | 1P3K6AA |
|                  | HP 65W USB-C Travel Slim AC Power Adapter                | 3PN48AA |
| <b>Commodity</b> | HP Nano Keyed Cable Lock                                 | 1AJ39AA |
|                  | HP Nano Master Keyed Cable Lock                          | 1AJ40AA |
|                  | HP SureKey Standard/Nano/Wedge Cable Lock                | 6UW42AA |



### Summary of Changes

| Date of change: | Version History: | Updated | Description of change:              |
|-----------------|------------------|---------|-------------------------------------|
| May 12, 2022    | V1 to V2         | Added   | Environmental Data                  |
| May 17, 2022    | V2 to V3         | Added   | Battery life                        |
| June 15, 2022   | V3 to V4         | Added   | Added note in Manageability Feature |
|                 |                  |         |                                     |
|                 |                  |         |                                     |

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