

### Overview

### HP ZBook Firefly 14" G11 A Mobile Workstation PC



1. Ambient Light Sensor (Optional)
2. Internal Microphones (2)
3. Webcam LED (Optional)
4. Webcam
5. Camera Shutter
6. IR Camera (Optional)
7. IR Camera LEDs (Optional)

#### Right

8. Glass Clickpad
9. Power Button Key
10. Audio Combo Jack
11. SuperSpeed USB Type-A 5Gbps signaling rate (Charging)
12. Nano Security Lock Slot (Lock sold separately)
13. Nano SIM Card Slot (Optional)
14. Touch Fingerprint Sensor (Select models)

### Overview

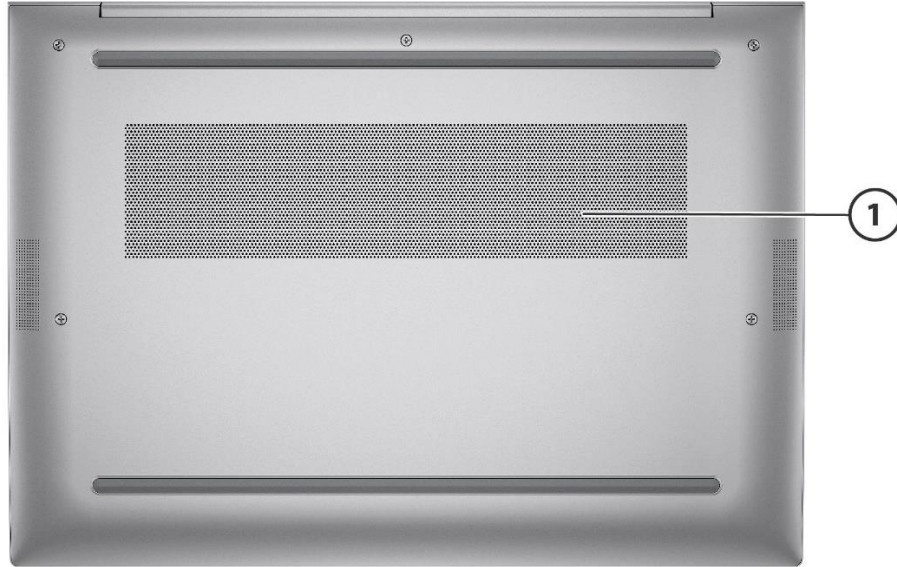


#### Left

1. HDMI 2.1b Port (Cable not included)
2. SuperSpeed USB Type-A 5Gbps signaling rate
3. Thunderbolt™ 4\* with USB4 Type-C® 40Gbps signaling rate (USB Power Delivery, DisplayPort™ 1.4)1
4. Thunderbolt™ 4\* with USB4 Type-C® 40Gbps signaling rate (USB Power Delivery, DisplayPort™ 1.4)1
5. LED Indicator
6. Smartcard Reader (Optional)

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

### Overview



### Bottom

#### 1. Fan Venting

---

### Overview

#### At A Glance

- Premium ultraslim design with precision-crafted all-metal chassis for a premium look and feel
- Latest AMD® Ryzen PRO 8000 HS series processors
- Preinstalled with Windows 11 versions, FreeDOS, or Ubuntu Linux
- Integrated AMD Radeon Graphics w/ Pro Graphics driver
- 16:10 ratio screen reduces the need to scroll by showing more vertical content than 16:9
- 5MP camera (with 88 degree Field of View) with HP Auto Frame allows you to move around without losing viewers' attention during video calls
- DDR5 5600 memory and PCI Gen4 SSDs provide fast access to your work
- Choice of displays:
  - 35.6 cm (14") diagonal WUXGA IPS Anti-Glare LED-backlit, 300 nits, 45% NTSC
  - 35.6cm (14") diagonal WUXGA IPS Anti-Glare On-Cell LED-backlit touch, 300 nits, 45% NTSC
  - 35.6 cm (14") diagonal WUXGA IPS Anti-Glare LED-backlit non-touch 400 nits, 100% sRGB
  - 35.6cm (14") diagonal WUXGA IPS Anti-Glare LED-backlit non-touch, 1000 nits, 100% sRGB with HP Sure View Reflect
  - 35.6cm (14") diagonal WQXGA IPS Anti-Glare LED-backlit non-touch, 500 nits, 100% DCI-P3, DreamColor
- Premium keyboard layout to include easy use of discrete PgUp/Dn, End, and Home keys
- HP Wolf Security for Business creates a hardware-enforced, always-on, resilient defense.<sup>9</sup>
- Large Clickpad surface for easier, more intuitive input
- Connectivity with optional HP 5G/WWAN available world-wide, and Thunderbolt™ Docking (Dock sold separately)
- Undergoes MIL-STD 810H tests<sup>1</sup>
- Supports fast charging (50% in 30 minutes) with no impact on battery recharge cycles
- Designed to support all HP docking options including the HP Universal Dock G5

<sup>1</sup>MIL-STD 810H is not intended to demonstrate fitness of U.S. Department of Defense contract requirements or for military use. Test results are not a guarantee of future performance under these test conditions. Accidental damage requires an optional HP Accidental Damage Protection Care Pack.

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

---

### Features

#### OPERATING SYSTEM

**Preinstalled OS** Windows 11 Pro - HP recommends Windows 11 Pro for business<sup>1</sup>  
 Windows 11 Pro Education<sup>1</sup>  
 Windows 11 Home<sup>1</sup>  
 Windows 11 Home Single Language<sup>1</sup>  
 FreeDOS 3.0

<sup>1</sup> 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>.

**NOTE:** Your product does not support Windows 8 or Windows 7. In accordance with Microsoft's support policy, HP does not support the Windows<sup>®</sup> 8 or Windows 7 operating system on products configured with Intel<sup>®</sup> and AMD<sup>®</sup> 7th generation and forward processors or provide any Windows<sup>®</sup> 8 or Windows 7 drivers on <http://www.support.hp.com>. A full list of HP products and the Windows 10 versions tested is available on the HP support website. <https://support.hp.com/us-en/document/c05195282>

#### PROCESSOR

Name <sup>1,2,3,4,5,6</sup>	Cores	Threads	L3 Cache	Max Boost Frequency	Base Frequency	Pro
AMD Ryzen™ 5 PRO 8640HS	6 cores	12	16 MB	4.90 GHz	3.50 GHz	X
AMD Ryzen™ 7 PRO 8840HS	8 cores	16	16 MB	5.10 GHz	3.30 GHz	X
AMD Ryzen™ 9 PRO 8945HS	8 cores	16	16 MB	5.20 GHz	4.00 GHz	X

<sup>1</sup> 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.

<sup>2</sup> Intel Turbo Boost performance varies depending on hardware, software and overall system configuration. See <http://www.intel.com/technology/turboboost> for more information.

<sup>4</sup> In accordance with Microsoft's support policy, HP does not support the Windows 8 or Windows 7 operating system on products configured with Intel and AMD 7th generation and forward processors or provide any Windows 8 or Windows 7 drivers on <http://www.support.hp.com>.

<sup>5</sup> Processor speed denotes maximum performance mode; processors will run at lower speeds in battery optimization mode.

#### CHIPSET

### Features

Chipset is integrated with processor

### GRAPHICS

#### Integrated

AMD Radeon™ Graphics with Pro Graphics driver<sup>1,3</sup>

#### Supports

Support HD decode, DX12, HDMI 2.1b, HDCP 2.3

<sup>1</sup> Both UMA & Discrete configurations support 4 independent displays when on the HP Thunderbolt Dock G4 (120W) (sold separately) - Max. resolution = 2.5K @60Hz (DP1) & 2.5K @60Hz (DP2) & FHD (VGA) OR 4K @60Hz (one DP Port) & 4K @60Hz (Type-C output port using a Type C-to-DP adapter).

<sup>2</sup> HDMI cable Sold Separately

<sup>3</sup> Intel® Iris® Xe Graphics capabilities require system to be configured with Intel® Core™ i5 or i7 processors and dual channel memory. Intel® Iris® Xe Graphics with Intel® Core™ i5 or 7 processors and single channel memory will only function as UHD graphics.

### DISPLAY

#### Non-touch

- 35.6 cm (14") diagonal, WUXGA (1920 x 1200), Bent, LCD, UWVA, anti-glare, WLED + Low Blue Light , 1000 nits, sRGB 100%, HP Sure View reflect integrated privacy screen<sup>1,3,4,5</sup>
- 35.6 cm (14") diagonal, WQXGA (2560 x 1600), Bent, LCD, 120Hz, UWVA, anti-glare, WLED, 500 nits, DCI-P3 100%, HP DreamColor<sup>1,3</sup>
- 35.6 cm (14") diagonal, WUXGA (1920 x 1200), Bent, LCD, UWVA, anti-glare, WLED + Low Blue Light , 400 nits, low power, sRGB 100%<sup>1,3</sup>
- 35.6 cm (14") diagonal, WUXGA (1920 x 1200), Bent, LCD, UWVA, anti-glare, WLED, 300 nits, NTSC 45%<sup>1,3</sup>

#### Touch

- 35.6 cm (14") diagonal, WUXGA (1920 x 1200), Bent, LCD, touch, anti-glare, WLED, 300 nits, NTSC 45%<sup>1,3,4,5</sup>

#### Displays support

Supports dual display through the dock

For more information, please reference the following ZBook docking whitepaper:

<https://h20195.www2.hp.com/v2/GetDocument.aspx?docname=4AA5-2657ENW>

#### Display Size

14"

35.56 cm (14")

<sup>1</sup>HD content required to view HD images.

<sup>3</sup>Resolutions are dependent upon monitor capability, and resolution and color depth settings.

<sup>4</sup>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.

<sup>5</sup>Actual brightness will be lower with touchscreen or Sure View.

### Features

#### DOCKING

<b>Docking station model #1</b>	HP Thunderbolt 120W G4 Dock
<b>Total number of supported displays (incl.the notebook display)</b>	4
<b>Max.resolutions supported</b>	Quad 4K @60Hz Dual 8K single cable@30 for TB hosts or USB-C hosts DP 1.4 with DSC in high res mode
<b>Dock Connectors</b>	2xDP, 1xVGA, 1xTB, 1xUSB-C alt-mode
<b>Technical limitations</b>	Thunderbolt Hosts: Maximum of (4) displays with maximum resolution of 5K@ 30Hz running Thunderbolt host. Max resolution possible is dual 8K displays @ 60Hz running Thunderbolt host or running a non-Thunderbolt host in High Resolution mode @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 max 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.
<b>Docking station model #2</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>	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 .
<b>Docking station model #3</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>	The best resolution for dual or triple displays is 4K UHD@ 60Hz. For use with the USB-A adapter that comes in the box the maximum number of displays supported is (2) 4k x 60 Hz on the Type-A Gen 1 connection from the host

### Features

#### STORAGE AND DRIVES\*

**PCIe® NVMe™ M.2 2280 Storage**

2 TB PCIe® Gen4x4 NVMe™ SSD Three Layer Cell

1 TB PCIe® Gen4x4 NVMe™ SSD Three Layer Cell

1 TB PCIe® NVMe™ SSD Value

512 GB PCIe® Gen4x4 NVMe™ Seld Encrypted OPAL2 SSD Three Layer Cell

512 GB PCIe® Gen4x4 NVMe™ SSD Three Layer Cell

512 GB PCIe® NVMe™ SSD Value

256 GB PCIe® NVMe™ Seld Encrypted OPAL2 SSD Value

256 GB PCIe® NVMe™ SSD Value

\* For storage drives, GB = 1 billion bytes. TB = 1 trillion bytes. Actual formatted capacity is less. Up to 35GB of disk is reserved for system recovery software.

---

#### MEMORY

**Maximum Memory**

64GB DDR5-5600 MT/s (2 x 32 GB) RAM

**Memory**

64GB DDR5-5600 (2x32GB)

32GB DDR5-5600 (2x16GB)

32GB DDR5-5600 (1x32GB)

16GB DDR5-5600 (2x8GB)

16GB DDR5-5600 (1x16GB)

8GB DDR5-5600 (1x8GB)

**Memory Slots**

2 SODIMM

System runs at 5600 MT/s

**NOTE:** 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.

---



### Features

#### NETWORKING/COMMUNICATIONS

##### WLAN

Mediatek RZ616 Wi-Fi 6E Bluetooth® 5.3 wireless card AIM-T WLAN<sup>1</sup>

<sup>1</sup>Wi-Fi 6E requires a Wi-Fi 6E router, sold separately, and Windows 11 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.

##### WWAN

HP 5G Sub-6 Cat 19 WWAN eSIM<sup>1,2</sup>

HP 4G LTE-A Pro Cat16 WWAN eSIM<sup>1</sup>

<sup>1</sup>WWAN module is an optional feature, requires factory configuration and requires separately purchased service contract. Check with service provider for coverage and availability in your area. Connection speeds will vary due to location, environment, network conditions, and other factors. 4G LTE not available on all products, in all regions.

<sup>2</sup>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.

##### LPWAN

Qualcomm® 9205 LTE-M (CAT-M1 fSVC)

##### Near Field Communication (NFC) module

NFC NXP NPC300<sup>1</sup>

<sup>1</sup>Sold separately or as an optional feature.

##### Miracast

Native Miracast Support

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

---

#### AUDIO/MULTIMEDIA

##### Audio

Audio Tuning by Poly Studio

2 Integrated stereo speakers

Discrete Amplifiers

2 Integrated dual array microphone

##### Speaker Power

1W/8ohm Per speaker

##### Camera<sup>1</sup>

5MP+Infrared camera

5MP camera

### Features

#### **Sensors**

- ALS (ambient light sensor)
- ACS (Adaptive Color Sensor)
- Hall effect Sensor
- Thermal Sensor
- HP Tamper Lock<sup>2</sup>
- Fingerprint Sensor

<sup>1</sup> Sold separately or as an optional feature.

<sup>2</sup> HP Tamper Lock must be enabled by the customer or your administrator.

---

### Features

#### 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 Devices

Clickpad with multi-touch gesture support

Microsoft Precision Touchpad Default Gestures Support

##### Function Keys

ESC: system information

F1 - Display Switching

F2 - Blank or Privacy

F3 - Brightness Down

F4 - Brightness Up

F5 - Audio Mute

F6 - Volume Down

F7 - Volume Up

F8 - Mic Mute

F9 - Blank or Backlit Toggle

F10 - Insert

F11 - Airplane Mode

F12 - HP Command Center

Power Button (with LED)

##### Hidden Keys

Fn+R - Break

Fn+S - Sys Rq

Fn+C - Scroll Lock

[\\*Backlit keyboard is an optional feature.](#)

---

#### SOFTWARE AND SECURITY

##### Software

Bing Search for IE11

Buy Microsoft Office (Sold separately)

HP Connection Optimizer<sup>10</sup>

HP Easy Clean<sup>2</sup>

HP Easy Clean Keyboard Driver<sup>2</sup>

HP Hotkey Support

HP Mac Address Manager

HP Notifications

HP PC Hardware Diagnostics UEFI

HP PC Hardware Diagnostics Windows

HP Power Manager

HP Privacy Settings

HP Services Scan<sup>3</sup>

HP Smart Support<sup>3</sup>

HP Support Assistant<sup>1</sup>

HSA Fusion for Commercial

Miro<sup>4</sup>

myHP

##### Manageability Features

### Features

HP Client Catalog (download)  
HP Client Management Script Library (download)  
HP Cloud Recovery<sup>28</sup>  
HP Connect for Microsoft Endpoint Manager<sup>26</sup>  
HP Driver Packs (download)  
HP Image Assistant Gen5 (download)  
HP Manageability Integration Kit (download)<sup>12</sup>  
HP Patch Assistant (download)<sup>27</sup>

#### Security Management

HP Client Security Manager  
HP Sure Admin<sup>5</sup>  
HP Sure Click  
HP Sure Recover Gen6<sup>9</sup>  
HP Sure Run Gen5<sup>11</sup>  
HP Sure Sense  
HP Sure Start Gen7<sup>13</sup>  
HP Tamper Lock  
HP Wolf Security of Business<sup>14</sup>  
Secured-Core PC Enable<sup>15</sup>  
Windows Hello Enhanced Sign-In Security (ESS)

#### Security- TPM

TCG TPM 2.0

#### BIOS

Absolute Persistence Module<sup>7</sup>  
BIOS Update via Network  
HP BIOSphere Gen6<sup>6</sup>  
HP DriveLock & Automatic DriveLock  
HP Fingerprint Sensor<sup>32</sup>  
HP Secure Erase<sup>17</sup>  
HP Wake on WLAN

#### Security TPM

Model: Nuvoton NPCT760HABYX

TCG TPM 2.0

Version : 7.2.3.1

FIPS 140-2 Compliant: Yes

Model: Infineon SLB9672VU2.0 FW15.23

TCG TPM 2.0

Version: 15.23

FIPS 140-2 Compliant: Yes

#### Smartcard Reader

Model Number: Alcorlink AK9563

FIPS 201 Compliant: Yes

<sup>1</sup> HP Support Assistant - Requires Windows and Internet Access.

<sup>2</sup> HP Easy Clean requires Windows 10 RS3 and higher and will disable the keyboard, touchscreen, and clickpad only. Ports are not disabled. See user guide for cleaning instructions.

<sup>3</sup> HP Smart Support/ HP Services Scan is preinstalled and/or provided thru Windows Update and checks for service entitlement on each hardware device and downloads the HP Insights agent automatically. To disable this feature, please follow the instructions at <http://www.hpdaas.com/requirements>. The HP Insights agent is a telemetry and analytics platform that provides critical data around devices and applications and is not sold as a standalone service. Select HP Workforce Solutions require an HP Insights agent for Windows,

### Features

Mac, & Android, available for download at <https://admin.hp.com/software>. For full system requirements and services that require the agent, please visit <https://admin.hp.com/requirements>. The agent collects telemetry and analytics around devices and applications that integrate into the Workforce Experience platform and is not sold as a standalone service. Internet access with connection to the Workforce Experience platform is required. HP follows stringent GDPR privacy regulations, and the platform is ISO27001, ISO27701, ISO27017 and SOC2 Type2 certified for Information Security. Not available in China.

<sup>4</sup>HP customers qualify for a 90 day trial of Miro, this offer ends September 2025. Complete terms and conditions are provided by Miro when accepting the offer.

<sup>5</sup>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 smartphone app from the Android or Apple store.

<sup>6</sup> HP BIOSphere Gen6 is available on select HP Pro, Elite and ZBook PCs. See product specifications for details. Features may vary depending on the platform and configurations.

<sup>7</sup> Absolute agent is shipped turned off, and will be activated when customers activate a purchased subscription. Subscriptions can be purchased for terms ranging multiple years. Service is limited, check with Absolute for availability outside the U.S. The Absolute Recovery Guarantee is a limited warranty. Certain conditions apply. For full details visit:

<http://www.absolute.com/company/legal/agreements/computrace-agreement>. Data Delete is an optional service provided by Absolute Software. If utilized, the Recovery Guarantee is null and void. In order to use the Data Delete service, customers must first sign a Pre-Authorization Agreement and either obtain a PIN or purchase one or more RSA SecurID tokens from Absolute Software.

<sup>8</sup>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.

<sup>9</sup>HP Sure Run is available on select HP PCs and requires Windows 10 and higher.

<sup>10</sup> HP Connection Optimizer requires Windows 10 and Windows 11.

<sup>11</sup>HP Sure Run is available on select HP PCs and requires Windows 10 and higher.

<sup>12</sup> HP Manageability Integration Kit can be downloaded from <https://ftp.ext.hp.com/pub/caps-softpaq/cmit/HPMIK.html>.

<sup>13</sup>HP Sure Start is available on select HP PCs and requires Windows 10 and higher.

<sup>14</sup> HP Wolf Security for Business requires Windows 10 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 and OS requirement.

<sup>15</sup>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.

<sup>17</sup> HP Secure Erase for the methods outlined in the National Institute of Standards and Technology Special Publication 800-88 "Clear" sanitation method. HP Secure Erase does not support platforms with Intel® Optane™.

<sup>26</sup> 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.

<sup>27</sup> 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>.

<sup>28</sup> HP Cloud Recovery is available for Z by HP, HP Elite and Pro desktops and laptops PCs with Intel® or AMD processors and requires an open, wired network connection. **NOTE:** You must back up important files, data, photos, videos, etc. before use to avoid loss of data. Detail please refer to: <https://support.hp.com/us-en/document/c05115630>.

<sup>32</sup> HP Fingerprint Reader is an optional feature that requires Windows 10 IoT and must be configured at purchase.

### Features

#### POWER

##### Power Supply

HP Standard 65W USB Type-C® adapter<sup>2</sup>

HP Slim 65W USB Type-C® adapter<sup>2</sup>

##### Battery

HP Long Life 3-cell, 56 Whr Polymer<sup>3,4</sup>

##### Power Cord

3-wire plug - 1 m

2-wire plug - 1 m

##### Battery life

###### UMA

TBD<sup>1</sup>

##### Discrete

TBD<sup>1</sup>

<sup>1</sup> MM25 battery life will vary depending on various factors including product model, configuration, loaded applications, features, use, wireless functionality, and power management settings. The maximum capacity of the battery will naturally decrease with time and usage. See [www.bapco.com](http://www.bapco.com) for additional details.

<sup>2</sup> Availability may vary by country.

<sup>3</sup> Battery is internal and not replaceable by customer. Serviceable by warranty.

<sup>4</sup> 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.

### Features

#### WEIGHTS & DIMENSIONS

**Dimensions (w x d x h)**

12.42 x 8.82 x 0.76 in

31.56 x 22.435 x 1.92 cm

**Weights\*****Product Weight- 56Whr**

Starting at 3.14 lb

Starting at 1.42 kg

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

#### PORTS/SLOTS

**Left side**

2 Thunderbolt™ 4 with USB4 Type-C® 40Gbps signaling rate (USB Power Delivery, DisplayPort™ 1.4) \*

1 Super Speed USB Type-A® 5Gbps signaling rate Power charging

1 HDMI 2.1\*\*

1 Smart Card Reader (Integrated)

**Right side**

1 Super Speed USB Type-A® 5Gbps signaling rate Power charging

1 Headphone/microphone combo jack

1 Nano SIM card slot (Integrated)

1 Security lock slot (Integrated)

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

\*\*HDMI cable sold separately.

#### SERVICE AND SUPPORT

1-year warranty and 90 day software limited warranty options depending on country. Batteries have a default one year limited warranty.. 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>1</sup>HP Care Packs are sold separately. Service levels and response times for HP Care Packs may vary depending on your geographic location. Service starts on date of hardware purchase. Restrictions and limitations apply. For details, visit <http://www.hp.com/go/cpc>. HP services are governed by the applicable HP terms and conditions of service provided or indicated to Customer at the time of purchase. Customer may have additional statutory rights according to applicable local laws, and such rights are not in any way affected by the HP terms and conditions of service or the HP Limited Warranty provided with your HP Product.

#### SYSTEM UNIT

<b>Stand-Alone Power Requirements (AC Power)</b>	<b>Nominal Operating Voltage</b>	AC 20V
	<b>Average Operating Power(idle)</b>	System in idle mode
	<b>Integrated graphics</b>	Yes

### Features

	<b>Discrete Graphics</b>	N/A
	<b>Max Operating Power</b>	65W
<b>Temperature</b>	<b>Operating</b>	32° to 95° F (0° to 35° C) (No sustained direct exposure to sunlight) (System performance may be reduced above 32°C (89.6°F))
	<b>Non-operating</b>	-4° to 140° F (-20° to 60° C)
<b>Relative Humidity</b>	<b>Operating</b>	10% to 90%, non-condensing
	<b>Non-operating</b>	5% to 95% (38.7° C (101.6° F) maximum wet bulb temperature; non-condensing)
<b>Shock</b>	<b>Operating</b>	40 G, 2 ms, half-sine
	<b>Non-operating</b>	240 G, 2 ms, half-sine
<b>Random Vibration</b>	<b>Operating</b>	1.043 grms
	<b>Non-operating</b>	3.5 grms
<b>Maximum Altitude (unpressurized)</b>	<b>Operating</b>	10,000 ft (3,048 m)
	<b>Non-operating</b>	40,000 ft (12,192 m)
<b>Planned Industry Standard Certifications</b>	<b>Regulatory Model Number</b>	HSN-I49C-4
	<b>CSA/UL 62368-1</b>	Yes
	<b>ENERGY STAR<sup>®1</sup></b>	Yes
	<b>FCC/ICES/CISPR/VCCI</b>	Yes
	<b>CE MARKING</b>	Yes
	<b>GS Mark</b>	Yes
	<b>China CCC/SRRC</b>	Yes
	<b>Taiwan BSMI/NCC</b>	Yes
	<b>Korea KCC/KC/KES</b>	Yes
	<b>Ukraine NSoC/TEC</b>	Yes
	<b>EAEU Compliance</b>	Yes
	<b>Saudi Arabian Compliance</b>	Yes
	<b>TCO</b>	Yes
	<b>EPEAT<sup>®</sup></b>	EPEAT <sup>®</sup> Gold in the United States <sup>2</sup>
	<b>Low Blue Light</b>	Yes
	<b>WW RoHS</b>	Yes
	<b>Saudi Arabian Compliance (ICCP)</b>	Yes
	<b>SABS</b>	Yes

<sup>1</sup>Configurations of the HP ZBook Firefly 14" G11 A Mobile Workstation PC that are ENERGY STAR<sup>®</sup> qualified are identified as HP ZBook Firefly 14" G11 A Mobile Workstation PC ENERGY STAR on HP websites and on <http://www.energystar.gov>.

<sup>2</sup>Based on US EPEAT<sup>®</sup> registration according to IEEE 1680.1-2018 EPEAT<sup>®</sup>. Status varies by country. Visit [www.epeat.net](http://www.epeat.net) for more information.



### Technical Specifications – Displays

#### DISPLAYS

**14 in WUXGA (1920 x 1200) Anti-Glare UWVA LED NTSC 45 NB2X 300 eDP 1.2 w/o PSR bent LCD Panel**

<b>Outline Dimensions (W x H)</b>	307.29 x 199.25 (max)	
<b>Active Area</b>	301.59 X 188.50 (typ)	
<b>Weight</b>	300 (max)	
<b>Diagonal Size</b>	14	
<b>Thickness</b>	3.0 / 4.8 (max)	
<b>Interface</b>	eDP 1.2	
<b>Surface Treatment</b>	Anti-Glare	
<b>Touch enabled</b>	No	
<b>Contrast Ratio</b>	1000:1 (typ)	
<b>Refresh Rate</b>	60 Hz	
<b>Brightness</b>	300 nits	
<b>Pixel Resolution</b>	<b>Pitch</b>	1920 x 1200 (WUXGA)
	<b>Format</b>	RGB
<b>Backlight</b>	WLED	
<b>Color Gamut Coverage</b>	NTSC 45%	
<b>Color Depth</b>	6+2 FRC	
<b>Viewing Angle</b>	UWVA 89/89/89/89	
<b>Low Blue Light</b>	No	
<b>Power Consumption (W, EBL@ 150nits max/ 200nits max)</b>	2.20 (max) / 2.70 (max)	

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

**14 in WUXGA (1920 x 1200) Anti-Glare UWVA LED NTSC 45 NB2X 300 TOP eDP 1.2 w/o PSR bent LCD Panel**

<b>Outline Dimensions (W x H)</b>	307.29 x 199.25 (max)	
<b>Active Area</b>	301.59 x 188.50 (typ)	
<b>Weight</b>	305g (max)	
<b>Diagonal Size</b>	14	
<b>Thickness</b>	3.0 / 5.0 (max)	
<b>Interface</b>	eDP 1.2	
<b>Surface Treatment</b>	Anti-Glare	
<b>Touch enabled</b>	Yes	
<b>Contrast Ratio</b>	1000:1 (typ)	
<b>Refresh Rate</b>	60 Hz	
<b>Brightness</b>	300 nits	
<b>Pixel Resolution</b>	<b>Pitch</b>	1920 x 1200 (WUXGA)
	<b>Format</b>	RGB
<b>Backlight</b>	WLED	
<b>Color Gamut Coverage</b>	NTSC 45%	
<b>Color Depth</b>	6+2 FRC	
<b>Viewing Angle</b>	UWVA 89/89/89/89	
<b>Low Blue Light</b>	No	

### Technical Specifications – Displays

**Power Consumption (W, EBL@ 150nits max/ 200nits max)** 2.15 (max)/2.65 (max)

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

**14 in WUXGA (1920 x 1200) Anti-Glare UWVA WLED+LBL sRGB NB2X 400 eDP 1.4+PSR2 Low-Power 100 bent LCD Panel**

**Outline Dimensions (W x H)** 307.590 x 199.550 (max)  
**Active Area** 301.590 X 188.500 (typ)  
**Weight** 210 (max)  
**Diagonal Size** 14  
**Thickness** 2.0 / 3.8 (max)  
**Interface** eDP 1.4  
**Surface Treatment** Anti-Glare  
**Touch enabled** No  
**Contrast Ratio** 1000:1(typ)  
**Refresh Rate** 60 Hz  
**Brightness** 400 nits  
**Pixel Resolution** **Pitch** 1920 x 1200 (WUXGA)  
**Format** RGB  
**Backlight** WLED  
**Color Gamut Coverage** sRGB 100%  
**Color Depth** 8 bits  
**Viewing Angle** UWVA 89/89/89/89  
**Low Blue Light** Yes  
**Power Consumption (W, EBL@ 150nits max/ 200nits max)** 1.29 (max) / 1.66 (max)

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

**14 in WUXGA (1920 x 1200) Anti-Glare UWVA WLED+LBL sRGB NB2Y 1000 eDP 1.3+PSR 100 PrivacyG4 Plus bent LCD Panel**

**Outline Dimensions (W x H)** 307.600 x 199.550 (typ)  
**Active Area** 301.680 x 188.500 (typ)  
**Weight** 238 (max)  
**Diagonal Size** 14  
**Thickness** 2.2 / 3.9 (max)  
**Interface** eDP 1.3  
**Surface Treatment** Anti-Glare  
**Touch Enabled** No  
**Contrast Ratio** 1500:1(typ)  
**Refresh Rate** 60 Hz  
**Brightness** 1000 nits  
**Pixel Resolution** **Pitch** 1920 x 1200 (WUXGA)  
**Format** RGB

### Technical Specifications – Displays

<b>Backlight</b>	WLED
<b>Color Gamut Coverage</b>	sRGB 100%
<b>Color Depth</b>	8 bits
<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>	N/A

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

<b>14 in WQXGA DRM (2560 x 1600) Anti-Glare UWVA LED DCI-P3 NB2X 500 eDP 1.4+PSR2 100 120Hz bent LCD Panel</b>	<b>Outline Dimensions (W x H)</b>	307.594 x 199.546 (max)		
	<b>Active Area</b>	301.594 x 188.496 (typ)		
	<b>Weight</b>	230 (max)		
	<b>Diagonal Size</b>	14		
	<b>Thickness</b>	2.0 / 3.8 (max)		
	<b>Interface</b>	eDP 1.4		
	<b>Surface Treatment</b>	Anti-Glare		
	<b>Touch Enabled</b>	No		
	<b>Contrast Ratio</b>	1200:1 (typ)		
	<b>Refresh Rate</b>	120 Hz		
	<b>Brightness</b>	500 nits		
	<b>Pixel Resolution</b>	<b>Pitch</b>	2560 x 1600 (WQXGA)	
		<b>Format</b>	RGB	
		<b>Backlight</b>	WLED	
	<b>Color Gamut Coverage</b>	DCI-P3 100%		
	<b>Color Depth</b>	8 bits		
	<b>Viewing Angle</b>	UWVA 89/89/89/89		
	<b>Low Blue Light</b>	No		
	<b>Power Consumption (W, EBL@ 150nits max/ 200nits max)</b>	2.88 (max) / 3.44 (max)		

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

### Technical Specifications – Storage

#### STORAGE AND DRIVES

<b>SSD 512GB 2280 PCIe-4x4 NVMe Three Layer Cell</b>	<b>Form Factor</b>	M.2 2280	
	<b>Capacity</b>	512GB	
	<b>NAND Type</b>	TLC	
	<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>	PCIe NVMe Gen4X4	
	<b>Performance</b>	<b>Minimum Sequential Read</b>	<b>Minimum Sequential Write</b>
		6400 MB/s ±20%	3500 MB/s ±20%
	<b>Logical Blocks</b>	1,000,215,215	
	<b>Operating Temperature</b>	32° to 158°F (0° to 70°C) [ambient temp]	
<b>Features</b>	Pyrite 2.0; TRIM; L1.2		
	<b>NOTE:</b> For storage drives, GB = 1 billion bytes. TB = 1 trillion bytes. Actual formatted capacity is less. Up to 35 GB (for Windows 11) is reserved for system recovery software.		
<b>SSD 1TB 2280 PCIe-4x4 NVMe Three Layer Cell</b>	<b>Form Factor</b>	M.2 2280	
	<b>Capacity</b>	1TB	
	<b>NAND Type</b>	TLC	
	<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>	PCIe NVMe Gen4X4	
	<b>Performance</b>	<b>Minimum Sequential Read</b>	<b>Minimum Sequential Write</b>
		6400 MB/s ±20%	5000 MB/s ±20%
	<b>Logical Blocks</b>	2,000,409,264	
	<b>Operating Temperature</b>	32° to 158°F (0° to 70°C) [ambient temp]	
<b>Features</b>	Pyrite 2.0; TRIM; L1.2		
	<b>NOTE:</b> For storage drives, GB = 1 billion bytes. TB = 1 trillion bytes. Actual formatted capacity is less. Up to 35 GB (for Windows 11) is reserved for system recovery software.		
<b>SSD 2TB 2280 PCIe-4x4 NVMe Three Layer Cell</b>	<b>Form Factor</b>	M.2 2280	
	<b>Capacity</b>	2TB	
	<b>NAND Type</b>	TLC	
	<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>	PCIe NVMe Gen4X4	
	<b>Performance</b>	<b>Minimum Sequential Read</b>	<b>Minimum Sequential Write</b>
		6400 MB/s ±20%	5000 MB/s ±20%
	<b>Logical Blocks</b>	4,000,797,360	
	<b>Operating Temperature</b>	32° to 158°F (0° to 70°C) [ambient temp]	
<b>Features</b>	Pyrite 2.0; TRIM; L1.2		

### Technical Specifications – Storage

**NOTE:** For storage drives, GB = 1 billion bytes. TB = 1 trillion bytes. Actual formatted capacity is less. Up to 35 GB (for Windows 11) is reserved for system recovery software.

#### 256GB PCIe 2280 NVMe Self Encrypted OPAL2 Value Solid State Drive

<b>Form Factor</b>	M.2 2280
<b>Capacity</b>	256GB
<b>NAND Type</b>	TLC
<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>	PCIe NVMe Gen4X4
<b>Performance</b>	<b>Minimum Sequential Read</b> <b>Minimum Sequential Write</b>
	2000 MB/s ±20%                      900 MB/s ±20%
<b>Logical Blocks</b>	500,118,192
<b>Operating Temperature</b>	32° to 158°F (0° to 70°C) [ambient temp]
<b>Features</b>	TCG Opal 2.0; TRIM; L1.2

**NOTE:** For storage drives, GB = 1 billion bytes. TB = 1 trillion bytes. Actual formatted capacity is less. Up to 35 GB (for Windows 11) is reserved for system recovery software.

#### 512GB PCIe-4x4 2280 NVMe Self Encrypted OPAL2 Three Layer Cell Solid State Drive

<b>Form Factor</b>	M.2 2280
<b>Capacity</b>	512GB
<b>NAND Type</b>	TLC
<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>	PCIe NVMe Gen4X4
<b>Performance</b>	<b>Minimum Sequential Read</b> <b>Minimum Sequential Write</b>
	6400 MB/s ±20%                      3500 MB/s ±20%
<b>Logical Blocks</b>	1,000,215,215
<b>Operating Temperature</b>	32° to 158°F (0° to 70°C) [ambient temp]
<b>Features</b>	TCG Opal 2.0; TRIM; L1.2

**NOTE:** For storage drives, GB = 1 billion bytes. TB = 1 trillion bytes. Actual formatted capacity is less. Up to 35 GB (for Windows 11) is reserved for system recovery software.

#### SSD 1TB 2280 PCIe NVMe Value

<b>Form Factor</b>	M.2 2280
<b>Capacity</b>	1TB
<b>NAND Type</b>	TLC
<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>	PCIe NVMe Gen4X4
<b>Performance</b>	<b>Minimum Sequential Read</b> <b>Minimum Sequential Write</b>
	2200 MB/s ±20%                      1600 MB/s ±20%
<b>Logical Blocks</b>	2,000,409,264
<b>Operating Temperature</b>	32° to 158°F (0° to 70°C) [ambient temp]
<b>Features</b>	Pyrite 2.0; TRIM; L1.2

### Technical Specifications – Storage

**NOTE:** For storage drives, GB = 1 billion bytes. TB = 1 trillion bytes. Actual formatted capacity is less. Up to 35 GB (for Windows 11) is reserved for system recovery software.

<b>SSD 256GB 2280 PCIe NVMe Value</b>	<b>Form Factor</b>	M.2 2280	
	<b>Capacity</b>	256 GB	
	<b>NAND Type</b>	TLC	
	<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>	PCIe NVMe Gen4X4	
	<b>Performance</b>	<b>Minimum Sequential Read</b>	<b>Minimum Sequential Write</b>
		2000 MB/s $\pm$ 20%	900 MB/s $\pm$ 20%
	<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 2.0; TRIM; L1.2		

**NOTE:** For storage drives, GB = 1 billion bytes. TB = 1 trillion bytes. Actual formatted capacity is less. Up to 35 GB (for Windows 11) is reserved for system recovery software.

<b>SSD 512GB 2280 PCIe NVMe Value</b>	<b>Form Factor</b>	M.2 2280	
	<b>Capacity</b>	512 GB	
	<b>NAND Type</b>	TLC	
	<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>	PCIe NVMe Gen4X4	
	<b>Performance</b>	<b>Minimum Sequential Read</b>	<b>Minimum Sequential Write</b>
		2200 MB/s $\pm$ 20%	1000 MB/s $\pm$ 20%
	<b>Logical Blocks</b>	1,000,215,215	
<b>Operating Temperature</b>	32° to 158°F (0° to 70°C) [ambient temp]		
<b>Features</b>	Pyrite 2.0; TRIM; L1.2		

**NOTE:** For storage drives, GB = 1 billion bytes. TB = 1 trillion bytes. Actual formatted capacity is less. Up to 35 GB (for Windows 11) is reserved for system recovery software.

### Technical Specifications – Networking

#### NETWORKING/COMMUNICATION

**Mediatek RZ616 Wi-Fi 6E Wireless LAN Standards  
Bluetooth® 5.3 wireless  
card AIM-T WLAN <sup>1</sup>**

IEEE 802.11a  
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 802.11j  
IEEE 802.11k  
IEEE 802.11mc  
IEEE 802.11n  
IEEE 802.11r  
IEEE 802.11v  
IEEE 802.11w

**Interoperability**

Wi-Fi certified

**Frequency Band**

- 802.11b/g/n/ax  
2.402 – 2.482 GHz
- 802.11a/n/ac/ax  
5.15 – 5.25 GHz  
5.25 – 5.35 GHz  
5.47 – 5.725 GHz  
5.825 – 5.850 GHz  
5.925 – 7.125 GHz

**Data Rates**

- 802.11a: 6, 9, 12, 18, 24, 36, 48, 54 Mbps
- 802.11ac : MCS0 ~ MCS9, (20MHz, 40MHz, 80MHz, 160MHz)
- 802.11ax : MCS0 ~ MCS11, (20MHz, 40MHz, 80MHz, 160MHz)
- 802.11b: 1, 2, 5.5, 11 Mbps
- 802.11g: 6, 9, 12, 18, 24, 36, 48, 54 Mbps
- 802.11n: MCS 0 ~ MCS 15, (20MHz, 40MHz)

**Modulation**

Direct Sequence Spread Spectrum  
1024QAM, 16-QAM, 256-QAM, 64-QAM, BPSK, CCK, Direct Sequence Spread Spectrum, OFDM, QPSK

**Security<sup>1</sup>**

- 802.1x authentication
- AES-CCMP: 128 bit in hardware
- IEEE 802.11i
- IEEE and WiFi certified 64 / 128 bit WEP encryption for a/b/g mode only
- WAPI
- WPA, WPA2: 802.1x. WPA-PSK, WPA2-PSK, TKIP, and AES.
- WPA2 certification

**Network Architecture  
Models**

- WPA3 (personal) certification
- Ad-hoc (Peer to Peer)
- Infrastructure (Access Point Required)

### Technical Specifications – Networking

<b>Roaming</b>	IEEE 802.11 compliant roaming between access points
<b>Output Power<sup>2</sup></b>	2.4GHz (MIMO, typical): <ul style="list-style-type: none"><li>• 802.11b : +18dBm</li><li>• 802.11g : +16.5dBm</li><li>• 802.11n/ac/ax (HT20/VHT20/HE20) : +16dBm</li><li>• 802.11n/ac/ax (HT40/VHT40/HE40) : +12.5dBm</li></ul> 5GHz (MIMO, typical): <ul style="list-style-type: none"><li>• 802.11a : +13dBm</li><li>• 802.11n/ac/ax (HT20/VHT20/HE20) : +13.5dBm</li><li>• 802.11n/ac/ax (HT40/VHT40/HE40) : +12.5dBm</li><li>• 802.11ac/ax (VHT80/HE80) : +11.5dBm</li><li>• 802.11ax HE160 : +11.5dBm</li></ul> 6GHz LPI mode (MIMO, typical): <ul style="list-style-type: none"><li>• 802.11a : 0dBm</li><li>• 802.11ax HE20 : +1dBm</li><li>• 802.11ax HE40 : +4dBm</li><li>• 802.11ax HE80 : +7dBm</li><li>• 802.11ax HE160 : +7.5dBm</li></ul>
<b>Power Consumption</b>	Transmit mode : 2.5 W Receive mode : 2.0 W Idle mode (PSP) : 180 mW (WLAN Associated) Idle mode: 50 mW (WLAN unassociated) Connected Standby/Modern Standby : 10 mW Radio disabled : 8 mW
<b>Power Management</b>	ACPI and PCI Express compliant power management
<b>Receiver Sensitivity<sup>3</sup></b>	2.4GHz (SISO): <ul style="list-style-type: none"><li>• 802.11b, 11Mbps : -82dBm maximum</li><li>• 802.11g, 54Mbps : -71dBm maximum</li><li>• 802.11n, MCS7 : -64dBm maximum</li><li>• 802.11ac, MCS9 : -52dBm maximum</li><li>• 802.11ax, MCS11 (HT40): -49dBm maximum</li></ul> 5GHz (SISO): <ul style="list-style-type: none"><li>• 802.11a, 54Mbps : -71dBm maximum</li><li>• 802.11n, MCS07 : -64dBm maximum</li><li>• 802.11ac, MCS9 : -52dBm maximum</li><li>• 802.11ax, MCS11 (HE80/HE160): -46dBm maximum</li></ul> 6GHz (SISO): <ul style="list-style-type: none"><li>• 802.11a, 54Mbps : -71dBm maximum</li><li>• 802.11n, MCS7 : -64dBm maximum</li><li>• 802.11ac, MCS9 : -52dBm maximum</li><li>• 802.11ax, MCS11 (HE160): -46dBm maximum</li></ul>
<b>Antenna Type</b>	High efficiency antenna with spatial diversity, mounted in the display enclosure



### Technical Specifications – Networking

	Two embedded dual band 2.4/5/6 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>	30.00 x 22.00 x 2.30 mm (1.18 x 0.87 x 0.09 inch)	
<b>Weight</b>	Type 2230: 2.8g	
<b>Operating Voltage</b>	3.3v +/- 9%	
<b>Temperature</b>	Operating	14° to 158° F (-10° to 70° C)
	Non-operating	-40° to 176° F (-40° to 80° C)
<b>Humidity</b>	Operating	10% to 90% (non-condensing)
	Non-operating	5% to 95% (non-condensing)
<b>Altitude</b>	Operating	0 to 10,000 ft (3,048 m)
	Non-operating	0 to 50,000 ft (15,240 m)
<b>LED Activity</b>	LED Amber – Radio OFF; LED White – Radio ON	
<b>HP Integrated Module with Bluetooth 4.0/4.1/4.2/5.0/5.1/5.2/5.3 Wireless Technology</b>		
<b>Frequency Band</b>	2402 to 2480 MHz	
<b>Number of Available Channels</b>	Legacy: 0~79 (1 MHz/CH) BLE: 0~39 (2 MHz/CH)	
<b>Data Rates and Throughput</b>	Legacy : 3 Mbps data rate; throughput up to 2.17 Mbps BLE : 1 Mbps data rate; throughput up to 0.2 Mbps Legacy : Synchronous Connection Oriented links up to 3, 64 kbps, voice channels Legacy : Asynchronous Connection Less links 2178.1 kbps/177.1 kbps asymmetric (3-DH5) or 864 kbps symmetric (3-EV5)	
<b>Transmit Power</b>	The Bluetooth component shall operate as a Class II Bluetooth device with a maximum transmit power of + 4 dBm for BR and EDR.	
<b>Power Consumption</b>	Peak (Tx): 330 mW Peak (Rx): 230 mW Selective Suspend: 17 mW	
<b>Bluetooth Software Supported</b>	Microsoft Windows Bluetooth Software	
<b>Link Topology</b>		
<b>Power Management</b>	Microsoft Windows ACPI, and USB Bus Support	
<b>Certifications</b>	FCC (47 CFR) Part 15C/E, Section 15.247, 15.249, 15.407; ETSI 300 328, ETSI 301 893, ETSI 303 687	
<b>Bluetooth Profiles Supported</b>	2Mbps LE Advanced Audio Distribution Profile (A2DP) Basic Imaging Profile (BIP) Bluetooth® 4.1-ESR 5/6/7 Compliance Bluetooth® 4.2 ESR08 Compliance Bluetooth® 5.2 Bluetooth® 5.3 Channel Selection Algo Encryption key size control enhancements ESR9/10 Compliance FAX Profile (FAX) Hands Free Profile (HFP) Headset Profile (HSP) LE Advertisement Extensions LE Data Packet Length Extension	

### Technical Specifications – Networking

- LE Dual Mode
- LE L2CAP Connection Oriented Channels
- LE Link Layer
- LE Link Layer Ping
- LE Long Range
- LE Low Duty Cycle Directed Advertising
- LE Privacy 1.2 –Extended Scanner Filter Policies
- LE Privacy 1.2 –Link Layer Privacy
- LE Secure Connection- Basic/Full
- Limited High Duty Cycle Non-Connectable Advertising
- Periodic Advertisement interval
- Train Nudging & Interlaced Scan
- Windows Bluetooth® profiles support

1. Wi-Fi 6E requires a Wi-Fi 6E router, sold separately, to function in the 6GHz band. Availability of public wireless access points limited. Wi-Fi 6E is backwards compatible with prior 802.11 specs. And available in countries where Wi-Fi 6E is supported. Wi-Fi 6E is designed to support gigabit data rate when transferring files between two devices connected to the same router. Requires a wireless router, sold separately, that supports 80MHz and higher channels.
2. Check latest software/driver release for updates on supported security features.
3. The FCC has declared as of September 1, 2014 products that utilize passive scanning on channel 12/13 and are capable of transmitting must fully comply with requirements of 15.247 or otherwise disable those channels.
4. Receiver sensitivity is measured at a packet error rate of 8% for 802.11b (CKK modulation) and a packet error rate of 10% for 802.11a/g (OFDM modulation).

#### HP 5G Sub-6 Cat 19 WWAN eSIM

##### 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 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 2: 1850 to 1910 MHz (UL), 1930 to 1990 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 3: 1710 to 1785 MHz (UL), 1805 to 1880 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)

### Technical Specifications – Networking

Band 4: 1710 to 1755 MHz (UL), 2110 to 2155 MHz (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 5: 824 to 849 MHz (UL), 869 to 894 MHz (DL)  
Band 66: 1710 to 1800 MHz (UL), 2110 to 2200 MHz (DL)  
Band 7: 2500 to 2570 MHz (UL), 2620 to 2690 MHz (DL)  
Band 71: 663 to 698 MHz (UL), 617 to 652 MHz (DL)  
Band 8: 880 to 915 MHz (UL), 925 to 960 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)  
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)  
n3: 1710 to 1785 MHz (UL), 1805 to 1880 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)  
n5: 824 to 849 MHz (UL), 869 to 894 MHz (DL)  
n66: 1710 to 1800 MHz (UL), 2110 to 2200 MHz (DL)  
n7: 2500 to 2570 MHz (UL), 2620 to 2690 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)  
n8: 880 to 915 MHz (UL), 925 to 960 MHz (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 bands

GPS only support L1 C/A  
GPS L1 (1575.42MHz), GLONASS L1 (1602MHz), Beidou B1 (1561.098MHz), Galileo E1 (1575.42MHz), QZSS (1575.42MHz)

#### Maximum data rates

Sub-6 SA Peak  
DL 4.67Gbps/UL 1.25Gbps  
Sub-6 NSA Peak  
DL 3.74Gbps/UL 835Mbps  
LTE Peak  
DL 1.6Gbps (CAT19)/UL 211Mbps (CAT18)  
UMTS/HSPA+  
DL DC-HSPA+: 42 Mbps (CAT24)/UL 11.5 Mbps (CAT7)

#### Maximum output power

NR : 23 dBm in all band except (n30 = 22dBm & n48=21dBm & n77=25dBm & n41/n77/n78 = 26dBm)  
LTE : 23 dBm in all band except (B30 = 22dBm & B48=21dBm & B41=26dBm)  
UMTS : 23.5 dBm

### Technical Specifications – Networking

<b>Maximum power consumption</b>	3500 mA (peak); 1674mA (average)
<b>Form Factor</b>	M.2, 3052-S3 Key B
<b>Weight</b>	8.7 g (0.307 oz)
<b>Dimensions</b> (Length x Width x Thickness)	52.00 x 30.00 x 2.30 mm (2.05 x 1.18 x 0.09 inch)
<b>embedded eSIM</b>	Support

\*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.

#### HP 4G LTE-A Pro Cat16 WWAN eSIM

<b>Technology/Operating bands*</b>	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 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 2: 1850 to 1910 MHz (UL), 1930 to 1990 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 3: 1710 to 1785 MHz (UL), 1805 to 1880 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 4: 1710 to 1755 MHz (UL), 2110 to 2155 MHz (DL) Band 40: 2300 to 2400 MHz (UL/DL) Band 41: 2496 to 2690 MHz (UL/DL) Band 42: 3400 to 3600 MHz (UL/DL) Band 43: 3400 to 3800 MHz (UL/DL) Band 48: 3550 to 3700 MHz (UL/DL) Band 5: 824 to 849 MHz (UL), 869 to 894 MHz (DL) Band 66: 1710 to 1800 MHz (UL), 2110 to 2200 MHz (DL) Band 7: 2500 to 2570 MHz (UL), 2620 to 2690 MHz (DL) Band 71: 663 to 698 MHz (UL), 617 to 652 MHz (DL)
------------------------------------	--

### Technical Specifications – Networking

<b>Wireless protocol standards</b>	Band 8: 880 to 915 MHz (UL), 925 to 960 MHz (DL) 3GPP LTE Rel15 LTE Specification, 100MHz 5 DLCA, 256 QAM, DL 1.0Gbps (CAT16)/ 40MHz 2 ULCA, 256 QAM, UL 211Mbps (CAT18) WCDMA 3GPP Release 8 UMTS Specification, DL UMTS: 384 kbps/UL 384 kbp, DL DC-HSPA+: 42 Mbps (CAT24)/UL 11.5 Mbps (CAT7)
<b>GPS</b>	WCDMA R99, 3GPP Release 5, 6, 7 and 8 UMTS Specification
<b>GPS Bands</b>	Standalone, A-GPS (MS-A, MS-B) GPS L1 (1575.42MHz), GLONASS L1 (1602MHz), Beidou B1 (1561.098MHz), Galileo E1 (1575.42MHz), QZSS (1575.42MHz)
<b>Maximum Data Rates</b>	LTE: ue-CategoryDL 16, (DL : 1 Gbps ) ue-CategoryUL 18 , (UL: 211Mbps) DC-HSPA+: 42 Mbps (Download), 11.5 Mbps (Upload)
<b>Maximum Output Power</b>	HPUE: Not supported LTE: 23 dBm in all band except (B30= 22dBm& B48= 21dBm) UMTS: 23.5 dBm
<b>Maximum Power Consumption</b>	LTE: 1300 mA (peak); 1100 mA (average) HSPA+: 1,100 mA (peak); 800 mA (average)
<b>Form Factor</b>	M.2, 3052-S3 Key B
<b>Weight</b>	8.0 g (0.282 oz)
<b>Dimensions</b> (Length x Width x Thickness)	52.00 x 30.00 x 2.30 mm (2.05 x 1.18 x 0.09 inch)
<b>embedded eSIM</b>	Support

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

\*\*Gigabit class Category 16 4G LTE module is optional and must be configured at the factory. Module designed for up to 1 Gbps download speeds as carriers deploy 5 carrier aggregation and 100Mhz channel bandwidth, requires activation and separately purchased service contract. Backwards compatible to HSPA 3G technologies. 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.

### NFC NXP NPC300

<b>Dimensions (L x W x H)</b>	17.00 x 10.00 x 2.00 mm (0.67 x 0.39 x 0.08 inch)
<b>Chipset</b>	NPC300
<b>System interface</b>	I2C
<b>NFC RF standards</b>	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
<b>NFC Forum Support</b>	Tag Type 1, Type 2, Type3 and Type 4, NFCIP-1 and NFCIP-2

### Technical Specifications – Networking

<b>Reader (PCD-VCD Mode(1))</b>	ISO/IEC 14443 A ISO/IEC 14443 B ISO/IEC 15693 MIFARE 1K MIFARE 4K MIFARE DESFire FeliCa Jewel and Topaz
<b>Card Emulation (PICC-VICC) Mode(1)</b>	ISO/IEC 14443 A ISO/IEC 14443 B and B' MIFARE  FeliCa
<b>Frequency</b>	13.56 MHz
<b>NFC Modes Supported</b>	Reader/Writer, Peer-to-Peer
<b>Raw RF Data Rates</b>	106, 212, 424, 848 kbps
<b>Operating temperature</b>	Operating: 0 °C to 70 °C (32 °F to 158 °F) Storage: -20 °C to 125 °C (-4 °F to 257 °F)
<b>Humidity</b>	Operating: 10% - 90% (non-condensing) Non-Operating: 5% - 95% (non-condensing)
<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>	<b>Booster enable, VBAT= 3.3V, VCC_BOOST = 5V) Mode Power Consumption, Typical</b>
	<b>Polling</b> 7.3 mA
	<b>Detected Test Tag Type 1</b> Total 283.8 mA Net Module 236.8 mA
	<b>Detected Test Tag Type 2</b> Total 288.8 mA Net Module 241.8 mA
	<b>Detected Test Tag Type 3</b> Total 287.7 mA Net Module 240.7 mA
	<b>Detected Test Tag Type 4</b> Total 282.3 mA Net Module 235.3 mA
<b>Antenna</b>	Antenna connector, 0.5mm pitch, 7 connector FPC. Antenna matching is external to module.

#### Qualcomm® 9205

#### Technology/Operating bands\*

FDD LTE: 1700/2100 (Band 4), 1700/2100 (Band 66), 1800 (Band 3), 1900 (Band 2), 1900 (Band 25), 2100 (Band 1), 700 (Band 12 lower), 700 (Band 13 upper), 700 (Band 14 upper), 700 (Band 28), 700 (band 85), 800 (Band 20), 800 (Band 27), 850 (Band 18 lower), 850 (Band 19 upper), 850 (Band 26), 850 (Band 5), 900 (Band 8) MHz

GSM/GPRS/EGPRS: 1800, 1900, 850, 900 MHz

#### Wireless protocol standards

3GPP TS 21.111 V10.0.0: USIM and IC card requirements  
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)  
3GPP TS 27.007 V10.0.8: AT command set for User Equipment (UE)  
3GPP TS 31.102 V10.11.0: Characteristics of the Universal Subscriber Identity Module (USIM) application  
3GPP TS 31.11 V10.16.0: Universal Subscriber Identity Module (USIM) Application Toolkit (USAT)

### Technical Specifications – Networking

3GPP TS 36.124 V10.3.0: Electro Magnetic Compatibility (EMC) requirements for mobile terminals and ancillary equipment  
3GPP TS 36.521-1 V14.3.0: User Equipment (UE) conformance specification; Radio transmission and reception; Part 1: Conformance testing  
3GPP TS 51.010-1 V10.5.0: Mobile Station (MS) conformance specification; Part 1: Conformance specification  
3GPP TS 51.011 V4.15.0: Specification of the Subscriber Identity Module -Mobile Equipment (SIM-ME) interface

<b>GPS</b>	Standalone GPS/Beidou/Glonass, A-GPS (MS-A, MS-B)
<b>GPS Bands</b>	1575.42 MHz ± 1.023 MHz, GLONASS 1596-1607MHz, Beidou 1561.098 MHz
<b>Maximum Data Rates</b>	LTE FDD: 375.00 Kbps (Download), 1119.00 Kbps (Upload) GPRS: 107.00 Kbps (Download), 85.60 Kbps (Upload) EGPRS: 296.00 Kbps (Download), 236.80 Kbps (Upload)
<b>Maximum Output Power</b>	LTE (all bands except B41): 21.5 dBm GSM: 34.0 dBm
<b>Maximum Power Consumption</b>	LTE: 147 mA(peak), 18 mA(average)
<b>Form Factor</b>	M.2
<b>Weight</b>	4 g
<b>Dimensions</b> (Length x Width x Thickness)	22.00 x 42.00 x 2.30 mm (0.87 x 1.65 x 0.09 inch)
<b>embedded eSIM</b>	Support

1. LPWAN (also called Mobile Narrowband) does not support mobile broadband use.

### AUDIO

<b>HD Stereo Codec</b>	Realtek ALC3315
<b>Audio I/O Ports</b>	3.5mm Headset: CTIA only;Headphone-out
<b>Internal Speaker Amplifier</b>	Cirrus Logic High-Efficiency Boosted Class D Amplifier
<b>Multi-streaming Capable</b>	Playback multi-streaming can be enabled in the audio control panel to allow independent audio streams to be sent to/from the front jacks or integrated speaker., Following MSFT Behavior
<b>Sampling</b>	DAC: Supports resolutions from -bit to -bit;48.0 kHz to 48.0 kHz ADC: Supports resolutions from -bit to -bit;48.0 kHz to 48.0 kHz
<b>Wavetable Syntheses</b>	N/A
<b># of Channels on Line-Out</b>	N/A
<b>Internal Speaker</b>	Yes

### FINGERPRINT READER

<b>Fingerprint Reader 1st Source</b>	
<b>Sensor vendor</b>	SYNAPTICS

### Technical Specifications – Networking

<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>	0°C ~ 60°C (32°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>Fingerprint Reader 2st Source</b>	
<b>Sensor vendor</b>	ELAN
<b>Sensor type</b>	Capacitive
<b>DPI resolution</b>	508 DPI
<b>Scan area</b>	80 x 80 pixels
<b>False Rejection Rate</b>	< 3%
<b>False Acceptance Rate</b>	< 3.000%
<b>Mobile Voltage Operation</b>	2.7 V ~ 3.6 V
<b>Operating Temperature</b>	-20°C ~ 80°C (-4°F ~ 176°F)
<b>Current Consumption Image</b>	35 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>	508 dpi / 4.0 x 4.0 mm sensor area

### POWER

<b>AC Adapter 65 Watt nPFC Standard USB type C Straight 1.8m</b>	<b>Dimensions</b>	3.543 x 2.008 x 1.122 in (9.0x5.1x2.85cm)
	<b>Weight</b>	240g ± 10g
	<b>Input</b>	<b>Input Efficiency</b>
		Average Efficiency of 25%, 50%, 75%, 100% load condition with 115Vac/230Vac Spec:
		5V : 81.5%
		9V : 86.7%
		12V : 88.0%
		15V : 89.0%
		20V : 89.0%
	<b>Input frequency range</b>	47 ~ 63 Hz
	<b>Input AC current</b>	Max. 1.6 A at 90 Vac
<b>Output</b>	<b>Output power</b>	5V/15W 9V/27W



### Technical Specifications – Networking

		12V/60W
		15V/65W
		20V/65W
	<b>DC output</b>	5V/9V/12V/15V/20V
	<b>Hold-up time</b>	100% load 5ms at 115 Vac input
	<b>Output current limit</b>	<8.0A
	<b>AC Inlet Type</b>	C6
	<b>DC Cable Connector</b>	USB type C
	<b>DC Cable Material</b>	PVC
<b>Connector</b>	C6	
<b>Environmental Design</b>	<b>Operating temperature</b>	32° to 95° F (0° to 35° C)
	<b>Non-operating (storage) temperature</b>	-4° 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>	<p>CE Mark - full compliance with LVD and EMC directives</p> <p>Worldwide safety standards - IEC60950-1 and IEC62368-1 : 2018, EN62368-1:2014+A11, UL 62368-1</p> <p>Agency approvals - C-UL-US, TUV/GS, TUV/PSE, EN55032 Class B, FCC Class B, CISPR32 Class B, CCC and CECP, CU(EAC), EAEU, KCC(Safety+EMC) and K-MEPS, NOM-001 and 029 NYCE, NRcan, NRCS, ISC, SEC, PSB, Argentina S-mark, Australia RCM, BIS, BSMI, UAE, UKCA DoC</p>	
<b>HP 65W Slim USB-C Straight AC Power Adapter</b>	<b>Dimensions</b>	3.819 x 2.106 x 0.827 in (9.7x5.35x2.1cm)
	<b>Weight</b>	220g ± 10g
	<b>Input</b>	<b>Input Efficiency</b> Average Efficiency of 25%, 50%, 75%, 100% load condition with 115Vac/230Vac Spec: 5V : 81.5% 9V : 86.7% 12V : 88.0% 15V : 89.0% 20V : 89.0%
		<b>Input frequency range</b> 47-63Hz
		<b>Input AC current</b> Max. 1.6 A at 90 Vac
	<b>Output</b>	<b>Output power</b> 5V/15W 9V/27W 12V/60W 15V/65W 20V/65W
		<b>DC output</b> 5V/9V/12V/15V/20V
		<b>Hold-up time</b> 100% load 5ms at 115 Vac input
		<b>Output current limit</b> < 8.0A
		<b>AC Inlet Type</b> C6
		<b>DC Cable Connector</b> USB type C
		<b>DC Cable Material</b> PVC
<b>Connector</b>	C6	

### Technical Specifications – Networking

<b>Environmental Design</b>	<b>Operating temperature</b>	32° to 95° F (0° to 35° C)
	<b>Non-operating (storage) temperature</b>	-4° 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>	<p>CE Mark - full compliance with LVD and EMC directives          Worldwide safety standards - IEC60950-1 and IEC62368-1 : 2018, EN62368-1:2014+A11, UL 62368-1          Agency approvals - C-UL-US, TUV/GS, TUV/PSE, EN55032 Class B, FCC Class B, CISPR32 Class B, CCC and CECP, CU(EAC), EAEU, KCC(Safety+EMC) and K-MEPS, NOM-001 and 029 NYCE, NRcan, NRCS, ISC, SEC, PSB, Argentina S-mark, Australia RCM, BIS, BSMI, UAE, UKCA DoC</p>	

<b>HP 3-cell Long Life Li-Ion (56 WHr)</b>	<b>Dimensions (H x W x L)</b>	251.8*70.3*6.82mm (9.91*2.77*0.27 inch)		
	<b>Weight</b>	0.205kg +/- 10g(0.474 lb)		
	<b>Cells/Type</b>	3cell Lithium-Ion Polymer cell / 586075		
	<b>Energy</b>	Voltage	11.58V	
		Amp-hour capacity	4.84Ah	
		Watt-hour capacity	56.04Wh	
	<b>Temperature</b>	Operating (Charging)	32° to 113° F (0° to 45° C)	
		Operating (Discharging)	14° to 140° F (-10° to 60° C)	
	<b>Fuel Gauge LED</b>	NA		
	<b>Warranty</b>	Follow product spec		
<b>Optional Travel Battery Available</b>	No			

\*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.

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

Type	Description	Part #
<b>Audio/Video</b>	HP USB G2 Stereo Headset	428H5AA
	HP USB G2 Stereo Headset	428K6AA
	HP 3.5mm G2 Stereo Headset	428H6AA
	HP 3.5mm G2 Stereo Headset	428K7AA
	HP 365 BT Speaker	567D3AA
	HP 325 FHD USB-A Webcam	53X27AA
	HP 965 4K Streaming Webcam	695J5AA
	HP 625 FHD Webcam	6Y7L1AA
<b>Cases</b>	HP Prelude 15.6 Backpack (Bulk Qty.15)	1E7D6A6
	HP Prelude Pro Recycle Backpack	1X644AA
	HP Prelude Pro Recycle Top Load	1X645AA
	HP Prelude 15.6 Top Load	1E7D7AA
	HP Prelude 15.6 Top Load	2Z8P4AA
	HP Prelude 15.6 Top Load	50P31AA
	HP Prelude 15.6 Backpack	1E7D6AA
	HP Prelude 15.6 Backpack	2Z8P3AA
	HP Prelude 15.6 Backpack	50P32AA
	HP Prelude Pro Recycled 15.6 Backpack (Bulk Qty.12)	1X644A6
	HP Prelude Pro Recycled 15.6 Top Load (Bulk Qty.12)	1X645A6
	HP Renew Business 17.3 Laptop Backpack	3E2U5AA
	HP Renew Business 17.3 Laptop Bag	3E2U6AA
	HP Renew Business 15.6 Laptop Bag	3E5F8AA
	HP Renew Business 14.1 Laptop Bag	3E5F9AA
	HP Renew Business 14.1 Laptop Sleeve	3E2U7AA
	HP Renew Business 17.3 Laptop Backpack (Bulk Qty. 6)	3E2U5A6
	HP Renew Business 15.6 Laptop Bag (Bulk Qty.12)	3E5F8A6
	HP Renew Business 14.1 Laptop Bag (Bulk Qty.12)	3E5F9A6
	HP Renew Business 14.1 Sleeve (Bulk Qty. 24)	3E2U7A6
	HP Renew Executive 16 Laptop Backpack	6B8Y1AA
	HP Renew Executive 16 Laptop Bag	6B8Y2AA
	HP Renew Executive 14.1 Laptop Sleeve	6B8Y3AA
	HP Travel 25 Liter 15.6 Iron Gray Laptop Backpack	6B8U4AA
	HP Travel 25 Liter 15.6 Iron Gray Laptop Backpack	6H2D8AA
	HP Travel 18 Liter 15.6 Iron Gray Laptop Backpack	6B8U6AA
HP Travel 18 Liter 15.6 Iron Gray Laptop Backpack	6H2D9AA	
<b>Docking station</b>	HP USB-C Dock G5	26D32AA
	HP USB-C Dock G5	5TW10AA
	HP USB-C/A Universal Dock G2	5TW13AA
	HP Thunderbolt 120W G4 Dock	4JOA2AA
	HP Thunderbolt 280W G4 Dock w/Combo Cable	4JOG4AA
	HP USB-C G5 Essential Dock	72C71AA

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

<b>Dongle</b>	HP HDMI to VGA Adapter	H4F02AA
	HP USB-C to USB 3.0 Adapter	N2Z63AA
	HP USB-C to DisplayPort Adapter	N9K78AA
	HP USB-C to VGA Adapter	N9K76AA
	HP USB-C to VGA Adapter	P7Z54AA
	HP USB-C to HDMI 2.0 Adapter	1WC36AA
	HP USB-C to HDMI 2.0 Adapter	2PC54AA
	HP USB-C to RJ45 Adapter G2	4Z527AA
	HP USB-C to RJ45 Adapter G2	4Z534AA
	HP USB 3.0 to Gig RJ45 Adapter G2	4Z7Z7AA
HP USB-C to DisplayPort Adapter G2	8Y8Y1AA	
<b>Hub</b>	HP USB-C Travel Hub G2	7PJ38AA
	HP USB-C to USB-A Hub	Z6A00AA
	HP Universal USB-C Multiport Hub	50H55AA
	HP Universal USB-C Multiport Hub	50H98AA
	HP 4K USB-C Multiport Hub	6G842AA
	HP 4K USB-C Multiport Hub	6G843AA
	HP Universal USB-C Hub and Laptop Charger Combo	9H0H9AA
<b>Keyboard/Combo</b>	HP 320K Wired Keyboard	9SR37AA
	HP 975 USB+BT Dual-Mode Wireless Keyboard	3Z726AA
	HP 455 Programmable Wireless Keyboard	4R177AA
	HP 965 BLK Ergonomic Wireless Keyboard	7E756AA
	HP 475 Dual-Mode Wireless Keyboard	7N7B9AA
	HP 405 Multi-Device Backlit Wired Keyboard	7N7C1AA
	HP 435 Programmable Bluetooth Wireless Keypad	7N7C3AA
	HP Wireless Rechargeable 950MK Mouse and Keyboard	3M165AA
	HP Wired Desktop 320MK Mouse and Keyboard	9SR36AA
HP 655 Wireless Keyboard and Mouse Combo	4R009AA	
<b>Mouse</b>	HP Wired 320M Mouse	9VA80AA
	HP Premium Wireless Mouse	1JR31AA
	HP Travel Bluetooth Mouse	6SP30AA
	HP Multi-Device 635 Black Wireless Mouse	1D0K2AA
	HP Creator 935 Black Wireless Mouse	1D0K8AA
	HP 235 Slim Wireless Mouse	4E407AA
	HP 435 Multi-Device Wireless Mouse	3B4Q5AA
	HP 715 Rechargeable Multi-Device Bluetooth Mouse	6E6F0AA
	HP 925 Ergonomic Vertical Wireless Mouse	6H1A5AA
<b>Power</b>	HP 65W USB-C LC Power Adapter	1P3K6AA
	HP 65W USB-C LC Power Adapter	944V0AA

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

	HP 65W Gallium Nitride USB-C Laptop Charger	600Q7AA
	HP 65W Gallium Nitride USB-C Laptop Charger	600Q8AA
	HP 65W USB-C Laptop Charger	671R2AA
	HP 65W USB-C Laptop Charger	671R3AA
	HP 110W USB-C Laptop Charger	8B3Y2AA
<b>Commodity</b>	HP 2TB PCIe-4x4 NVMe TLC M.2 Solid State Drive	6D8L6AA
	HP USB External DVDRW Drive	F2B56AA
	HP USB External DVDRW Drive	Y3T76AA
<b>Security</b>	HP Nano Keyed Cable Lock	1AJ39AA
	HP Nano Keyed Cable Lock	1AJ39UT
	HP Nano Master Keyed Cable Lock	1AJ40AA
	HP Sure Key Cable Lock	6UW42AA
	HP Nano Combination Cable Lock	63B28AA
	HP Essential Nano Combination Cable Lock	63B31AA

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

Intel, Core, and Celeron, Thunderbolt and vPro are registered trademarks or trademarks of Intel Corporation or its subsidiaries in the U.S. and/or other countries. Bluetooth is a registered trademark of its proprietor used by HP Inc. under license. AMD, FirePro, and Enduro are trademarks of Advanced Micro Devices, Inc. Adobe is a trademark of Adobe Systems Incorporated. Microsoft and Windows are U.S. registered trademarks of Microsoft Corporation in the United States and/or other countries. Qualcomm and Snapdragon are trademarks of Qualcomm, Inc. SD, SDHC, and SDXC are trademarks or registered trademarks of SD-3C in the United States, other countries or both. USB Type-C and USB-C are trademarks of USB Implementers Forum. ENERGY STAR® is a registered trademark mark of the U.S. Environmental Protection Agency.

Date of change:	Version History:		Description of change:
	From v1 to v2		