

### Overview

### HP ProBook 635 Aero G7 Notebook PC



#### Left

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|--|--|
| 1. Ambient Light Sensor (Optional)             | 6. IR Camera LED (Optional)                        |
| 2. Internal Microphones (2)                    | 7. Glass Clickpad                                  |
| 3. Webcam LED (Optional)                       | 8. Audio Combo Jack                                |
| 4. Camera Shutter (Only available with webcam) | 9. USB 3.1 Gen 1 Port                              |
| 5. HD and IR Camera (Optional)                 | 10. USB 3.1 Gen 1 Charging Port                    |
|  | 11. Nano Security Lock Slot (Lock sold separately) |

### Overview



#### Right

- 1. Power Button Key
- 2. Power Connector
- 3. HDMI Port (Cable not included)
- 4. USB Type-C® 3.1 Gen 2 Port (Alt Mode)
- 5. Nano SIM Card Slot<sup>1</sup>
- 6. Touch Fingerprint Sensor (select models)

1. All units have a SIM card stray but units that do not support WWAN are shipped with a non-removable SIM slot plug

### Overview

#### At a Glance

- An ultralight laptop all-metal design with recycled aluminum and magnesium alloys, that breaks the 1kg barrier (250 nit panel, HP Sure View Reflect, multiple SODIMMs, WWAN, 53Whr battery, and backlit keyboard not available on configurations starting at less than 1kg )
- Choice of AMD Ryzen™ 4000 Series Mobile Processors
- Preinstalled with Windows 10 versions or FreeDOS
- Choice of 33.8 cm (13.3") diagonal ultra wide viewing angle FHD and privacy panel option
- Supports wireless options for connectivity on the go including gigabit-speed Wi-Fi 6 and CAT9 4G/LTE WWAN
- Fast and upgradeable dual channel DDR4 SODIMM memory up to 32GB
- Choice of solid state drives up to 1TB
- Features quiet and responsive HP Premium Keyboard with the HP Programmable key and backlit options
- Multi-layered security with HP SureStart Gen6, HP Privacy Camera, HP Sure View Reflect<sup>1</sup>, HP Sure Recover, HP Sure Run, HP Sure Sense, HP Sure Click, and Touch Fingerprint sensor<sup>2</sup>
- Supports fast charging (50% in 30 minutes) with no impact on battery recharge cycles<sup>3</sup>
- Designed to support HP docking options
- Passed MIL-STD 810H tests<sup>4</sup>
- Battery life up to 23 hours (AMD Ryzen™ 4000 Series Mobile Processors and 3-cell 53 WHr battery)
- Enables AMD Memory Guard to help defend against cold boot attacks with real-time encryption and decryption of system's memory with AMD Ryzen PRO Processors

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

2. Sold separately or as an optional feature

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

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

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

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## Technical Specifications

### PRODUCT NAME

HP ProBook 635 Aero G7 Notebook PC

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### OPERATING SYSTEMS

#### Preinstalled

Windows 10 Pro 64 – HP recommends Windows 10 Pro<sup>1</sup>  
Windows 10 Pro 64 (National Academic only)<sup>2</sup>  
Windows 10 Home 64<sup>1</sup>  
Windows 10 Home Single Language 64<sup>1</sup>  
Windows 10 Pro (Windows 10 Enterprise available with a Volume Licensing Agreement)<sup>1</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 10 is automatically updated, which is always enabled. ISP fees may apply and additional requirements may apply over time for updates. See <http://www.windows.com>.

2. Some devices for academic use will automatically be updated to Windows 10 Pro Education with the Windows 10 Anniversary Update. Features vary; see <https://aka.ms/ProEducation> for Windows 10 Pro Education feature information.

Note: HP tested Windows 10, version 1809 on this platform. For testing information on newer versions of Windows 10, please see <https://support.hp.com/document/c05195282>.

#### Supported Versions

HP tested Windows 10, version 1809 on this platform. For testing information on newer versions of Windows 10, please see <https://support.hp.com/document/c05195282>

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### PROCESSORS

AMD Ryzen™ 3 4300U APU with Radeon™ Graphics (2.7 GHz base clock, up to 3.7 GHz max boost clock, 4 MB L3 cache, 4 cores)<sup>3,4,5</sup>

AMD Ryzen™ 5 4500U APU with Radeon™ Graphics (2.3 GHz base clock, up to 4.0 GHz max boost clock, 8 MB L3 cache, 6 cores)<sup>3,4,5</sup>

AMD Ryzen™ 7 4700U APU with Radeon™ Graphics (2.0 GHz base clock, up to 4.1 GHz max boost clock, 8 MB L3 cache, 8 cores)<sup>3,4,5</sup>

AMD Ryzen™ 5 PRO 4650U APU with Radeon™ Graphics (2.1 GHz base clock, up to 4 GHz max boost clock, 8 MB L3 cache, 6 cores)<sup>3,4,5</sup>

AMD Ryzen™ 7 PRO 4750U APU with Radeon™ Graphics (1.7 GHz base clock, up to 4.1 GHz max boost clock, 8 MB L3 cache, 8 cores)<sup>3,4,5</sup>

#### Processors Family

AMD Ryzen™ 4000 Series Mobile Processors<sup>40</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. AMD's numbering is not a measurement of clock speed..

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

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## Technical Specifications

5. Max Boost clock frequency performance varies depending on hardware, software and overall system configuration.  
40. 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>.

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### CHIPSET

Chipset is integrated with processor

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### GRAPHICS

#### Integrated

AMD Radeon™ Graphics<sup>6</sup>

#### Supports

Support HD decode, DX12, HDMI2.0

6. HD content required to view HD images.

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### DISPLAYS

#### Internal

##### Non-Touch

33.8 cm (13.3") diagonal FHD UWVA eDP anti-glare WLED-backlit bent, 250 nits, 45% NTSC (1920 x 1080) <sup>6,7,8</sup>

33.8 cm (13.3") diagonal FHD UWVA eDP anti-glare WLED-backlit bent, 250 nits, 45% NTSC for HD camera (1920 x 1080) <sup>6,7,8</sup>

33.8 cm (13.3") diagonal FHD UWVA eDP anti-glare WLED-backlit bent, 250 nits, 45% NTSC for HD + IR camera (1920 x 1080) <sup>6,7,8</sup>

33.8 cm (13.3") diagonal FHD UWVA eDP+PSR anti-glare, low power bent with Ambient Light Sensor, 400 nits, 100% sRGB for HD + IR camera (1920 x 1080) <sup>8,11</sup>

33.8 cm (13.3") diagonal FHD UWVA eDP+PSR anti-glare, low power bent with Ambient Light Sensor, 400 nits, 100% sRGB for HD + IR camera for WWAN (1920 x 1080) <sup>8,11</sup>

33.8 cm (13.3") diagonal FHD UWVA eDP + PSR anti-glare WLED-backlit bent, 1000 nits with HP Sure View Reflect Integrated Privacy Screen, 72% NTSC with Ambient Light Sensor and HD + IR camera (1920 x 1080) <sup>6,7,8,9</sup>

33.8 cm (13.3") diagonal FHD UWVA eDP + PSR anti-glare WLED-backlit bent, 1000 nits with HP Sure View Reflect Integrated Privacy Screen, 72% NTSC with Ambient Light Sensor and HD + IR camera for WWAN (1920 x 1080) <sup>6,7,8,9</sup>

#### HDMI

Support resolution up to 4k @ 60Hz

6. HD content required to view HD images.

7. Sold separately or as an optional feature.

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

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

NOTE: Actual brightness will be lower with touchscreen or Sure View.

### Technical Specifications

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#### STORAGE AND DRIVES

##### Primary M.2 Storage

- 128 GB M.2 SATA-3 TLC Solid State Drive <sup>10</sup>
- 256 GB PCIe® Gen3x4 NVMe™ TLC Solid State Drive<sup>10</sup>
- 256 GB PCIe® NVMe™ Value Solid State Drive <sup>10</sup>
- 512 GB PCIe® Gen3x4 NVMe™ TLC Solid State Drive<sup>10</sup>
- 512 GB PCIe® NVMe™ Value Solid State Drive <sup>10</sup>
- 1 TB PCIe® Gen3 x4 NVMe™ TLC Solid State Drive<sup>10</sup>

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

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#### MEMORY

##### Maximum Memory

32 GB DDR4-3200 SDRAM

##### Memory

- 32 GB DDR4-3200 SDRAM (2 x 16 GB) <sup>11</sup>
- 16 GB DDR4-3200 SDRAM (1 x 16 GB)
- 16 GB DDR4-3200 SDRAM (2 x 8 GB) <sup>11</sup>
- 8 GB DDR4-3200 SDRAM (1 x 8 GB)
- 8 GB DDR4-3200 SDRAM (2 x 4 GB)<sup>11</sup>
- 4 GB DDR4-3200 SDRAM (1 x 4 GB)

##### Memory Slots

2 SODIMM

Both slots are accessible/upgradeable by IT or self-maintainers only

DDR4 SODIMMS, system runs at 3200

Supports Dual Channel Memory

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

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### Technical Specifications

#### NETWORKING/COMMUNICATIONS

##### WLAN

Intel® AX200 Wi-Fi 6 (2x2) and Bluetooth® 5 Combo, non-vPro®<sup>12</sup>  
Realtek RTL8822CE 802.11ac (2x2) and Bluetooth® 5 Combo<sup>43</sup>

##### WWAN

Intel® XMM™ 7360 LTE-Advanced Cat 9<sup>14</sup>

12. 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. The specifications for Wi-Fi 6 (802.11ax) are draft and are not final. If the final specifications differ from the draft specifications, it may affect the ability of the notebook to communicate with other 802.11ax devices.

43. Wireless access point and internet service required and sold separately. Availability of public wireless access points limited. Wi-Fi 5 (802.11ac) is backwards compatible with prior 802.11 specs.

14. 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.

#### AUDIO/MULTIMEDIA

##### Audio

Integrated microphone (Dual Array)  
2 Integrated Stereo Speakers

##### Speaker Power

2W/4ohm Per speaker

##### Camera

720p HD camera<sup>6,7</sup>  
720p HD+IR camera<sup>6,7,15</sup>

##### Sensors

Ambient light sensor (select models only)  
Hall Sensor

6. HD content required to view HD images.

7. Sold separately or as an optional feature.

15. Internet access required.

### Technical Specifications

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

**Keyboard**

HP Premium Keyboard, spill resistant, Durakeys

Optional backlit keyboard

**Pointing Device**

Clickpad with multi-touch gestures enabled, taps enabled as default

Microsoft Precision Touchpad Default Gestures Support

**Function Keys**

F1 - Display Switching

F2 - Blank or Privacy (with LED)

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 Programmable Key

Print Screen

Power Button (with LED)

**Hidden Function Keys**

Fn+R - Break

Fn+S - Sys Rq

Fn+C - Scroll Lock

Fn+E - Insert

Fn+W - Pause

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

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## Technical Specifications

### SOFTWARE AND SECURITY

HP BIOSphere Gen5 <sup>16</sup>  
HP Drive Lock & Automatic Drive Lock  
BIOS Update via Network  
Master Boot Record Security  
Power On Authentication  
HP Secure Erase <sup>18</sup>  
Absolute Persistence Module<sup>19</sup>  
HP LAN-Wireless Protection  
Pre-boot Authentication

#### Software

HP Connection Optimizer <sup>17</sup>  
HP Image Assistant  
HP Hotkey Support  
myHP  
HP Support Assistant <sup>20</sup>  
HP Noise Cancellation Software  
HSA Fusion for Commercial  
HSA Telemetry for Commercial  
Touchpoint Customizer for Commercial  
HP Notifications  
HP Privacy Settings  
HP Wireless Button Driver  
HP Power Manager  
HP WorkWell  
Buy Office (sold separately)  
HP Smart Support <sup>44</sup>

#### Manageability Features

HP Driver Packs (download) <sup>21</sup>  
HP Manageability Integration Kit Gen3 (download) <sup>22</sup>  
HP System Software Manager (SSM) (download)  
HP BIOS Config Utility (BCU) (download)  
HP Client Catalog (download)  
HP Client Management Script Library (download)

#### Client Security Software

HP Client Security Manager Gen6 <sup>23</sup>  
Windows Defender <sup>24</sup>

#### Security Management

Pre-boot Authentication  
USB enable/disable (via BIOS)  
Power-on password (via BIOS)  
Setup password (via BIOS)  
HP Fingerprint Sensor <sup>25</sup>  
Support for chassis padlocks and cable lock devices  
HP Pro Security Edition

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## Technical Specifications

HP Sure Click <sup>26</sup>

HP Sure Sense <sup>27</sup>

HP Sure Start Gen6 <sup>28</sup>

HP Sure Admin <sup>29</sup>

HP Sure Recover Gen3 <sup>30</sup>

HP Sure Run Gen3 <sup>31</sup>

TPM 2.0 Embedded Security Chip shipped with Windows 10 (Common Criteria EAL4+ Certified) (FIPS 140-2 Level 2 Certified) <sup>32</sup>

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

UEFI version: 2.7

Class: Class 3

16. HP BIOSphere Gen5 is available on select HP Pro and Elite PCs. See product specifications for details.

Features may vary depending on the platform and configurations.

17. HP Connection Optimizer requires Windows 10.

18. 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™.

19. 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/>

20. HP Support Assistant requires Windows and Internet access.

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

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

23. HP Client Security Manager Gen6 requires Windows and is available on the select HP Pro and Elite PCs.

24. Windows Defender Opt in and internet connection required for updates.

25. HP Fingerprint sensor is an optional feature that must be configured at purchase.

26. HP Sure Click requires Windows 10 Pro or Enterprise and supports Microsoft® Internet Explorer, Google Chrome, and Chromium™. Supported attachments include Microsoft Office (Word, Excel, PowerPoint) and PDF files in read only mode, when Microsoft Office or Adobe Acrobat are installed.

27. HP Sure Sense requires Windows 10 Pro or Enterprise.

28. HP Sure Start Gen6 is available on select HP PCs.

29. HP Sure Admin requires Windows 10, 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.

30. HP Sure Recover Gen3 is available on select HP PCs and requires an open network connection. You must back up important files, data, photos, videos, etc. before using HP Sure Recover to avoid loss of data.

31. HP Sure Run Gen3 is available on select Windows 10 based HP Pro, Elite and Workstation PCs with select Intel® or AMD processors.

32. Firmware TPM is version 2.0.

44. HP Smart Support is available to commercial customers through your HP Service Representative and HP Factory Configuration Services; or it can be downloaded at: <http://www.hp.com/smart-support>. HP Smart Support automatically collects the telemetry necessary upon initial boot of the product to deliver device-level configuration data and health insights.

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## Technical Specifications

### POWER

#### Power Supply

HP Smart 45 W External AC power adapter <sup>33</sup>

HP Smart 45 W External AC power adapter, 2-prong (Japan only) <sup>33</sup>

HP Smart 45 W USB Type-C® adapter <sup>33</sup>

HP Smart 65 W External AC power adapter <sup>33</sup>

HP Smart 65 W EM External AC power adapter <sup>33</sup>

HP Smart 65 W USB Type-C® adapter <sup>33</sup>

#### Primary Battery

HP Long Life 3-cell, 42 Wh Li-ion <sup>34,35</sup>

HP Long Life 3-cell, 53 Wh Li-ion <sup>34,35</sup>

Support HP Fast Charge (Up to 50% in 30 minutes with 65W AC Adapter) <sup>34,35</sup>

#### Power Cord

3-wire plug – 1.0m <sup>33</sup>

2-wire plug – 1.0m <sup>33</sup>

#### Battery life

MM14 Battery life<sup>36</sup>

42Whr battery: Up to 18 hours

53Whr battery: Up to 23 hours

MM18 Battery life<sup>36</sup>

42Whr battery: Up to 11 hours

53Whr battery: Up to 15 hours<sup>36</sup>

#### Battery Weight

42W battery: 0.168 kg (0.37 lb)

53W battery: 0.205g (0.45 lb)

33. Availability may vary by country.

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

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

36. Windows 10 MM18 battery life and Windows 10 MM14 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.

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## Technical Specifications

### WEIGHTS & DIMENSIONS

**Product Weight**Starting at 2.2 lb <sup>37</sup>Starting at 0.99 kg <sup>37</sup>**Product Dimensions (w x d x h)**

400 nits and 1000 nits panels:

12.11 x 8.05 x 0.71 in

30.76 x 20.45 x 1.79 cm

250 nits panels:

12.11 x 8.05 x 0.76 in

30.76 x 20.45 x 1.92 cm

[37. Weight will vary by configuration.](#)

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### PORTS/SLOTS

**Ports**1 USB 3.1 Type-C<sup>®</sup> Gen2 (Power delivery, DisplayPort™ 1.4)

2 USB 3.1 Gen 1 (1 charging port)

1 HDMI 2.0 <sup>38</sup>

1 Headphone/microphone combo

1 AC power

1 Nano SIM card slot <sup>39</sup>

[38. HDMI cable sold separately.](#)

[39. SIM slot is not user accessible without WWAN configuration.](#)

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### SERVICE AND SUPPORT

HP Services offers 3-year and 1-year limited warranties and 90 day software limited warranty options depending on country. Batteries have a default one year limited warranty except for Long Life Batteries which will have same 1-year or 3-year limited warranty as the platform. 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>40</sup>

[40. 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

#### **CERTIFICATION AND COMPLIANCE**

ENERGY STAR® certified  
EPEAT® Gold in the U.S.<sup>41</sup>  
Low halogen<sup>42</sup>  
TCO Certified

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

42. External power supplies, power cords, cables and peripherals are not Low Halogen. Service parts obtained after purchase may not be Low Halogen.

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## Technical Specifications

### SYSTEM UNIT

#### Stand-Alone Power Requirements (AC Power)

Nominal Operating Voltage	19 V
Average Operating Power	2.82W
Integrated graphics	6.78W
Discrete Graphics	N/A
Max Operating Power	UMA < 45W

#### Temperature

Operating	41° to 95° F (5° to 35° C)
Non-operating	-4° to 140° F (-20° to 60° C)

#### Relative Humidity

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

#### Shock

Operating	40 G, 2 ms, half-sine
Non-operating	200 G, 2 ms, half-sine

#### Random Vibration

Operating	0.75 grms
Non-operating	1.50 grms

#### Altitude (unpressurized)

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)

#### Planned Industry Standard Certifications

UL	Yes
CSA	Yes
FCC Compliance	Yes
ENERGY STAR®	Select models <sup>42</sup>
EPEAT®	EPEAT® 2019 Gold in U.S. <sup>41</sup>
ICES	Yes
Australia /	Yes
NZ A – Tick Compliance	Yes
CCC	Yes
Japan VCCI Compliance	Yes
KC	Yes
BSMI	Yes
CE Marketing Compliance	Yes
BNCI or BELUS	Yes
CIT	Yes
GOST	Yes
Saudi Arabian Compliance (ICCP)	Yes
SABS	Yes

42. Configurations of the HP ProBook 635 Aero G7 that are ENERGY STAR® qualified are identified as P ProBook 635 Aero G7 ENERGY STAR on HP websites and on <http://www.energystar.gov>.

### Technical Specifications

41. Based on US EPEAT® registration according to IEEE 1680.1-2018 EPEAT®. EPEAT® status varies by country. Visit [www.epeat.net](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. Actual brightness will be lower with touchscreen or Sure View.

<b>Panel LCD 13.3 inch FHD (1920x1080) Anti-Glare WLED UWVA 45percent cg 250nits eDP 1.2 w/o PSR bent NWBZ</b>	<b>Outline Dimensions (W x H x D)</b>	300.56 x 177.77 mm (max) (FPC folding included)
	<b>Active Area</b>	293.76 x 165.24 mm (typ.)
	<b>Weight</b>	260 g (max)
	<b>Diagonal Size</b>	13.3 inch
	<b>Thickness</b>	3.0 mm/ 5.0 mm (PCB) (max)
	<b>Interface</b>	eDP 1.2 (2lane)
	<b>Surface Treatment</b>	Anti-Glare
	<b>Touch Enabled</b>	No
	<b>Contrast Ratio</b>	600:1 (typ.)
	<b>Refresh Rate</b>	60 Hz
	<b>Brightness</b>	250 nits
	<b>Pixel Resolution</b>	1920 x 1080 (FHD)
	<b>Format</b>	RGB Stripe
	<b>Backlight</b>	LED
	<b>Color Gamut Coverage</b>	NTSC 45%
	<b>Color Depth</b>	6 bits
	<b>Viewing Angle</b>	UWVA 85/85/85/85

<b>Panel LCD 13.3 inch FHD (1920x1080) Anti-Glare WLED UWVA sRGB 100percent cg 400nits eDP 1.4+PSR2 bent LP NB2Y</b>	<b>Outline Dimensions (W x H x D)</b>	299.06 x 176.54 mm (max) (FPC folding included)
	<b>Active Area</b>	293.76 x 165.24 mm (typ.)
	<b>Weight</b>	175 g (max)
	<b>Diagonal Size</b>	13.3 inch
	<b>Thickness</b>	2.0 mm / 3.8 mm (PCB) (max)
	<b>Interface</b>	eDP 1.4 w/ PSRII (2 lane)
	<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>	400 nits
	<b>Pixel Resolution</b>	1920 x 1080 (FHD)
	<b>Format</b>	RGB Stripe
	<b>Backlight</b>	LED
	<b>Color Gamut Coverage</b>	sRGB 100%

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## Technical Specifications

<b>Color Depth</b>	8 bits
<b>Viewing Angle</b>	UWVA 85/85/85/85

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**Panel LCD 13.3inch FHD  
(1920x1080) Anti-Glare  
WLED UWVA 72percent cg  
1000nits eDP 1.4+PSR  
PrivacyG4**

<b>Outline Dimensions (W x H x D)</b>	299.06 x 176.54 mm (max)
<b>Active Area</b>	293.76 x 165.24 mm (typ.)
<b>Weight</b>	220 g (max)
<b>Diagonal Size</b>	13.3 inch
<b>Thickness</b>	3.9 mm (max)
<b>Interface</b>	eDP 1.4 + PSR (4 lane)
<b>Surface Treatment</b>	Anti-glare (AG)
<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</b>	1920 x 1080 (FHD)
<b>Format</b>	RGB
<b>Backlight</b>	LED
<b>Color Gamut Coverage</b>	NTSC 72%
<b>Color Depth</b>	8 bits
<b>Viewing Angle</b>	UWVA 85/85/85/85

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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) is reserved for system recovery software.

<b>SSD 128GB 2280 M2 SATA-3 TLC</b>	<b>Form Factor</b>	M.2 2280
	<b>Capacity</b>	128 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>	ATA-8, SATA 3.0
	<b>Maximum Sequential Read</b>	550 ~ 560 MB/s
	<b>Maximum Sequential Write</b>	380 ~ 530 MB/s
	<b>Logical Blocks</b>	250,069,680
	<b>Operating Temperature</b>	32° to 158°F (0° to 70°C) [ambient temp]
<b>Features</b>	ATA Security; DIPM; TRIM; DEVSLP	

<b>SSD 1TB 2280 PCIe-3x4 NVMe Three Layer Cell single-sided</b>	<b>Form Factor</b>	M.2 2280
	<b>Capacity</b>	1 TB
	<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>	3100 ~ 3500 MB/s
	<b>Maximum Sequential Write</b>	2770 ~ 3037 MB/s
	<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>	ATA Security; 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>	Value
	<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 Gen3
	<b>Maximum Sequential Read</b>	2100 ~ 2200 MB/s

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Technical Specifications

<b>Maximum Sequential Write</b>	900 ~ 1400 MB/s
<b>Logical Blocks</b>	500,118,192
<b>Operating Temperature</b>	32° to 158°F (0° to 70°C) [ambient temp]
<b>Features</b>	ATA Security (optional); TRIM; L1.2

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<b>SSD 512GB 2280 PCIe NVMe Value</b>	<b>Form Factor</b>	M.2 2280
	<b>Capacity</b>	512 GB
	<b>NAND Type</b>	Value
	<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 Gen3
	<b>Maximum Sequential Read</b>	2200 ~ 2300 MB/s
	<b>Maximum Sequential Write</b>	1000 ~ 1600 MB/s
	<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>	ATA Security (optional); TRIM; L1.2	

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<b>SSD 256GB 2280 M2 PCIe-3x4 SS NVMe TLC</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>Interface</b>	PCIe NVMe Gen3X4
	<b>Maximum Sequential Read</b>	2800 ~ 3500 MB/s
	<b>Maximum Sequential Write</b>	1400 ~ 2200 MB/s
	<b>Logical Blocks</b>	500,118,192
	<b>Operating Temperature</b>	32° to 158°F (0° to 70°C) [ambient temp]
	<b>Features</b>	ATA Security; TRIM; L1.2

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### Technical Specifications

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<b>SSD 512GB 2280 M2 PCIe-3x4 SS NVMe TLC</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>	3100 ~ 3500 MB/s
	<b>Maximum Sequential Write</b>	2400 ~ 2956 MB/s
	<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>	ATA Security; TRIM; L1.2

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### Technical Specifications

#### NETWORKING / COMMUNICATIONS

<p><b>Intel® Wi-Fi 6<sup>1</sup> AX200 + Bluetooth® 5 (802.11ax 2x2, non-vPro®, supporting gigabit file transfer speeds) non-vPro®<sup>2</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>Features Wi-Fi 6 technology</p>
	<p><b>Frequency Band</b></p>	<ul style="list-style-type: none"> <li>802.11b/g/n/ax                             <ul style="list-style-type: none"> <li>•2.402 – 2.482 GHz</li> </ul> </li> <li>802.11a/n/ac/ax                             <ul style="list-style-type: none"> <li>•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> </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</p>
	<p><b>Security<sup>3</sup></b></p>	<ul style="list-style-type: none"> <li>•IEEE compliant 64 / 128-bit WEP encryption for a/b/g mode only</li> <li>•AES-CCMP: 128 bit in hardware</li> <li>•802.1x authentication</li> <li>•WPA, WPA2: 802.1x. WPA-PSK, WPA2-PSK, TKIP, and AES.</li> <li>•WPA2 certification</li> <li>•WPA3 certification</li> <li>•IEEE 802.11i</li> <li>•WAPI</li> </ul>
	<p><b>Network Architecture 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>2</sup></b></p>	<ul style="list-style-type: none"> <li>• 802.11b: +18.5dBm minimum</li> <li>• 802.11g: +17.5dBm minimum</li> </ul>

### Technical Specifications

	<ul style="list-style-type: none"> <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> <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>• 802.11ac VHT160(5GHz): +11.5dBm minimum</li> <li>• 802.11ax HT40(2.4GHz): +10dBm minimum</li> <li>• 802.11ax VHT160(5GHz): +10dBm minimum</li> </ul>				
<b>Power Consumption</b>	<ul style="list-style-type: none"> <li>• Transmit mode: 2.0 W</li> <li>• Receive mode: 1.6 W</li> <li>• Idle mode (PSP) 180 mW (WLAN Associated)</li> <li>• Idle mode: 50 mW (WLAN unassociated)</li> <li>• Connected Standby/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>3</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(HT40): -59dBm maximum</li> <li>• 802.11ax, MCS11(VHT160): -58.5dBm maximum</li> </ul>				
<b>Antenna type</b>	<p>High efficiency antenna with spatial diversity, mounted in the display enclosure</p> <p>Two embedded dual band 2.4/5 GHz antennas are provided to the card to support WLAN MIMO communications and Bluetooth communications</p>				
<b>Form Factor</b>	PCI-Express M.2 MiniCard				
<b>Dimensions</b>	<ol style="list-style-type: none"> <li>1. Type 2230: 2.3 x 22.0 x 30.0 mm</li> <li>2. Type 1216: 1.67 x 12.0 x 16.0 mm</li> </ol>				
<b>Weight</b>	<ol style="list-style-type: none"> <li>1. Type 2230: 2.8 g</li> <li>2. Type 126: 1.3 g</li> </ol>				
<b>Operating Voltage</b>	3.3v +/- 9%				
<b>Temperature</b>	<table border="0"> <tbody> <tr> <td><b>Operating</b></td> <td>14° to 158° F (-10° to 70° C)</td> </tr> <tr> <td><b>Non-operating</b></td> <td>-40° to 176° F (-40° to 80° C)</td> </tr> </tbody> </table>	<b>Operating</b>	14° to 158° F (-10° to 70° C)	<b>Non-operating</b>	-40° to 176° F (-40° to 80° C)
<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>	<table border="0"> <tbody> <tr> <td><b>Operating</b></td> <td>10% to 90% (non-condensing)</td> </tr> <tr> <td><b>Non-operating</b></td> <td>5% to 95% (non-condensing)</td> </tr> </tbody> </table>	<b>Operating</b>	10% to 90% (non-condensing)	<b>Non-operating</b>	5% to 95% (non-condensing)
<b>Operating</b>	10% to 90% (non-condensing)				
<b>Non-operating</b>	5% to 95% (non-condensing)				
<b>Altitude</b>	<table border="0"> <tbody> <tr> <td><b>Operating</b></td> <td>0 to 10,000 ft (3,048 m)</td> </tr> <tr> <td><b>Non-operating</b></td> <td>0 to 50,000 ft (15,240 m)</td> </tr> </tbody> </table>	<b>Operating</b>	0 to 10,000 ft (3,048 m)	<b>Non-operating</b>	0 to 50,000 ft (15,240 m)
<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>	<p>LED Amber – Radio OFF</p> <p>LED Off – Radio ON</p>				

### Technical Specifications

1. Wireless access point and Internet service required and sold separately. Availability of public wireless access points limited. The specifications for Wi-Fi 6 (802.11ax WLAN) are draft specifications and are not final. If the final specifications differ from the draft specifications, it may affect the ability of the notebook to communicate with other 802.11ax WLAN devices. Only available in countries where 802.11ax is supported.
2. Wi-Fi supporting gigabit speeds is achievable when transferring files between two devices connected to the same router. Requires a wireless router, sold separately, that supports 160MHz channels.

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

<b>Bluetooth Specification</b>	4.0/4.1/4.2/5.0/5.1 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>Signaling Data Rate</b>	Legacy: 3 Mbps signaling data rate <sup>3</sup> 2.17 Mbps BLE: 1 Mbps signaling data rate <sup>1</sup> 0.2 Mbps <a href="#">3. Actual throughput may vary.</a>
	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 + 9.5 dBm for BR and EDR.

### Technical Specifications

<b>Realtek RTL8822CE 802.11ac 2x2 Wi-Fi + Bluetooth® 5<sup>4</sup></b>	<b>Wireless LAN Standards</b>	IEEE 802.11a IEEE 802.11b IEEE 802.11g IEEE 802.11n IEEE 802.11ac IEEE 802.11d IEEE 802.11e IEEE 802.11h IEEE 802.11i IEEE 802.11k IEEE 802.11r IEEE 802.11v
	<b>Interoperability</b>	Wi-Fi® CERTIFIED modules
	<b>Frequency Band</b>	<ul style="list-style-type: none"> <li>• 802.11b/g/n 2.402 – 2.482 GHz</li> <li>• 802.11a/n/ac 4.9 – 4.95 GHz (Japan) 5.15 – 5.25 GHz 5.25 – 5.35 GHz 5.47 – 5.725 GHz 5.825 – 5.850 GHz</li> </ul>
	<b>Data Rates</b>	<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 &amp; 80MHz)</li> </ul>
	<b>Modulation</b>	Direct Sequence Spread Spectrum BPSK, QPSK, CCK, 16-QAM, 64-QAM, 256-QAM
	<b>Security<sup>3</sup></b>	<ul style="list-style-type: none"> <li>• IEEE compliant 64 / 128-bit WEP encryption for a/b/g mode only</li> <li>• AES-CCMP: 128 bit in hardware</li> <li>• 802.1x authentication</li> <li>• WPA, WPA2: 802.1x. WPA-PSK, WPA2-PSK, TKIP, and AES.</li> <li>• WPA2 certification</li> <li>• WPA3 certification</li> <li>• IEEE 802.11i</li> <li>• WAPI</li> </ul>
	<b>Network Architecture Models</b>	Ad-hoc (Peer to Peer) Infrastructure (Access Point Required)
	<b>Roaming</b>	IEEE 802.11 compliant roaming between access points
	<b>Output Power<sup>2</sup></b>	<ul style="list-style-type: none"> <li>• 802.11b: +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> <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> </ul>

### Technical Specifications

<b>Power Consumption</b>	<ul style="list-style-type: none"> <li>• Transmit mode: 2.0 W</li> <li>• Receive mode: 1.6 W</li> <li>• Idle mode (PSP) 180 mW (WLAN Associated)</li> <li>• Idle mode: 50 mW (WLAN unassociated)</li> <li>• Connected Standby/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>• 802.11 b, 1Mbps: -93.5dBm maximum</li> <li>• 802.11 b, 11Mbps: -84dBm maximum</li> <li>• 802.11 a/g, 6Mbps: -86dBm maximum</li> <li>• 802.11 a/g, 54Mbps: -72dBm maximum</li> <li>• 802.11 n, MCS07: -67dBm maximum</li> <li>• 802.11 n, MCS15: -64dBm maximum</li> <li>• 802.11 ac, MCS0: -84dBm maximum</li> <li>• 802.11 ac, MCS9: -59dBm 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>	<ol style="list-style-type: none"> <li>1. Type 2230: 2.3 x 22.0 x 30.0 mm</li> <li>2. Type 1216: 1.67 x 12.0 x 16.0 mm</li> </ol>				
<b>Weight</b>	<ol style="list-style-type: none"> <li>1. Type 2230: 2.8 g</li> <li>2. Type 126: 1.3 g</li> </ol>				
<b>Operating Voltage</b>	3.3v +/- 9%				
<b>Temperature</b>	<table> <tr> <td><b>Operating</b></td> <td>14° to 158° F (-10° to 70° C)</td> </tr> <tr> <td><b>Non-operating</b></td> <td>-40° to 176° F (-40° to 80° C)</td> </tr> </table>	<b>Operating</b>	14° to 158° F (-10° to 70° C)	<b>Non-operating</b>	-40° to 176° F (-40° to 80° C)
<b>Operating</b>	14° to 158° F (-10° to 70° C)				
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<b>Humidity</b>	<table> <tr> <td><b>Operating</b></td> <td>10% to 90% (non-condensing)</td> </tr> <tr> <td><b>Non-operating</b></td> <td>5% to 95% (non-condensing)</td> </tr> </table>	<b>Operating</b>	10% to 90% (non-condensing)	<b>Non-operating</b>	5% to 95% (non-condensing)
<b>Operating</b>	10% to 90% (non-condensing)				
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<b>Altitude</b>	<table> <tr> <td><b>Operating</b></td> <td>0 to 10,000 ft (3,048 m)</td> </tr> <tr> <td><b>Non-operating</b></td> <td>0 to 50,000 ft (15,240 m)</td> </tr> </table>	<b>Operating</b>	0 to 10,000 ft (3,048 m)	<b>Non-operating</b>	0 to 50,000 ft (15,240 m)
<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				

<sup>4</sup>Wireless access point and internet service required and sold separately. Availability of public wireless access points limited. Wi-Fi 5 (802.11 ac) is backwards compatible with prior 802.11 specs.

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

<b>Bluetooth Specification</b>	4.0/4.1/4.2/5.0 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)



### Technical Specifications

**Signaling Data Rate**

Legacy: 3 Mbps signaling data rate<sup>5</sup> throughput up to 2.17 Mbps  
BLE: 1 Mbps signaling data rate<sup>1</sup> throughput up to 0.2 Mbps  
[5. Actual throughput may vary.](#)

Legacy: Synchronous Connection Oriented links up to 3, 64 kbps, voice channels

Legacy: Asynchronous Connection Less links 2178.1 kbps/177.1 kbps asymmetric (3-DH5) or 864 kbps symmetric (3-EV5)

**Transmit Power**

The Bluetooth component shall operate as a Class II Bluetooth device with a maximum transmit power of + 4 dBm for BR and EDR.

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 Technical Specifications

<b>Intel® XMM™ 7360 LTE-Advanced*</b>	<b>Technology/Operating bands</b>	FDD LTE: LTE: 2100 (Band 1), 1900 (Band 2), 1800 (Band 3), 1700 (Band 4), 850 (Band 5), 2600 (Band 7), 900 (Band 8), 1400 (Band 11), 700 (Band 12), 700 (Band 13) 700 (Band 17), 850 (Band 18), 850 (Band 19), 800 (Band 20), 1450 (Band 21), 850 (Band 26) 700 (Band 28) MHz, 700 (Band 29), 2300 (Band 30), 2100 (Band 66) MHz TDD LTE: 2600 (Band 38), 1900 (Band 39), 2300 (Band 40), 2500 (Band 41) MHz HSPA+: 2100 (Band 1), 1900 (Band 2), 1700 (Band 4), 850 (Band 5), 900 (Band 8) MHz
	<b>Wireless protocol standards</b>	3GPP Release 11 LTE Specification CAT.9, MAX 60MHz aggregation BW WCDMA R99, 3GPP Release 5, 6, 7 and 8 UMTS Specification
	<b>GPS</b>	Standalone, A-GPS (MS-B and LTO)
	<b>GPS bands</b>	GPS 1575.42 MHz ± 1.023 MHz, GLONASS 1596-1607MHz, Beidou 1561.098 ± 2.046 MHz
	<b>Maximum data rates</b>	LTE: 450 Mbps (DL 3CA), 50 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 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

\* 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.

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 Technical Specifications
**POWER**

<b>AC Adapter 45 Watt Smart nPFC Standard Barrel 4.5mm Right Angle 1.8m</b>	<b>Dimensions</b>	95 x 45 x 26.8 mm	
	<b>Weight</b>	200 g +/- 10 g	
<b>Output</b>	<b>Input</b>	<b>Input Efficiency</b> 87.74 % at 115 Vac and 88.4 % at 230Vac	
		<b>Input frequency range</b> 47 ~ 63 Hz	
		<b>Input AC current</b> Max. 1.4 A at 90 Vac	
		<b>Output power</b> 45 W	
		<b>DC output</b> 19.5 V	
		<b>Hold-up time</b> 5 ms at 115 Vac input	
		<b>Output current limit</b> <8.0A	
	<b>Connector</b>	4.5mm Barrel Type	
	<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>EMI and Safety Certifications</b>	<b>Storage Humidity</b>	10% to 95%	
		CE Mark - full compliance with LVD and EMC directives Worldwide safety standards - IEC60950, EN60950, UL60950, Class1, SELV; Agency approvals - C-UL-US, NORDICS, DENAN, EN55022 Class B, FCC Class B, CISPR22 Class B, CCC, NOM-1 NYCE. MTBF - over 200,000 hours at 25°C ambient condition.	

### Technical Specifications

<b>AC Adapter 45 Watt Smart nPFC Standard Barrel 4.5mm Right Angle 1.8m 2prong</b>	<b>Dimensions</b>	95 x 45 x 26.8 mm	
	<b>Weight</b>	200 g +/- 10 g	
	<b>Input</b>	<b>Input Efficiency</b>	87.74 % at 115 Vac and 88.4 % at 230Vac
		<b>Input frequency range</b>	47 ~ 63 Hz
	<b>Output</b>	<b>Input AC current</b>	Max. 1.4 A at 90 VAC
		<b>Output power</b>	45 W
		<b>DC output</b>	19.5 V
		<b>Hold-up time</b>	5 ms at 115 Vac input
		<b>Output current limit</b>	<8.0A
	<b>Connector</b>	4.5mm Barrel Type	
<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>	<p>CE Mark - full compliance with LVD and EMC directives</p> <p>Worldwide safety standards - IEC60950, EN60950, UL60950, Class1, SELV; Agency approvals - C-UL-US, NORDICS, DENAN, EN55022 Class B, FCC Class B, CISPR22 Class B, CCC, NOM-1 NYCE.</p> <p>MTBF - over 200,000 hours at 25°C ambient condition.</p>		

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 Technical Specifications

<b>AC Adapter 65 Watt Smart nPFC Standard Barrel 4.5mm Right Angle 1.8m</b>	<b>Dimensions (H x W x D)</b>	90 x 51 x 28.5mm
	<b>Weight</b>	230g +/-10%
	<b>Input</b>	<b>Input Efficiency</b> 88.0 % at 115 Vac and 89.0 % at 230 Vac
		<b>Input frequency range</b> 47 ~ 63 Hz
		<b>Input AC current</b> Max. 1.7 A at 90 Vac
<b>Output</b>	<b>Output power</b>	65W
	<b>DC output</b>	19.5V
	<b>Hold-up time</b>	5 ms at 115 Vac input
	<b>Output current limit</b>	<11.0A
<b>Connector</b>	4.5mm Barrel Type	
<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 5,000 m)
	<b>Humidity</b>	20% to 95%
	<b>Storage Humidity</b>	10% to 95%
<b>EMI and Safety Certifications</b>	CE Mark - full compliance with LVD and EMC directives Worldwide safety standards - IEC60950, EN60950, UL60950, Class1, SELV; Agency approvals - C-UL-US, NORDICS, DENAN, EN55022 Class B, FCC Class B, CISPR22 Class B, CCC, NOM-1 NYCE. MTBF - over 200,000 hours at 25°C ambient condition.	

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### Technical Specifications

<b>AC Adapter 65 Watt Smart nPFC EM Barrel 4.5mm New EM</b>	<b>Dimensions (H x W x D)</b>	102 x 55 x 30mm	
	<b>Weight</b>	250g +/-10%	
	<b>Input</b>	<b>Input Efficiency</b>	88.0 % at 115 Vac and 89.0 % at 230 Vac
		<b>Input frequency range</b>	47 ~ 63 Hz
		<b>Input AC current</b>	Max. 1.7 A at 90 Vac
	<b>Output</b>	<b>Output power</b>	65W
		<b>DC output</b>	19.5V
		<b>Hold-up time</b>	5 ms at 115 Vac input
		<b>Output current limit</b>	<11.0A
	<b>Connector</b>	4.5mm Barrel Type	
	<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 5,000 m)
		<b>Humidity</b>	20% to 95%
	<b>Storage Humidity</b>	10% to 95%	
<b>EMI and Safety Certifications</b>	CE Mark - full compliance with LVD and EMC directives Worldwide safety standards - IEC60950, EN60950, UL60950, Class1, SELV; Agency approvals - C-UL-US, NORDICS, DENAN, EN55022 Class B, FCC Class B, CISPR22 Class B, CCC, NOM-1 NYCE. MTBF - over 200,000 hours at 25°C ambient condition.		

<b>AC Adapter 45 Watt nPFC Standard USB Type-C® Straight 1.8m</b>	<b>Dimensions (H x W x D)</b>	94.0 x 40.0 x 26.5 mm	
	<b>Weight</b>	192.5g +/-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: 87.41% 15V: 87.8%
		<b>Input frequency range</b>	47 ~ 63 Hz
		<b>Input AC current</b>	Max. 1.4 A at 90 Vac
		<b>Output</b>	<b>Output power</b>
		<b>DC output</b>	5V/9V/12V/15V
		<b>Hold-up time</b>	5 ms at 115 Vac input

### Technical Specifications

<b>Connector</b>	USB Type-C®
<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 5,000 m) <b>Humidity</b> 20% to 95% <b>Storage Humidity</b> 10% to 95%
<b>EMI and Safety Certifications</b>	CE Mark - full compliance with LVD and EMC directives Worldwide safety standards - IEC60950, EN60950, UL60950, Class1, SELV; Agency approvals - C-UL-US, NORDICS, DENAN, EN55022 Class B, FCC Class B, CISPR22 Class B, CCC, NOM-1 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</b>	90.0 x 51 x 28.5mm
	<b>Weight</b>	250 g +/- 10 g
	<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> 65 W <b>DC output</b> 5V/9V/12V/15V/20V <b>Hold-up time</b> 5 ms at 115 Vac input <b>Output current limit</b> 8.0A Max.
	<b>Connector</b>	USB Type C®
	<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>	CE Mark - full compliance with LVD and EMC directives Worldwide safety standards - IEC60950, EN60950, UL60950, Class1, SELV; Agency approvals - C-UL-US, NORDICS, DENAN, EN55022 Class B, FCC Class B, CISPR22 Class B, CCC, NOM-1 NYCE. MTBF - over 200,000 hours at 25°C ambient condition.

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Technical Specifications

<b>Battery CC 3 Cell WHr 53 Long Life -PL Fast Charge</b>	<b>Dimensions (H x W x L)</b>	7.3 x 52.9 x 267.11mm (0.287 x 2.082 x 10.516 inch)
	<b>Weight</b>	0.205kg (0.45 lb)
	<b>Cells/Type</b>	3cell Lithium-Ion Polymer cell / 645180
	<b>Voltage</b>	11.55V
	<b>Amp-hour capacity</b>	4.59Ah
	<b>Watt-hour capacity</b>	53Wh
	<b>Temperature</b>	32° to 113° F (0° to 45° C)
	<b>Operating (Charging)</b>	32° to 122° F (0° to 50° C)
	<b>Operating (Discharging)</b>	14° to 140° F (-10° to 60° C)
	<b>Warranty</b>	Depends on system offering
	<b>Optional Travel Battery Available</b>	No

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<b>Battery GR 3 Cell WHr 42 Long Life -PL Fast Charge</b>	<b>Dimensions (H x W x L)</b>	5.8 x 61.5 x 274.4 mm (0.228 x 2.42 x 10.80 inch)
	<b>Weight</b>	0.168 kg (0.37 lb)
	<b>Cells/Type</b>	3cell Lithium-Ion Polymer cell / 485083
	<b>Energy</b>	
	<b>Voltage</b>	11.4V
	<b>Amp-hour capacity</b>	3.64Ah
	<b>Watt-hour capacity</b>	42Wh
	<b>Temperature</b>	
	<b>Operating (Charging)</b>	32° to 113° F (0° to 45° C)
	<b>Operating (Discharging)</b>	14° to 122° F (-10° to 60° C)
		<b>Warranty:</b> Depends on system offering
<b>Fuel Gauge LED</b>	NA	

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### Technical Specifications

#### FINGERPRINT READER

<b>Model</b>	Synaptics Validity VFS7604 touch sensor
<b>Mobile Voltage Operation</b>	3.0V to 3.6V
<b>Operating Temperature:</b>	0~60°C
<b>Current Consumption Image:</b>	100mA Max
<b>Low Latency Wait For Finger</b>	260 uA
<b>Capture Rate: Image transmitter output frequency</b>	9.6MHz
<b>ESD Resistance</b>	IEC 61000-4-2 4B (+/-15KV)
<b>Detection Matrix</b>	363 dpi / 7.4x6mm sensor area
<b>FRR (False Reject Rate) / FAR (False Acceptance Rate)</b>	FRR <1% @ 1:50K FAR

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#### Country of Origin

China

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

Type	Description	Part Number
<b>Cases</b>	HP Prelude Pro Top Load	1X645AA
	HP Prelude Pro Backpack	1X644AA
	HP Business Backpack (17.3")	2SC67AA
	HP Business Case (15.6")	2SC66AA
	HP Business Slim Top Load (14.1")	2SC65AA
	HP 14.1 Business Sleeve	2UW01AA
	HP 13.3 Business Sleeve	2UW00AA
<b>Docking</b>	HP USB-C Mini Dock	1PM64AA
	HP Thunderbolt Dock 120W G2	2UK37AA
	HP TB Dock G2 w/ Combo Cable	3TR87AA
	HP TB Dock 120W G2 w/Audio	3YE87AA
	HP TB Dock 120W G2 Cable	3XB94AA
	HP TB Dock G2 Combo Cable	3XB96AA
	HP TB Dock G2 Audio Module	3AQ21AA
	HP USB-C/A Universal Dock G2	5TW13AA
	HP USB-C Dock G5	5TW10AA
<b>Input/Output</b>	HP USB Essential Keyboard and Mouse	H6L29AA
	HP Ultra Mobile Wireless Mouse	H6F25AA#xxx
	HP Bluetooth Travel Mouse	6SP30AA
	HP Comfort Grip Wireless Mouse	H2L63AA
	HP Wired Desktop 320M Mouse	9VA80AA
	HP USB Travel Mouse	G1K28AA
	HP HDMI to DVI Adapter	F5A28AA
	HP Elite USB-C Hub	4WX89AA
	HP USB-C Travel Hub G2	7PJ38AA
	HP USB to Gig RJ45 Adapter	N7P47AA
	HP USB-C to RJ45 Adapter	V7W66AA
<b>Power</b>	HP 45W Smart AC Adapter 4.5mm	H6Y88AA#xxx
	HP 45W Smart Power Adapter 2 prong -4.5mm (Japan only)	L6F60AA#ABJ
	HP 65W Smart Power Adapter (w/ 4.5mm to 7.5mm DC dongle)	H6Y89AA
	HP 65W Slim AC Adapter	H6Y82AA#xxx
	HP 65W USB-C Slim Power Adapter	3PN48AA#xxx
	HP 65W USB-C Power Adapter	1HE08AA#xxx
	HP 45W USB-C Power Adapter	1HE07AA#xxx
	HP Power Bank	N9F71AA#xxx

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

<b>Storage</b>	HP External USB Optical Drive	F2B56AA
	HP 1TB TLC PCIe 3x4 NVMe M.2 Solid State Drive	6SK99AA
	HP 2TB TLC PCIe 3x4 NVMe M.2 Solid State Drive	6SL00AA
<b>Memory</b>	HP 4GB DDR4 3200 Memory	286H5AA
	HP 8GB DDR4 3200 Memory	286H8AA
	HP 16GB DDR4 3200 Memory	286J1AA
<b>Security</b>	HP Sure Key Cable Lock	6UW42AA
	HP Nano Keyed Cable Lock	1AJ39AA
<b>UCC</b>	HP UC Speaker Phone	4VW02AA

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### Summary of Changes

<b>Date of change:</b>	<b>Version History:</b>		<b>Description of change:</b>
October 13, 2020	V1 to V2		Overview, At a glance and Port sections updated
October 29, 2020	V2 to V3		At a glance, Power, Dimensions section updated
January 21, 2021	V3 to V4	Added	WPA3 certification in Security, Networking section
April 20, 2021	V4 to V5	Updated	Memory Section and Input/ Output Section Updated
April 26, 2021	V5 to V6	Updated	BIOS Information in Software section
May 6, 2021	V6 to V7	Added	HP Smart Support

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