

### Overview

### HP EliteBook 845 14 inch G9 Notebook 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)

#### Left

8. Clickpad
9. Smartcard Reader (Optional)
10. LED Indicator
11. USB4™ Type-C® 40Gbps signaling rate (USB Power Delivery, DisplayPort™ 1.4)
12. USB4™ Type-C® 40Gbps signaling rate (USB Power Delivery, DisplayPort™ 1.4)
13. SuperSpeed USB Type-A 5Gbps signaling rate (USB 3.2 Gen 1)
14. HDMI 2.0b Port (Cable not included)

### Overview



#### Right

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

### Overview

#### At a Glance

- Preinstalled with Windows 11 versions or FreeDOS
- New premium ultraslim design with precision-crafted all-metal chassis for a premium look and feel
- Latest AMD® Ryzen PRO and non-PRO 6000 U and HS series processors
- New 16:10 ratio screen reduces the need to scroll by showing more vertical content than 16:9
- Optional ultrabright displays with HP Eye Ease, ambient light and ambient color sensors
- New 5MP camera<sup>1</sup> with HP Auto Frame<sup>2</sup> allows you around a little without losing viewers' attention during video calls
- New DDR5 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, 250 nits, 45% NTSC
  - 35.6cm (14") diagonal WUXGA IPS Anti-Glare On-Cell LED-backlit touch, 250 nits, 45% NTSC
  - 35.6 cm (14") diagonal WUXGA IPS Anti-Glare LED-backlit non-touch 400 nits, 100% sRGB with HP Eye Ease
  - 35.6cm (14") diagonal WUXGA IPS Anti-Glare LED-backlit non-touch, 1000 nits, 100% sRGB with HP Sure View Reflect with HP Eye Ease
- Redesigned keyboard layout to include easy use of discrete PgUp/Dn, End, and Home keys
- Choose from 38Whr or 51Whr battery options
- HP Wolf Security for Business creates a hardware-enforced, always-on, resilient defense<sup>3</sup>
- Larger Clickpad surface for easier, more intuitive input
- Connectivity with optional 4G LTE WWAN available, and USB-C Docking (Dock sold separately)
- Undergoes MIL-STD 810H tests<sup>4</sup>
- Supports fast charging (50% in 30 minutes) with no impact on battery recharge cycles <sup>5</sup>

1. Optional feature that must be configured at the time of purchase.

2. Requires the myHP application and Windows OS.

3. HP Wolf Security for Business requires Windows 10 and higher, includes various HP security features and is available on HP Pro, Elite, Workstation, and RPOS products. See product details for included security features and OS requirements.

4. MIL-STD 810GH 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.

5. Recharges your battery up to 50% within 30 minutes when the system is off or in standby mode. Power adapter with a minimum capacity of 65 and 100 watts is required. After charging has reached 50% capacity, charging will return to normal. Charging time may vary +/-10% due to System tolerance.

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

## Technical Specifications

### PRODUCT NAME

HP EliteBook 845 14 inch G9 Notebook PC

### OPERATING SYSTEMS

#### Preinstalled

Windows 11 Pro <sup>1</sup>  
Windows 11 Pro Education <sup>1</sup>  
Windows 11 Home – HP recommends Windows 11 Pro for Business <sup>1</sup>  
Windows 11 Home Single Language – HP recommends Windows 11 Pro for Business <sup>1</sup>  
Windows 11 Pro (Windows 11 Enterprise available with a Volume Licensing Agreement) <sup>1</sup>  
Windows 10 Pro (available through downgrade rights from Windows 11 Pro) <sup>1,2</sup>  
FreeDOS

1. Not all features are available in all editions or versions of Windows. Systems may require upgraded and/or separately purchased hardware, drivers, software or BIOS update to take full advantage of Windows functionality. Windows is automatically updated and enabled. High speed internet and Microsoft account required. ISP fees may apply and additional requirements may apply over time for updates. See <http://www.windows.com>.

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

### PROCESSORS

AMD Ryzen™ 9 PRO 6950HS APU (3.3 GHz base clock, up to 4.9 GHz max boost clock, 20 MB L2+L3 cache, 8 cores) Available in May 2022 <sup>3,4,5,6</sup>

AMD Ryzen™ 7 PRO 6850HS APU (3.2 GHz base clock, up to 4.7 GHz max boost clock, 20 MB L2+L3 cache, 8 cores) <sup>3,4,5,6</sup>

AMD Ryzen™ 7 PRO 6850U APU (2.7 GHz base clock, up to 4.7 GHz max boost clock, 20 MB L2+L3 cache, 8 cores) <sup>3,4,5,6</sup>

AMD Ryzen™ 5 PRO 6650U APU (2.9 GHz base clock, up to 4.5 GHz max boost clock, 19 MB L2+L3 cache, 6 cores) <sup>3,4,5,6</sup>

AMD Ryzen™ 7 6800U APU (2.7 GHz base clock, up to 4.7 GHz max boost clock, 20 MB L2+L3 cache, 8 cores) <sup>3,4,5,6</sup>

AMD Ryzen™ 5 6600U APU (2.9 GHz base clock, up to 4.5 GHz max boost clock, 19 MB L2+L3 cache, 6 cores) <sup>3,4,5,6</sup>

#### Processor Family

AMD Ryzen™ processor <sup>7</sup>

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

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

5. 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. AMD's numbering is not a measurement of clock speed.

6. Max Boost clock frequency performance varies depending on hardware, software and overall system configuration.

## Technical Specifications

7. 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>.

### CHIPSET

Chipset is integrated with processor

### GRAPHICS

#### Integrated

AMD Radeon™ Graphics

#### Supports

Support HW decode, DX12, HDMI 2.0, HDCP 2.3 <sup>8</sup>

8. HD content required to view HD images.

### DISPLAY

#### Non-Touch

35.56 cm (14") diagonal WUXGA Bent, anti-glare UWVA, 250 nits, 45% NTSC (1920 x 1200) <sup>8,9,10</sup>

35.56 cm (14") diagonal WUXGA Bent, anti-glare UWVA, 250 nits, 45% NTSC for WWAN (1920 x 1200) <sup>8,9,10</sup>

35.56 cm (14") diagonal WUXGA Bent, anti-glare UWVA, 250 nits, 45% NTSC for 5MP camera for WWAN (1920 x 1200) <sup>8,9,10</sup>

35.56 cm (14") diagonal WUXGA Bent, anti-glare UWVA, 250 nits, 45% NTSC for 5MP+IR camera for WWAN (1920 x 1200) <sup>8,9,10</sup>

35.56 cm (14") diagonal WUXGA Bent, anti-glare UWVA, 250 nits, 45% NTSC for 5MP+IR camera (1920 x 1200) <sup>8,9,10</sup>

35.56 cm (14") diagonal WUXGA Bent, anti-glare UWVA, 250 nits, 45% NTSC for 5MP camera (1920 x 1200) <sup>8,9,10</sup>

35.56 cm (14") diagonal WUXGA Bent, anti-glare UWVA, 250 nits, 45% NTSC, no microphone (1920 x 1200) <sup>8,9,10</sup>

35.56 cm (14") diagonal WUXGA Bent, Low Blue Light, anti-glare UWVA eDP+PSR, 400 nits, 100% sRGB, Low Power, Ambient Light Sensor for 5MP Camera (1920 x 1200) with HP Eye Ease <sup>8,9,10</sup>

35.56 cm (14") diagonal WUXGA Bent, Low Blue Light, anti-glare UWVA eDP+PSR, 400 nits, 100% sRGB, Low Power, Ambient Light Sensor for 5MP+IR Camera (1920 x 1200) with HP Eye Ease <sup>8,9,10</sup>

35.56 cm (14") diagonal WUXGA Bent, Low Blue Light, anti-glare UWVA eDP+PSR, 400 nits, 100% sRGB, Low Power, Ambient Light Sensor for 5MP+IR Camera for WWAN (1920 x 1200) with HP Eye Ease <sup>8,9,10</sup>

35.56 cm (14") diagonal WUXGA Bent, Low Blue Light, anti-glare UWVA eDP1.3+PSR, 1000 nits, 100% sRGB with HP Sure View Reflect integrated privacy screen, Ambient Light Sensor for 5MP camera (1920 x 1200) with HP Eye Ease <sup>8,9,10,11,12</sup>

35.56 cm (14") diagonal WUXGA Bent, Low Blue Light, anti-glare UWVA eDP1.3+PSR, 1000 nits, 100% sRGB with HP Sure View Reflect integrated privacy screen, Ambient Light Sensor for 5MP+IR camera (1920 x 1200) with HP Eye Ease <sup>8,9,10,11,12</sup>

35.56 cm (14") diagonal WUXGA Bent, Low Blue Light, anti-glare UWVA eDP1.3+PSR, 1000 nits, 100% sRGB with HP Sure View Reflect integrated privacy screen, Ambient Light Sensor 5MP+IR camera for WWAN (1920 x 1200) with HP Eye Ease <sup>8,9,10,11,12</sup>

#### Touch

35.56 cm (14") diagonal WUXGA Bent, anti-glare UWVA, 250 nits, 45% NTSC for 5MP+IR camera Touch on Panel (1920 x 1200) <sup>8,9,10,11,12</sup>

35.56 cm (14") diagonal WUXGA Bent, anti-glare UWVA, 250 nits, 45% NTSC for 5MP+IR camera for WWAN Touch on Panel (1920 x 1200) <sup>8,9,10,11,12</sup>

### Technical Specifications

#### DisplayPort™ 1.2

Support HW decode, DX12, HDMI 2.0, HDCP 2.3 via HDMI/DP up to 4K@60Hz.

#### Displays Support

Supports 4 independent displays through the dock.

#### Display Size (Diagonal)

14"

35.56 cm (14")

8. HD content required to view HD images.

9. Sold separately or as an optional feature.

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

11. 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.

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

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### DOCKING (Sold Separately)

#### Docking station model #1

HP Thunderbolt Dock G2

#### Docking station model #2

HP USB-C Dock G5

#### Docking station model #3

HP USB-C/A Universal Dock G2

For additional aftermarket options and docking specs please see page 39.

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### STORAGE AND DRIVES

#### Primary M.2 Storage

2 TB PCIe® Gen4x4 NVMe™ M.2 SSD TLC <sup>13</sup>

1 TB PCIe® Gen4x4 NVMe™ M.2 SSD TLC <sup>13</sup>

512 GB PCIe® Gen4x4 NVMe™ M.2 SSD TLC <sup>13</sup>

512 GB PCIe® Gen4x4 NVMe™ SED TLC OPAL2 <sup>13</sup>

512 GB PCIe® NVMe™ Value M.2 SSD <sup>13</sup>

256 GB PCIe® Gen4x4 NVMe™ M.2 SSD TLC <sup>13</sup>

256 GB PCIe® Gen4x4 NVMe™ SED TLC OPAL2 <sup>13</sup>

256 GB PCIe® NVMe™ Value M.2 SSD <sup>13</sup>

13. For storage drives, GB = 1 billion bytes. TB = 1 trillion bytes. Actual formatted capacity is less. Up to 30 GB (for Windows) is reserved for system recovery software.

## Technical Specifications

### MEMORY

**Maximum Memory**

64GB DDR5-4800 <sup>14</sup>

**Memory**

64GB DDR5-4800 (2x32GB) <sup>14</sup>

32GB DDR5-4800 (2x16GB) <sup>14</sup>

32GB DDR5-4800 (1x32GB) <sup>14</sup>

16GB DDR5-4800 (2x8GB) <sup>14</sup>

16GB DDR5-4800 (1x16GB) <sup>14</sup>

8GB DDR5-4800 (1x8GB) <sup>14</sup>

**Memory Slots**

2 SODIMM

DDR5 SODIMMS, system runs at 4800 <sup>14</sup>

Supports Dual Channel Memory

14. Due to the non-industry standard nature of some third-party memory modules, we recommend HP branded memory to ensure compatibility. If you mix memory speeds, the system will perform at the lower memory speed.

### NETWORKING/COMMUNICATIONS

**WLAN**

Qualcomm® Fast Connect 6900 Wi-Fi 6E +Bluetooth® 5.2 M.2 2230 160MHz PCI-e+USB WW WLAN 15

Realtek 8852BE Wi-Fi 6 + Bluetooth® 5.2 M.2 2230 PCI-e+ USB World-Wide WLAN <sup>16</sup>

**WWAN**

Intel® XMM™ 7560 R+ LTE-Advanced Pro (Cat 16) WWAN <sup>17</sup>

**NFC**

NFC Mirage WNC XRAV-1

**Miracast**

Native Miracast Support <sup>18</sup>

15. 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. For systems with Windows 10, Wi-Fi 6E does not operate under the 6GHz band. The product is compatible with 6GHz and other routers, sold separately, which have capability to and will operate in 2.4Ghz and 5GHz bands. The actual throughput depends on network condition and router configuration

16. Wireless access point and internet service required and sold separately. Availability of public wireless access points limited. Wi-Fi 6 is backwards compatible with prior 802.11 specs.

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

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



### Technical Specifications



### Technical Specifications

#### AUDIO/MULTIMEDIA

##### Audio

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

##### Speaker Power

2W/4ohm Per speaker

##### Camera

Dual Array Digital Microphone 5MP USB2 Narrow Field of View Integrated Camera  
Dual Array Digital Microphone 5MP USB2 Infrared Narrow Field of View Integrated Camera

##### Sensors

ALS (ambient light sensor)  
Hall Sensor  
Thermal Sensor

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

##### Keyboard

HP Premium Keyboard, spill resistant with optional Backlit keyboard <sup>19</sup>

##### Pointing Device

Clickpad with multi-touch gesture support, taps enabled as default  
Microsoft Precision Touchpad Default Gestures Support

##### Function Keys

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 (Programmable Key)  
Print Screen  
Power Button (with LED)

##### Hidden Function Keys

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

### Technical Specifications

19. Backlit keyboard is an optional feature.

#### SOFTWARE AND SECURITY

##### Software

HP Quick Touch  
HP Quick Drop <sup>20</sup>  
HP Easy Clean <sup>21</sup>  
HP PC Hardware Diagnostics Windows  
myHP  
HP Smart Support <sup>22</sup>  
HP Connection Optimizer  
HP Hotkey Support  
HP Support Assistant <sup>23</sup>  
HP Notifications  
HP Privacy Settings  
HP Power Manager  
Buy Microsoft Office (Sold separately)

##### Manageability Features

HP Image Assistant Gen5 (download)  
HP Manageability Integration Kit (download) <sup>24</sup>  
HP Client Management Script Library (download)  
HP Driver Packs (download)  
HP Cloud Recovery <sup>25</sup>  
HP Client Catalog (download)

##### Security Management

##### HP Wolf Security of Business<sup>26</sup> includes:

HP Sure Click <sup>27</sup>  
HP Sure Sense <sup>28</sup>  
HP Sure Run Gen5 <sup>29</sup>  
HP Sure Recover Gen5 <sup>30</sup>  
HP Sure Start Gen7 <sup>31</sup>  
HP Tamper Lock  
HP Sure Admin <sup>32</sup>  
HP Client Security Manager Gen7 <sup>33</sup>

##### BIOS

HP BIOSphere Gen6 <sup>34</sup>  
HP Secure Erase <sup>35</sup>  
Absolute Persistence Module <sup>36</sup>  
HP DriveLock & Automatic DriveLock  
BIOS Update via Network  
HP Wake on WLAN  
HP Fingerprint Sensor <sup>37</sup>  
Secured-Core PC Enable <sup>38</sup>  
TPM 2.0 Embedded Security Chip (Common Criteria EAL4+ Certified) (FIPS 140-2 Level 2 Certified)

## Technical Specifications

### Security

#### TPM

Model: Infineon SLB9670

Version: 7.85

Revision: TPM 2.0

FIPS 140-2 Compliant: Yes

#### Smartcard Reader

Model number: Alcor AU9560

FIPS 201 Compliant: Yes

#### IPv6 Support

Yes

#### FirstNet Certified

Yes

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

UEFI version: 2.7

Class: Class 3

20. 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.

21. 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.

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

23. HP Support Assistance requires Windows and Internet Access

24. HP Manageability Integration Kit can be downloaded from <http://www8.hp.com/us/en/ads/clientmanagement/overview.html>.

25. 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>.

26. HP Wolf Security for Business requires Windows 10 or higher, includes various HP security features and is available on HP Pro, Elite, RPOS and Workstation products. See product details for included security features and OS requirement..

27. HP Sure Click requires Windows 10 Pro or higher or Enterprise. See [https://bit.ly/2PrLT6A\\_SureClick](https://bit.ly/2PrLT6A_SureClick) for complete details.

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

29. HP Sure Run Gen5 is available on select HP PCs and requires Windows 10 and higher.

30. HP Sure Recover Gen5 with Embedded Reimaging is an optional feature which requires Windows 10 and higher must be configured at purchase. You must back up important files, data, photos, videos, etc. before use to avoid loss of data. Network based recovery using Wi-Fi is only available on PCs with Intel Wi-Fi Module

31. HP Sure Start Gen7 is available on select HP PCs and requires Windows 10 and higher

32. HP Sure Admin requires Windows 10 or higher, HP BIOS, HP Manageability Integration Kit from <http://www.hp.com/go/clientmanagement> and HP Sure Admin Local Access Authenticator smartphone app from the Android or Apple store

## Technical Specifications

- 33. HP Client Security Manager Gen7 requires Windows and is available on the select HP Elite and Pro PCs.
- 34. HP BIOSphere Gen6 features may vary depending on the platform and configuration.
- 35. 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™.
- 36. Absolute firmware module is shipped turned off and can only be activated with the purchase a license subscription and full activation of the software agent. License subscriptions can be purchased for terms ranging multiple years. Service is limited, check with Absolute for availability outside the U.S. Certain conditions apply. For full details visit: <https://www.absolute.com/about/legal/agreements/absolute/>
- 37. HP Fingerprint sensor is an optional feature that must be configured at purchase.
- 38. 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.

## POWER

### Power Supply

HP Smart 65 W USB Type-C adapter <sup>39</sup>

HP Smart 45 W USB Type-C adapter <sup>39</sup>

### Battery

HP Long Life 3-cell, 38 Wh Polymer <sup>40,41</sup>

HP Long Life 3-cell, 51 Wh Polymer <sup>40,41</sup>

Compliant with UL 1642 Standard

### Power Cord

3-wire plug - 1m

2-wire plug - 1m

### Battery Life

Up to 13 hours 45 minutes (38Wh battery) <sup>42</sup>

Up to 18 hours 45 minutes (51Wh battery) <sup>42</sup>

39. Availability may vary by country.

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

41. 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.

42. MM18 battery life will vary depending on various factors including product model, configuration, loaded applications, features, use, wireless functionality, and power management settings. The maximum capacity of the battery will naturally decrease with time and usage. See <http://www.bapco.com> for additional details.

### Technical Specifications

#### WEIGHTS & DIMENSIONS

**Product Weight** <sup>43</sup>

Starting at 3.10 lb

Starting at 1.40 kg

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

12.42 x 8.82 x 0.76 in

31.56 x 22.40 x 1.92 cm

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

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#### PORTS/SLOTS

2 USB4™ Type-C® 40Gbps signaling rate (USB Power Delivery, DisplayPort™ 1.4)

2 Super Speed USB Type-A 5Gbps signaling rate (1 charging) (USB 3.2 Gen 1)

1 HDMI 2.0 <sup>44</sup>

1 Headphone/microphone combo jack

44. HDMI cable sold separately.

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### Technical Specifications

#### **SERVICE AND SUPPORT**

1-year warranty and 90 day software limited warranty options depending on country. Batteries have a default one year limited warranty except for HP Long Life batteries which will follow the one or three year warranty of the platform. Refer to <http://www.hp.com/support/batterywarranty/> for additional battery information. On-site service and extended coverage is also available. HP Care Pack Services are optional extended service contracts that go beyond the standard limited warranties. To choose the right level of service for your HP product, use the HP Care Pack Services Lookup Tool at: <http://www.hp.com/go/cpc>.<sup>45</sup>

45. 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 [www.hp.com/go/cpc](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>	Type-C Adapter
Nominal Operating Voltage	AC 20V
Average Operating Power	
Integrated graphics	Yes
Discrete Graphics	N/A
Max Operating Power	UMA<65W
<b>Temperature</b>	
Operating	32° to 95° F (0° to 35° C)
Non-operating	41° to 95° F (5° to 35° C) (writing optical)
<b>Relative Humidity</b>	
Operating	10% to 90%, non-condensing
Non-operating	5% to 95%, 101.6° F (38.7° C) maximum wet bulb temperature
<b>Shock</b>	
Operating	40 G, 2 ms, half-sine
Non-operating	200 G, 2 ms, half-sine
<b>Random Vibration</b>	
Operating	0.75 grams
Non-operating	1.50 grams
<b>Altitude (unpressurized)</b>	
Operating	-50 to 10,000 ft (-15.24 to 3,048 m)
Non-operating	-50 to 40,000 ft (-15.24 to 12,192 m)
<b>Planned Industry Standard Certifications</b>	
Regulatory Model Number	HSN-I45C-3
UL	Yes
CSA	Yes
FCC Compliance	Yes
ENERGY STAR®	Certified <sup>46</sup>
EPEAT®	EPEAT® Gold in United States <sup>47</sup>
ICES	Yes
Australia /	Yes
NZ A-Tick Compliance	Yes
CCC	Yes
Japan VCCI Compliance	Yes
KC	Yes
BSMI	Yes
CE Marking Compliance	Yes
BNCI or BELUS	Yes
CIT	Yes
GOST	Yes
Saudi Arabian Compliance (ICCP)	Yes
SABS	Yes



### Technical Specifications

46. Configurations of the HP EliteBook 845 14 inch G9 Notebook PC that are ENERGY STAR® qualified are identified as HP EliteBook 845 14 inch G9 Notebook PC ENERGY STAR on HP websites and on <http://www.energystar.gov>.

47. 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

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

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

<b>14.0 in WUXGA (1920 x 1200) Anti-Glare UWVA LED NTSC NB2X 250 eDP 1.2 w/o PSR 45 bent LCD Panel</b>	<b>Outline Dimensions (W x H x D)</b>	307.590 x 199.550 (max)
	<b>Active Area</b>	301.590 X 188.500 (typ)
	<b>Weight</b>	300 (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>	No
	<b>Contrast Ratio</b>	1000:1(typ)
	<b>Refresh Rate</b>	60 Hz
	<b>Brightness</b>	250 nits
	<b>Pixel Resolution - Format</b>	1920 x 1200 (WUXGA)
	<b>Backlight</b>	WLED
	<b>Pixel Resolution</b>	RGB
	<b>Color Gamut Coverage</b>	NTSC 45%
	<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>	2.20 (max) / 2.70 (max)	

<b>14.0 in WUXGA (1920 x 1200) Anti-Glare UWVA LED NTSC NB2X 250 TOP eDP 1.2 w/o PSR 45 bent LCD Panel</b>	<b>Outline Dimensions (W x H x D)</b>	307.590 x 199.550 (max)
	<b>Active Area</b>	301.590 x 188.500 (typ)
	<b>Weight</b>	300 (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 <sup>1</sup>
	<b>Contrast Ratio</b>	1000:1(typ)

### Technical Specifications

<b>Refresh Rate</b>	60 Hz
<b>Brightness</b>	250 nits <sup>1</sup>
<b>Pixel Resolution - Format</b>	1920 x 1200 (WUXGA)
<b>Backlight</b>	WLED
<b>Pixel Resolution</b>	RGB
<b>Color Gamut Coverage</b>	NTSC 45%
<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>	2.10 (max) / 2.60 (max)

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

<b>Outline Dimensions (W x H x D)</b>	307.590 x 199.550 (max)
<b>Active Area</b>	301.590 X 188.500 (typ)
<b>Weight</b>	210 (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>	1000:1 (typ)
<b>Refresh Rate</b>	60 Hz
<b>Brightness</b>	400 nits
<b>Pixel Resolution - Format</b>	1920 x 1200 (WUXGA)
<b>Backlight</b>	WLED
<b>Pixel Resolution</b>	RGB
<b>Color Gamut Coverage</b>	sRGB 100%
<b>Color Depth</b>	8 bits
<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>	1.29 (max) / 1.66 (max)

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

<b>Outline Dimensions (W x H x D)</b>	307.600 x 199.550 (typ)
<b>Active Area</b>	301.680 x 188.500 (typ)
<b>Weight</b>	238 (max)
<b>Diagonal Size</b>	14
<b>Thickness</b>	2.2 / 3.9 (max)
<b>Interface</b>	eDP 1.3

### Technical Specifications

<b>Surface Treatment</b>	Anti-Glare
<b>Touch Enabled</b>	No
<b>Contrast Ratio</b>	1500:1 (typ)
<b>Refresh Rate</b>	60 Hz
<b>Brightness</b>	1000 nits
<b>Pixel Resolution - Format</b>	1920 x 1200 (WUXGA)
<b>Backlight</b>	WLED
<b>Pixel Resolution</b>	RGB
<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

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## Technical Specifications

## STORAGE AND DRIVES

For storage drives, GB = 1 billion bytes. TB = 1 trillion bytes. Actual formatted capacity is less. Up to 30 GB (for Windows 10 and 11) is reserved for system recovery software.

<b>SSD 256GB 2280 PCIe-4x4 NVMe Three Layer Cell</b>	<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>Maximum Sequential Read</b>	4000 MB/s ±20%
	<b>Maximum Sequential Write</b>	2000 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>	Pyrite 2.0; TRIM; L1.2

<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>Maximum Sequential Read</b>	6400 MB/s ±20%
	<b>Maximum Sequential Write</b>	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>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>Maximum Sequential Read</b>	6400 MB/s ±20%
	<b>Maximum Sequential Write</b>	5000 MB/s ±20%
	<b>Logical Blocks</b>	2,000,409,264

## Technical Specifications

<b>Operating Temperature</b>	32° to 158°F (0° to 70°C) [ambient temp]
<b>Features</b>	Pyrite 2.0; TRIM; L1.2

<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>Maximum Sequential Read</b>	6400 MB/s ±20%
	<b>Maximum Sequential Write</b>	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

<b>256GB PCIe-4x4 2280 NVMe Self Encrypted OPAL2 Three Layer Cell Solid State Drive</b>	<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>Maximum Sequential Read</b>	4000 MB/s ±20%
	<b>Maximum Sequential Write</b>	2000 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

<b>512GB PCIe-4x4 2280 NVMe Self Encrypted OPAL2 Three Layer Cell Solid State Drive</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>Maximum Sequential Read</b>	6400 MB/s ±20%
	<b>Maximum Sequential Write</b>	3500 MB/s ±20%

### Technical Specifications

<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

<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 Gen3X4
	<b>Maximum Sequential Read</b>	1500 MB/s ±20%
	<b>Maximum Sequential Write</b>	750 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>	Pyrite 2.0; TRIM; L1.2	

<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 Gen3X4
	<b>Maximum Sequential Read</b>	1500 MB/s ±20%
	<b>Maximum Sequential Write</b>	750 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	

### Technical Specifications

#### NETWORKING/COMMUNICATIONS

<p><b>Realtek RTL8852BE 802.11ax 2x2 Wi-Fi® + Bluetooth® 5.2 (802.11ax 2x2, supporting gigabit data rate) <sup>1</sup></b></p>	<p><b>Wireless LAN Standards</b></p> <ul style="list-style-type: none"> <li>IEEE 802.11a</li> <li>IEEE 802.11b</li> <li>IEEE 802.11g</li> <li>IEEE 802.11n</li> <li>IEEE 802.11ac</li> <li>IEEE 802.11ax</li> <li>IEEE 802.11d</li> <li>IEEE 802.11e</li> <li>IEEE 802.11h</li> <li>IEEE 802.11i</li> <li>IEEE 802.11k</li> <li>IEEE 802.11r</li> <li>IEEE 802.11v</li> </ul>
	<p><b>Interoperability</b></p> <p>Wi-Fi certified modules</p>
	<p><b>Frequency Band</b></p> <ul style="list-style-type: none"> <li>•802.11b/g/n/ax 2.402 – 2.482 GHz</li> <li>•802.11a/n/ac/ax 4.9 – 4.95 GHz (Japan)</li> <li>5.15 – 5.25 GHz</li> <li>5.25 – 5.35 GHz</li> <li>5.47 – 5.725 GHz</li> <li>5.825 – 5.850 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 : max 866.7Mbps</li> <li>• 802.11ax : max 1201Mbps</li> </ul>
	<p><b>Modulation</b></p> <p>Direct Sequence Spread Spectrum BPSK, QPSK, CCK, 16-QAM, 64-QAM, 256-QAM, 1024QAM</p>
	<p><b>Security<sup>2</sup></b></p> <ul style="list-style-type: none"> <li>• IEEE and WiFi certified 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 Models</b></p> <p>Ad-hoc (Peer to Peer) Infrastructure (Access Point Required)</p>
	<p><b>Roaming</b></p> <p>IEEE 802.11 compliant roaming between access points</p>
	<p><b>Output Power<sup>3</sup></b></p> <ul style="list-style-type: none"> <li>• 802.11b : +18.5dBm minimum</li> <li>• 802.11g : +17.5dBm minimum</li> <li>• 802.11a : +18.5dBm minimum</li> <li>• 802.11n HT20(2.4GHz) : +15.5dBm minimum</li> <li>• 802.11n HT40(2.4GHz) : +14.5dBm minimum</li> </ul>



### Technical Specifications

	<ul style="list-style-type: none"> <li>• 802.11n HT20(5GHz) : +15.5dBm minimum</li> <li>• 802.11n HT40(5GHz) : +14.5dBm minimum</li> <li>• 802.11ac VHT80(5GHz) : +11.5dBm minimum</li> <li>• 802.11ax HE40(2.4GHz) : +10dBm minimum</li> <li>• 802.11ax HE80(5GHz) : +10dBm minimum</li> </ul>
<b>Power Consumption</b>	<ul style="list-style-type: none"> <li>• Transmit mode :2.5 W</li> <li>• Receive mode :2 W</li> <li>• Idle mode (PSP) 180 mW (WLAN Associated)</li> <li>• Idle mode :50 mW (WLAN unassociated)</li> <li>• Connected Standby/Modern Standby: 10mW</li> <li>• Radio disabled: 8 mW</li> </ul>
<b>Power Management</b>	ACPI and PCI Express compliant power management 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 : -84dBm maximum</li> <li>•802.11ac, MCS9 : -59dBm maximum</li> <li>•802.11ax, MCS11(HE40): -57dBm maximum</li> <li>•802.11ax, MCS11(HE80): -54dBm maximum</li> </ul>
<b>Antenna type</b>	High efficiency antenna with spatial diversity, mounted in the display enclosure Two embedded dual band 2.4/5 GHz antennas are provided to the card to support WLAN MIMO communications and Bluetooth communications
<b>Form Factor</b>	PCI-Express M.2 MiniCard
<b>Dimensions</b>	1. Type 2230: 2.3 x 22.0 x 30.0 mm
<b>Weight</b>	1. Type 2230: 2.8g
<b>Operating Voltage</b>	3.3v +/- 9%
<b>Temperature</b>	<b>Operating</b> 14° to 158° F (-10° to 70° C) <b>Non-operating</b> -40° to 176° F (-40° to 80° C)
<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 Compliant/5.2 Compliant
<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</b>	Legacy : 3 Mbps data rate; throughput up to 2.17 Mbps

### Technical Specifications

<b>Throughput</b>	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.

1. Wireless access point and Internet service required and sold separately. Availability of public wireless access points limited. Wi-Fi 6 (802.11ax) is backwards compatible with prior 802.11 specs. Wi-Fi 6™ 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).
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### Technical Specifications

<p><b>Qualcomm® Fast Connect 6900 Wi-Fi 6E + Bluetooth® 5.2 (802.11ax 2x2, AMD AIM-T AME, supporting gigabit file transfer speeds)<sup>1</sup></b></p>	<p><b>Wireless LAN Standards</b></p> <ul style="list-style-type: none"> <li>IEEE 802.11a</li> <li>IEEE 802.11b</li> <li>IEEE 802.11g</li> <li>IEEE 802.11n</li> <li>IEEE 802.11ac</li> <li>IEEE 802.11ax</li> <li>IEEE 802.11d</li> <li>IEEE 802.11e</li> <li>IEEE 802.11h</li> <li>IEEE 802.11i</li> <li>IEEE 802.11k</li> <li>IEEE 802.11r</li> <li>IEEE 802.11u</li> <li>IEEE 802.11v</li> <li>IEEE 802.11w</li> </ul> <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 2.402 – 2.482 GHz</li> <li>•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</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: MCS 0 ~ MCS 15, (20MHz, and 40MHz)</li> <li>• 802.11ac : MCS0 ~ MCS9, (1SS, and 2SS) (20MHz, 40MHz, ,80MHz &amp; 160MHz)</li> <li>• 802.11ax : MCS0 ~ MCS11, (1SS and 2SS) (20MHz, 40MHz, ,80MHz &amp; 160MHz)</li> </ul> <p><b>Modulation</b></p> <p>Direct Sequence Spread Spectrum OFDM, BPSK, QPSK, CCK, 16-QAM, 64-QAM, 256-QAM, 1024QAM, 4096QAM</p> <p><b>Security<sup>2</sup></b></p> <ul style="list-style-type: none"> <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>• IEEE 802.11i</li> </ul> <p><b>Network Architecture Models</b></p> <p>Wi-Fi Direct in Win10 for peer-to-peer connection. Infrastructure (Access Point Required)</p> <p><b>Roaming</b></p> <p>IEEE 802.11 compliant roaming between access points</p> <p><b>Output Power<sup>3</sup></b></p> <p>2.4GHz (MIMO, typical):</p> <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> <p>5GHz (MIMO, typical):</p>
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### Technical Specifications

	<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>	<ul style="list-style-type: none"> <li>• Transmit mode: 3.0 W</li> <li>• Receive mode: 2.0 W</li> <li>• Idle mode (WLAN associated): 300mW</li> <li>• Idle mode (WLAN unassociated): 100mW</li> <li>• Modern Connected Standby: 10mW</li> <li>• Radio disabled: 8 mW</li> </ul>
<b>Power Management</b>	ACPI and PCI Express compliant power management 802.11 compliant power saving mode
<b>Receiver Sensitivity<sup>4</sup></b>	<p>2.4GHz (SISO):</p> <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> <p>5GHz (SISO):</p> <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> <p>6GHz (SISO):</p> <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 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>	Type 2230: 2.3 x 22.0 x 30.0 mm
<b>Weight</b>	Type 2230: 3g
<b>Operating Voltage</b>	3.3 +/- 0.165v
<b>Temperature</b>	<p><b>Operating</b> -10° to 60° C</p> <p><b>Non-operating</b> -40° to 85°C</p>
<b>Humidity</b>	<p><b>Operating</b> 10% to 60% (non-condensing)</p> <p><b>Non-operating</b> 5% to 95% (non-condensing)</p>

### Technical Specifications

<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>	N/A
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#### 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) 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 1.5 Bluetooth device with a maximum transmit power of + 14 dBm and 10 dBm for BR and EDR, respectively.

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).

### Technical Specifications

<b>Intel® XMM™ 7560 R+ LTE-Advanced Pro<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 14 upper), 700 (Band 17 lower), 850 (Band 18 lower), 850 (Band 19 upper), 800 (Band 20), 1900 (Band 25), 850 (Band 26), 700 (Band 28), 700 (Band 29 RX only), 2300 (Band 30), 1700/2100 (Band 66), 600 (band 71). TDD LTE: 2100 (Band 34), 2600 (Band 38), 1900 (Band 39), 2400 (Band 40), 2500 (Band 41), 3500 (Band 42), 3700 (Band 43), 3700 (band 48), 5200 (Band 46 RX only) MHz; HSPA+: 2100 (Band 1), 1900 (Band 2), 1700/2100 (Band 4), 850 (Band 5), 900 (Band 8) MHz
	<b>Wireless protocol standards</b>	3GPP Release 12 LTE Specification DL-CAT.16, DL 100MHz BW throughput up to 978Mbps; UL-CAT.13 40MHz throughput up to 150Mbps WCDMA R99, 3GPP Release 5, 6, 7 and 8 UMTS Specification 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: 978 Mbps (Download), 150 Mbps (Upload) DC-HSPA+: 42 Mbps (Download), 5.76 Mbps (Upload) HSPA+: 21Mbps (Download), 5.76 Mbps (Upload)
	<b>Maximum output power</b>	LTE: 23 dBm in all band except B41 LTE B41 HPUE = 26dBm HSPA+: 23.5 dBm
	<b>Maximum power consumption</b>	LTE: 1,200 mA (peak); 900 mA (average) HSPA+: 1,100 mA (peak); 800 mA (average)
	<b>Form Factor</b>	M.2, 3042-S3 Key B
	<b>Weight</b>	6 g
	<b>Dimensions (Length x Width x Thickness)</b>	42 x 30 x 2.3 mm
	<b>eSIM</b>	Support

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

<b>Near Field Communications Controller (optional)</b>	<b>Dimensions (L x W x H)</b>	Module 25 mm by 10 mm by 2.0 mm
	<b>Chipset</b>	NPC100
	<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

## Technical Specifications

	ECMA-320 NFCIP-2
<b>NFC Forum Support</b>	Tag Type 1, Type 2, Type3 and Type 4, NFCIP-1 and NFCIP-2
<b>Reader (PCD-VCD) Mode</b>	ISO/IEC 14443 A ISO/IEC 14443 B ISO/IEC 15693 MIFARE 1K MIFARE 4K MIFARE DESFire FeliCa Jewel and Topaz cards
<b>Card Emulation (PICC-VICC) Mode</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>	0°C to 70°C
<b>Storage temperature</b>	-20°C to 125°C
<b>Humidity</b>	10-90% operating 5-95% non-operating
<b>Supply Operating voltage</b>	4.35 to 5.25 Volts
<b>I/O Voltage</b>	1.8V or 3.3V
<b>Power Consumption (Booster enable, VBAT= 3.3V, VCC_BOOST = 5V)</b>	
<b>Mode</b>	Power Consumption, Typical
<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.



### 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>AC Adapter 45 Watt nPFC</b>	<b>Dimensions (H x W x D)</b>	94.0mm x 40.0mm x 26.5mm
<b>Standard USB type C</b>	<b>Weight</b>	192.5g +/-10%
<b>Straight 1.8m</b>	<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: 87.41%
		15V: 87.8%
	<b>Output</b>	<b>Input frequency range</b>
		47 ~ 63Hz
		<b>Input AC current</b>
		Max. 1.4 A at 90 Vac
		<b>Output power</b>
		5V/15W
		9V/27W
		12V/36W
		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>	C6
	<b>Environmental Design</b>	<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:
		*CE Mark - full compliance with LVD and EMC directives
		* Worldwide safety standards - IEC60950-1 and/or IEC62368-1, EN60950-1 and/or EN62368-1, UL60950-1 and/or UL62368-1 , Class1, SELV;
		Agency approvals - C-UL-US, NORDICS, DENAN, EN55032 Class B, FCC Class B, CISPR32 Class B, CCC, NOM-001 NYCE.
		* MTBF - over 200,000 hours at 25°C ambient condition.

### Technical Specifications

<b>AC Adapter 65 Watt nPFC Slim USB type C Straight 1.8m</b>	<b>Dimensions (H x W x D)</b>	88 x 53.5 x 21 mm	
	<b>Weight</b>	unit: 220g +/- 10g	
<b>Input</b>	<b>Input Efficiency</b>	81.5% min at 115 Vac/ 230Vac @ 5V/3A 86.7% min at 115 Vac/ 230Vac @ 9V/3A 88% min at 115 Vac/ 230Vac @ 12V/5A 89% min at 115 Vac/ 230Vac @ 15V/4.33A 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>	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>	C6	
	<b>Environmental Design</b>	<b>Operating temperature</b>	32°F to 95oF (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>		5% to 95%	
<b>Storage Humidity</b>		5% to 95%	
<b>EMI and Safety Certifications</b>	<b>Eg:</b>		
		*CE Mark - full compliance with LVD and EMC directives * Worldwide safety standards - IEC60950-1 and/or IEC62368-1, EN60950-1 and/or EN62368-1, UL60950-1 and/or UL62368-1 , Class1, SELV; Agency approvals - C-UL-US, NORDICS, DENAN, EN55032 Class B, FCC Class B, CISPR32 Class B, CCC, NOM-001 NYCE. * MTBF - over 200,000 hours at 25°C ambient condition.	

<b>AC Adapter 65 Watt nPFC Standard USB type C Straight 1.8m</b>	<b>Dimensions (H x W x D)</b>	90.0 mm x 51.0 mm x 28.5 mm	
	<b>Weight</b>	250g +/-10%	
<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% 15V : 88% 20V : 89%	
	<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

### Technical Specifications

		12V/60W
		15V/60W
		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>		C6
<b>Environmental Design</b>	<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:
		*CE Mark - full compliance with LVD and EMC directives
		* Worldwide safety standards - IEC60950-1 and/or IEC62368-1, EN60950-1 and/or EN62368-1, UL60950-1 and/or UL62368-1 , Class1, SELV;
		Agency approvals - C-UL-US, NORDICS, DENAN, EN55032 Class B, FCC Class B, CISPR32 Class B, CCC, NOM-001 NYCE.
		* MTBF - over 200,000 hours at 25°C ambient condition.

<b>HP 3-cell Long Life Li-Ion (38 Wh)<sup>1</sup></b>	<b>Dimensions (H x W x D)</b>	251.8 x 66.1 x 6.82mm (9.91 x 2.6 x 0.27 inch)	
	<b>Weight</b>	0.184kg +/- 10g (0.406 lb)	
	<b>Cells/Type</b>	3cell Lithium-Ion Polymer cell / 564975	
	<b>Energy</b>	<b>Voltage</b>	11.58V
		<b>Amp-hour capacity</b>	3.283Ah
		<b>Watt-hour capacity</b>	38Wh
	<b>Temperature</b>	<b>Operating (Charging)</b>	32° to 113° F (0° to 45° C)
		<b>Operating (Discharging)</b>	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	

### Technical Specifications

<b>HP 3-cell Long Life Li-Ion (51 Wh)<sup>1</sup></b>	<b>Dimensions (H x W x D)</b>	251.8 x 70.3 x 6.82mm (9.91 x 2.77 x 0.27 inch)
	<b>Weight</b>	0.229kg +/- 10g (0.505 lb)
	<b>Cells/Type</b>	3cell Lithium-Ion Polymer cell / 566075
	<b>Energy</b>	<b>Voltage</b> 11.58V <b>Amp-hour capacity</b> 4.431Ah <b>Watt-hour capacity</b> 51.3Wh
	<b>Temperature</b>	<b>Operating (Charging)</b> 32° to 113° F (0° to 45° C) <b>Operating (Discharging)</b> 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

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## Technical Specifications

### AUDIO

<b>HD Stereo Codec</b>	Realtek ALC3315
<b>Audio I/O Ports</b>	Headset: CTIA only and 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. Following MSFT Behaviour
<b>Sampling</b>	DAC: 44.1k/48kHz
<b>Wavetable Syntheses</b>	ADC: 48kHz
<b>Analog Audio</b>	Support 3.5mm Headset: CTIA only and Headphone-out
<b># of Channels on Line-Out</b>	
<b>Internal Speaker</b>	Yes

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### FINGERPRINT READER

<b>Sensor vendor</b>	Synaptics FS7604
<b>Sensor type</b>	Capacitive
<b>DPI resolution</b>	363DPI
<b>Scan area</b>	7.4x6mm sensor area
<b>False Rejection Rate</b>	<1%
<b>False Acceptance Rate</b>	1:50K FAR
<b>Mobile Voltage Operation</b>	3.0V to 3.6V
<b>Operating Temperature</b>	0~60°C
<b>Current Consumption</b>	100mA Max
<b>Image</b>	
<b>Low Latency Wait For Finger</b>	260 uA
<b>Capture Rate</b>	<30msec per image
<b>ESD Resistance</b>	IEC 61000-4-2 4B (+/-15KV)
<b>Detection Matrix</b>	363 dpi / 7.4x6mm sensor area

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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>• 60% 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)	5.42 W	5.64 W	5.76 W
Normal Operation (Long idle)	1.32 W	1.32 W	1.05 W
Sleep	1.32 W	1.32 W	1.05 W
Off	0.46 W	0.47 W	0.46 W
	<p>Note: Energy efficiency data listed is for an ENERGY STAR® compliant product if offered within the model family. HP computers marked with the ENERGY STAR® Logo are compliant with the applicable U.S. Environmental Protection Agency (EPA) ENERGY STAR® specifications for computers. If a model family does not offer ENERGY STAR® compliant configurations, then energy efficiency data listed is for a typically configured PC featuring a hard disk drive, a high efficiency power supply, and a Microsoft Windows® operating system.</p>		
<b>Heat Dissipation*</b>	<b>115VAC, 60Hz</b>	<b>230VAC, 50Hz</b>	<b>100VAC, 50Hz</b>
Normal Operation (Short idle)	18.5 BTU/hr	19.3 BTU/hr	19.7 BTU/hr
Normal Operation (Long idle)	4.5 BTU/hr	4.5 BTU/hr	3.6 BTU/hr
Sleep	4.5 BTU/hr	4.5 BTU/hr	3.6 BTU/hr

### Technical Specifications

Off	1.6 BTU/hr	1.6 BTU/hr	1.6 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	2.6	19.0	
Fixed Disk – Random writes	4.1	34.0	
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 93.6% recycle-able when properly disposed of at end of life.</li> </ul>		
<b>Packaging Materials</b>	<b>External:</b>	PAPER/Corrugated	269 g
		PAPER/Molded Pulp	108 g
		PAPER/Paper	3 g
	<b>Internal:</b>	PLASTIC/Polyethylene high density - HDPE	13 g
	The plastic packaging material contains at least 0.0% recycled content.		
	The corrugated paper packaging materials contains at least 59.1% recycled content.		
<b>RoHS Compliance</b>	<p>HP Inc. complies fully with materials regulations. We were among the first companies to extend the restrictions in the European Union (EU) Restriction of Hazardous Substances (RoHS) Directive to our products worldwide through the HP GSE. HP has contributed to the development of related legislation in Europe, as well as China, India, and Vietnam.</p> <p>We believe the RoHS directive and similar laws play an important role in promoting industry-wide elimination of substances of concern. We have supported the inclusion of additional substances—including PVC, BFRs, and certain phthalates—in future RoHS legislation that pertains to electrical and electronics products.</p> <p>We met our voluntary objective to achieve worldwide compliance with the new EU RoHS requirements for virtually all relevant products by July 2013, and we will continue to extend the</p>		

### Technical Specifications

	<p>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>
<p><b>Packaging Usage</b></p>	<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>



### Technical Specifications

<p><b>End-of-life Management and Recycling</b></p>	<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>
<p><b>HP, Inc. Corporate Environmental Information</b></p>	<p>For more information about HP's commitment to the environment:</p> <p>Global Citizenship Report  <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  <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:  <a href="http://h20195.www2.hp.com/V2/GetDocument.aspx?docname=c04755842">http://h20195.www2.hp.com/V2/GetDocument.aspx?docname=c04755842</a>  and  <a href="http://www.hp.com/hpinfo/globalcitizenship/environment/pdf/cert.pdf">http://www.hp.com/hpinfo/globalcitizenship/environment/pdf/cert.pdf</a></p>
<p><b>footnotes</b></p>	<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 Thunderbolt Dock G2
<b>Total number of supported displays (incl. the notebook display)</b>	4
<b>Max. resolutions supported</b>	Dual 4K @30Hz or dual 4K UHD @ 60Hz is supported Single 8K@ 30Hz (multiple tiles) for Thunderbolt hosts Non-TBT hosts DP 1.4 in high res mode(1) 8K video single cable@30Hz
<b>Dock Connectors</b>	2xDP, 1xVGA, 1xTB, 1xUSB-C alt-mode
<b>Technical limitations</b>	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

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

Type	Description	Part Number
<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 Renew Business 14.1 Laptop Sleeve	3E2U7AA
	HP Renew Business 14.1 Laptop Bag	3E5F9AA
	HP Renew Business 15.6 Laptop Bag	3E5F8AA
	HP Renew Business 17.3 Laptop Backpack	3E2U5AA
	HP Renew Business 17.3 Laptop Bag	3E2U6AA
<b>Docking</b>	HP Thunderbolt 120W G2 Dock	2UK37AA
	HP Thunderbolt 120W G2 Dock w/Audio	3YE87AA
	HP Thunderbolt 230W G2 Dock w/Combo Cable	3TR87AA
	HP USB-C 120W G5 Dock	5TW10AA
	HP USB-C/A 120W G2 Universal Dock	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 USB-C to RJ45 Adapter G2	4Z527AA
	HP USB 3.0 to Gigabit RJ45 Adapter G2	4Z7Z7AA
	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>Keyboard/Combo</b>	HP 125 WD USB Keyboard	266C9AA
	HP 320K WD USB Keyboard	9SR37AA
	HP 225 Wired Mouse and Keyboard Combo	286J4AA
	HP 235 Wireless Mouse and Keyboard Combo	1Y4D0AA

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

	HP Wired Desktop 320MK Mouse and Keyboard	9SR36AA
	HP Wireless Rechargeable 950MK Mouse and Keyboard	3M165AA
	HP 975 USB+BT Dual-Mode Wireless Keyboard	3Z726AA
	HP 455 Programmable Wireless Keyboard	4R177AA
	HP 655 Wireless Keyboard and Mouse Combo	4R009AA
<b>Mouse</b>	HP USB Premium Wireless Mouse	1JR31AA
	HP 125 USB-A Wired Mouse	265A9AA
	HP 128 USB Laser Wired Mouse	265D9AA
	HP 320M USB-A Wired Mouse	9VA80AA
	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 Zeus AC Power Adapter	1HE07AA
	HP 45W USB-C LC Dali AC Power Adapter	1MZ01AA
	HP 65W USB-C Hades AC Power Adapter	1HE08AA
	HP 65W USB-C LC AC Power Adapter	1P3K6AA
<b>Commodity</b>	HP USB DVD-Writer EXT ODD	F2B56AA
	HP Nano Keyed Cable Lock	1AJ39AA
	HP Nano Master Keyed Cable Lock	1AJ40AA
	HP SureKey Standard/Nano/Wedge Cable Lock	6UW42AA

### Change Log

<b>Date of change:</b>	<b>Version History:</b>		<b>Description of change:</b>
May 6, 2022	V1 to V2	Added	Environmental Data
	V2 to V3		

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