

## Overview

HP ProBook x360 11 G5 EE



- 1. **Webcam LED**
- 2. **720p Webcam or optional HP Privacy Camera**
- 3. **Microphone**
- 4. **ClickPad**
- 5. **World-facing 5 Megapixels Webcam (Optional)**

*Left*

- 6. **World-facing Webcam LED (Optional)**
- 7. **Power Button**
- 8. **Headphone / Microphone Combo Jack**
- 9. **USB 3.1 Gen 1 Port**
- 10. **Security Lock Slot (Nano lock sold separately)**

## Overview



### Right

- |    |                                       |    |  |
|----|---------------------------------------|----|--|
| 1. | <b>Power Connector</b>                | 4. | <b>USB 3.1 Gen 1 Port</b>                  |
| 2. | <b>Ethernet (RJ-45) Port</b>          | 5. | <b>USB Type-C™ (Data and Power in-out)</b> |
| 3. | <b>HDMI Port (Cable not included)</b> |    |  |

## Overview

### AT A GLANCE

- Starting at 3.16 lbs (1.44 kg) touch
- At 21 mm (0.83"), this flexible 360° hinge converts to laptop, tablet, tent, stand or book mode easily
- Designed to pass MIL-STD 810H testing<sup>1</sup> with rugged features such as co-molded rubber trim, spill- and pick-resistant keyboard, and Corning® Gorilla® Glass 3 touch screen
- Optional dual camera system for project-based learning
- New optional active HP Pro Pen is engineered for the classroom – durable tips require less replacing
- Pre-installed with Windows 10 Pro 64, Windows 10 Pro 64 (National Academic), Windows 10 Home 64, or Windows 10 Pro in S mode 64, FreeDOS<sup>2</sup>
- Powered by Intel® Celeron® N4000, Intel® Celeron® N4100 and Intel® Pentium® N4020, N4120 and Pentium N5000, N5030 processors
- Choice of 29.4cm (11.6") diagonal HD UWVA slim LED touch screen (1366 x 768) or 29.4 cm (11.6") diagonal HD SVA slim LED touch screen (1366 x 768) displays
- 64 GB eMMC, 128 GB SATA-3 TLC Solid State Drive or up to 256 GB SATA-3 Solid State Drive storage options
- Up to 8 GB system memory for enhanced memory management
- Reliable connectivity with choice of Intel® Dual Band Wireless-AC 9560 802.11a/b/g/n/ac (2x2) WiFi and Bluetooth® 5.0 Combo WLAN or Intel® Dual Band Wireless-AX200 802.11a/b/g/n/ax (2x2) Wi-Fi 6 and Bluetooth® 5.0 Combo WLAN for learning and collaboration beyond the classroom
- Built-in ports include: Ethernet (RJ-45), 2 USB 3.1 Gen 1, USB Type-C™, and HDMI 2.0a port for connecting to high-resolution displays
- Enhanced security TPM 2.0 discrete chip
- Battery life Up to 16 hours and 45 minutes<sup>3</sup>

**1. MIL STD 810H testing is pending and 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. Damage under the MIL STD test conditions or any accidental damage requires an optional HP Accidental Damage Protection Care Pack.**

**2. FreeDOS planned to be available March 2020.**

**3. Recharges the battery up to 90% within 90 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.**

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



## Technical Specifications

### PRODUCT NAME

HP ProBook x360 11 G5 EE

### OPERATING SYSTEM

Preinstalled

Windows 10 Pro 64<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 in S mode 64<sup>3</sup>  
Windows 10 Pro in S mode 64 (National Academic only)<sup>2,3</sup>  
Windows 10 Pro (Windows 10 Enterprise available with a Volume Licensing Agreement)<sup>1</sup>

1. Not all features are available in all editions or versions of Windows. Systems may require upgraded and/or separately purchased hardware, drivers, software or BIOS update to take full advantage of Windows functionality. Windows 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.
3. Windows 10 Pro in S mode 64 works exclusively with apps from the Windows store. Some accessories and apps compatible with Windows 10 may not work, and performance may vary. Certain default settings, features, and apps cannot be changed. Easily switch to Windows 10 Pro configuration (fee applies) Learn more at [Microsoft.com/Windows 10S](https://Microsoft.com/Windows10S).

### PROCESSORS

Intel® Pentium® Silver N5000 with Intel® UHD Graphics 605 (1.1 GHz base frequency, up to 2.7 GHz burst frequency, 4 MB cache, 4 cores)<sup>4,5,6</sup>  
Intel® Celeron® N4100 with Intel® UHD Graphics 600 (1.1 GHz base frequency, up to 2.4 GHz burst frequency, 4 MB cache, 4 cores)<sup>4,5,6</sup>  
Intel® Celeron® N4000 with Intel® UHD Graphics 600 (1.1 GHz base frequency, up to 2.6 GHz burst frequency, 4 MB cache, 2 cores)<sup>4,5,6</sup>  
Intel® Pentium® Silver N5030 with Intel® UHD Graphics 605 (1.1 GHz base frequency, up to 3.1 GHz burst frequency, 4 MB cache, 4 cores)<sup>4,5,6</sup>  
Intel® Celeron® N4020 with Intel® UHD Graphics 600 (1.1 GHz base frequency, up to 2.8 GHz burst frequency, 4 MB cache, 2 cores)<sup>4,5,6</sup>  
Intel® Celeron® N4120 with Intel® UHD Graphics 600 (1.1 GHz base frequency, up to 2.6 GHz burst frequency, 4 MB cache, 4 cores)<sup>4,5,6</sup>

#### Processors Family

Intel® Celeron® processor (N4000, N4020, 4120)<sup>6</sup>  
Intel® Pentium® Silver processor (N5000, N5030)<sup>6</sup>

4. 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.
5. Processor speed denotes maximum performance mode; processors will run at lower speeds in battery optimization mode.
6. 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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## Technical Specifications

### CHIPSET

Chipset is integrated with processor

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### GRAPHICS

*Integrated*

Intel® UHD Graphics 605 (for Pentium Silver)<sup>7</sup>

Intel® UHD Graphics 600 (for Celeron)<sup>7</sup>

**7. HD content required to view HD images**

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### DISPLAY

*Internal*

*Touch*

**29.46 cm (11.6") diagonal HD SVA eDP WLED-backlit touch screen with HD camera, 220 nits, 45% NTSC (1366 x 768)<sup>7,8,9</sup>**

**29.46 cm (11.6") diagonal HD IPS eDP WLED-backlit touch screen with HD camera, 220 nits, 50% NTSC (1366 x 768)<sup>7,8,9</sup>**

*HDMI*

**Port supports resolutions up to 3840 x 2160 external resolution @30 Hz**

**7. HD content required to view HD images.**

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

**9. Sold separately or as an optional feature.**

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### STORAGE AND DRIVES

*Primary Storage M.2*

**128 GB SATA-3 TLC Solid State Drive<sup>10,11</sup>**

**256 GB SATA-3 TLC Solid State Drive<sup>10,11</sup>**

*eMMC Configurations*

**64 GB eMMC<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.**

**11. Not available with eMMC storage.**

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## Technical Specifications

### MEMORY

#### Standard

#### Maximum Memory

**8 GB DDR4-2400 SDRAM<sup>12</sup>**

#### Memory

**4 GB DDR4-2400 SDRAM (on-board)<sup>12</sup>**

**8 GB DDR4-2400 SDRAM (on-board)<sup>12</sup>**

**12. 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

**Intel® Dual Band Wireless-AC 9560 802.11 a/b/g/n/ac (2x2) Wi-Fi® and Bluetooth® 5 Combo, non-vPro™<sup>13</sup>**

**Intel® Dual Band Wireless-AX200 802.11 a/b/g/n/ax (2x2) Wi-Fi 6 and Bluetooth® 5 Combo, non-vPro™ \***

#### Miracast

**Native Miracast Support<sup>14</sup>**

#### Ethernet

**Realtek RTL8111HSH-CG 10/100/1000 GbE NIC<sup>15</sup>**

**13. Wireless access point and Internet service required and sold separately. Availability of public wireless access points limited. The specifications for the 802.11ac 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 802.11ac WLAN devices.**

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

**15. The term "10/100/1000" or "Gigabit" Ethernet indicates compatibility with IEEE standard 802.3ab for Gigabit Ethernet, and does not connote actual operating speed of 1 Gb/s. For high-speed transmission, connection to a Gigabit Ethernet server and network infrastructure is required.**

**\*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.**



## Technical Specifications

### AUDIO/MULTIMEDIA

#### Audio

##### HP HD Audio

**2 Integrated stereo speakers**

#### Camera

**User-facing 720p HD camera<sup>7,16</sup>**

**Located on display**

#### Webcam

**World-facing 5 MP secondary camera (Optional)<sup>7,9,16</sup>**

**7. HD content required to view HD images.**

**9. Sold separately or as an optional feature.**

**16. Internet access required.**

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

#### Keyboard

**Full-sized chiclet keyboard, pick proof**

#### Pointing Device

**Clickpad with multi-touch gesture support, taps enabled as default**

**Default on: 2-finger scroll, pinch**

**Support Windows 10 modern Trackpad gestures**

#### Function Keys

**F1 - Blank**

**F2 - Blank**

**F3 - Sleep**

**F4 - Display Switching**

**F5 - Audio Mute/Unmute**

**F6 - Volume <down>**

**F7 - Volume <up>**

**F8 - Mic Mute/Unmute**

**F9 - Brightness <down>**

**F10 - Brightness <up>**

**F11 - Blank**

**F12 - Wireless On/Off**

#### Pen

**Optional Passive Targus Slim Stylus<sup>9</sup>**

**Optional Active HP Pro Pen<sup>9</sup>**

**9. Sold separately or as an optional feature.**



## Technical Specifications

### *Sensors*

**Combo Chip**  
**Accelerometer**  
**Magnetometer**  
**Gyroscope**  
**Hall Sensor**

## SOFTWARE AND SECURITY

### *BIOS*

**HP BIOSphere Gen5<sup>17</sup>**  
**HP Drive Lock & Automatic Drive Lock<sup>18</sup>**  
**BIOS Update via Network**  
**Master Boot Record Security**  
**Power On Authentication**  
**Secure Erase<sup>19</sup>**  
**Absolute Persistence Module<sup>20</sup>**  
**Pre-boot Authentication**

### *Software*

**HP Connection Optimizer**  
**HP School Pack**  
**HP Interactive Light**  
**HP Image Assistant**  
**HP Hotkey Support**  
**HP JumpStart**  
**HP Support Assistant<sup>21</sup>**  
**HP Noise Cancellation Software**  
**Buy Office (sold separately)**

### *Manageability Features*

**HP Driver Packs<sup>22</sup>**  
**HP System Software Manager (SSM)**  
**HP BIOS Config Utility (BCU)**  
**HP Client Catalog**  
**HP Manageability Integration Kit Gen3<sup>23</sup>**

### *Client Security Software*

**HP Client Security Manager Gen5<sup>24</sup>**  
**Windows Defender<sup>25</sup>**

### *Security Management*

**Pre-boot Authentication**  
**TPM 2.0 Embedded Security Chip shipped with Windows 10 (Common Criteria EAL4+ Certified)<sup>26</sup>**  
**USB enable/disable (via BIOS)**  
**Power-on password (via BIOS)**  
**Setup password (via BIOS)**  
**Support for chassis padlocks and cable lock devices**  
**HP Sure Click<sup>27</sup>**



## Technical Specifications

17. 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.
18. HP Drive Lock & Automatic Drive Lock is not supported on NVMe drives
19. 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™.
20. 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/>.
21. HP Support Assistant requires Windows and Internet access.
22. HP Driver Packs not preinstalled, however available for download at <http://www.hp.com/go/clientmanagement>.
23. HP Manageability Integration Kit can be downloaded from <http://www.hp.com/go/clientmanagement>.
24. HP Client Security Manager Gen5 requires Windows and is available on the select HP Pro and Elite PCs. See product specifications for details.
25. Windows Defender Opt in and internet connection required for updates.
26. Firmware TPM is version 2.0. Hardware TPM is v1.2, which is a subset of the TPM 2.0 specification version v0.89 as implemented by Intel Platform Trust Technology (PTT).
27. HP Sure Click is available on select HP platforms and supports Microsoft® Internet Explorer, Google Chrome, and Chromium™. Supported attachments include Microsoft Office (Word, Excel, PowerPoint) and PDF files in read only mode. Check <http://h20195.www2.hp.com/v2/GetDocument.aspx?docname=4AA7-0922ENW> for all compatible platforms as they become available.

## POWER

### Power Supply

- HP Smart 45 W External AC power adapter<sup>28</sup>
- HP Smart 65 W EM External AC power adapter<sup>28</sup>
- HP Smart 45 W USB Type-C™ adapter<sup>28</sup>

### Primary Battery

- HP Long Life 3-cell, 48 Wh Li-ion (90% in 90 minutes)<sup>29,30</sup>

### Power Cord

- 3-wire plug - 1 m

### Battery life

- Up to 16 hours and 45 minutes<sup>31</sup>

28. Availability may vary by country.
29. Battery is internal and not replaceable by customer. Serviceable by warranty.
30. 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.
31. Recharges the battery up to 90% within 90 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.



## Technical Specifications

### WEIGHTS & DIMENSIONS

#### Product Weight

**Starting at 3.16 lb<sup>32</sup>**

**Starting at 1.44 kg<sup>32</sup>**

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

**11.8 x 8.8 x 0.83 in**

**30 x 20.53 x 2.12 cm**

**32. Weight will vary by configuration.**

### PORTS/SLOTS

#### Ports

**2 USB 3.1 Gen 1**

**1 USB Type-C™ (Data transfer, power delivery)**

**1 HDMI 2.0a<sup>33</sup>**

**1 AC power**

**1 RJ-45**

**1 headphone/microphone combo jack**

**33. HDMI cable sold separately.**

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### SERVICE AND SUPPORT

HP Services offers 1-year limited warranties and 90 day software limited warranty options depending on country. Batteries have a default one year limited warranty refer to <http://www.hp.com/support/batterywarranty/> for additional battery information. On-site service and extended coverage is also available. HP Care Pack Services are optional extended service contracts that go beyond the standard limited warranties. To choose the right level of service for your HP product, use the HP Care Pack Services Lookup Tool at: <http://www.hp.com/go/cpc>.<sup>34</sup>

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

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## Technical Specifications

### ENVIRONMENTAL & INDUSTRY

*Environmental Data*      *Eco-Label Certifications & declarations*

**This product has received or is in the process of being certified to the following approvals and may be labeled with one or more of these marks:**

- IT ECO declaration
- US ENERGY STAR®
- EPEAT® Silver registered in the United States. See <http://www.epeat.net> for registration status in your country.
- TCO Certified 8.0

#### *System Configuration*

**The configuration used for the Energy Consumption and Declared Noise Emissions data for the Notebook model is based on a “Typically Configured Notebook”.**

*Energy Consumption  
(in accordance with US  
ENERGY STAR® test  
method)*

	115VAC, 60Hz	230VAC, 50Hz	100VAC, 50Hz
<b>Normal Operation (Sort idle)</b>	<b>3.50 W</b>	<b>3.58 W</b>	<b>3.52 W</b>
<b>Normal Operation (Long idle)</b>	<b>1.30 W</b>	<b>1.26 W</b>	<b>1.30 W</b>
<b>Sleep</b>	<b>0.29 W</b>	<b>0.31 W</b>	<b>0.29 W</b>
<b>Off</b>	<b>0.24 W</b>	<b>0.26 W</b>	<b>0.24 W</b>

**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.**

#### *Heat Dissipation\**

	115VAC, 60Hz	230VAC, 50Hz	100VAC, 50Hz
<b>Normal Operation (Short idle)</b>	<b>12 BTU/hr</b>	<b>12 BTU/hr</b>	<b>12 BTU/hr</b>
<b>Normal Operation (Long idle)</b>	<b>4 BTU/hr</b>	<b>4 BTU/hr</b>	<b>4 BTU/hr</b>
<b>Sleep</b>	<b>1 BTU/hr</b>	<b>1 BTU/hr</b>	<b>1 BTU/hr</b>
<b>Off</b>	<b>1 BTU/hr</b>	<b>1 BTU/hr</b>	<b>1 BTU/hr</b>



## Technical Specifications

**\*NOTE:** Heat dissipation is calculated based on the measured watts, assuming the service level is attained for one hour.

<i>Declared Noise Emissions (in accordance with ISO 7779 and ISO 9296)</i>	<b>Sound Power (L<sub>WAd</sub>, bels)</b>	<b>Sound Pressure (L<sub>pAm</sub>, decibels)</b>
<i>Typically Configured – Idle</i>	<b>2.5</b>	<b>15</b>
<i>Fixed Disk – Random writes</i>	<b>2.5</b>	<b>14</b>

*Longevity and Upgrading* **This product can be upgraded, possibly extending its useful life by several years. Upgradeable features and/or components contained in the product may include:**

- 3 USB ports
- 1 PC card slot (type I/II)
- 1 ExpressCard/54 slot
- 1 IEEE 1394 Port
- 2 SODIMM memory slots
- Optional expansion base docking station
- 1 multi-bay II storage port
- Interchangeable HDD

**Spare parts are available throughout the warranty period and or for up to “5” years after the end of production.**

*Batteries* **This battery(s) in this product comply with EU Directive 2006/66/EC**

**Batteries used in the product do not contain:  
Mercury greater the 1ppm by weight  
Cadmium greater than 20ppm by weight**

**Battery size: CR2032 (coin cell)  
Battery type: Lithium**

*Additional Information*

- **This product is in compliance with the Restrictions of Hazardous Substances (RoHS) directive - 2011/65/EC.**
- **This HP product is designed to comply with the Waste Electrical and Electronic Equipment (WEEE) Directive – 2002/96/EC.**
- **This product is in compliance with California Proposition 65 (State of California; Safe Drinking Water and Toxic Enforcement Act of 1986).**
- **This product is in compliance with the IEEE 1680.1 (EPEAT) standard at the <Silver> level, see [www.epeat.net](http://www.epeat.net)**
- **Plastics parts weighing over 25 grams used in the product are marked per ISO11469 and ISO1043.**
- **This product contains 23% post-consumer recycled plastic (by wt.)**
- **This product is 96.1% recycle-able when properly disposed of at end of life.**



## Technical Specifications

### Packaging Materials

<i>External:</i>	<b>PAPER/Corrugated</b>	<b>235 g</b>
<i>Internal:</i>	<b>PLASTIC/Polypropylene - PP</b>	<b>3 g</b>
	<b>PLASTIC/Polyethylene Expanded - EPE</b>	<b>27 g</b>
	<b>PLASTIC/Polyethylene low density - LDPE</b>	<b>13 g</b>

### Material Usage

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 <http://www.hp.com/hpinfo/globalcitizenship/environment/pdf/gse.pdf>):

- Asbestos
- Certain Azo Colorants
- Certain Brominated Flame Retardants – may not be used as flame retardants in plastics
- Cadmium
- Chlorinated Hydrocarbons
- Chlorinated Paraffins
- Formaldehyde
- Halogenated Diphenyl Methanes
- Lead carbonates and sulfates
- Lead and Lead compounds
- Mercuric Oxide Batteries
- Nickel – finishes must not be used on the external surface designed to be frequently handled or carried by the user.
- Ozone Depleting Substances
- Polybrominated Biphenyls (PBBs)
- Polybrominated Biphenyl Ethers (PBBEs)
- Polybrominated Biphenyl Oxides (PBBOs)
- Polychlorinated Biphenyl (PCB)
- Polychlorinated Terphenyls (PCT)
- Polyvinyl Chloride (PVC) – except for wires and cables, and certain retail packaging has been voluntarily removed from most applications.
- Radioactive Substances
- Tributyl Tin (TBT), Triphenyl Tin (TPT), Tributyl Tin Oxide (TBTO)

### Packaging Usage

HP follows these guidelines to decrease the environmental impact of product packaging:

- Eliminate the use of heavy metals such as lead, chromium, mercury and cadmium in packaging materials.
- Eliminate the use of ozone-depleting substances (ODS) in packaging materials.
- Design packaging materials for ease of disassembly.
- Maximize the use of post-consumer recycled content materials in packaging materials.
- Use readily recyclable packaging materials such as paper and corrugated materials.
- Reduce size and weight of packages to improve transportation fuel efficiency.
- Plastic packaging materials are marked according to ISO 11469 and DIN 6120 standards.



## Technical Specifications

### *End-of-life Management and Recycling*

**HP Inc. offers end-of-life HP product return and recycling programs in many geographic areas. To recycle your product, please go to: <http://www.hp.com/go/reuse-recycle> or contact your nearest HP sales office. Products returned to HP will be recycled, recovered or disposed of in a responsible manner.**

**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: <http://www.hp.com/go/recyclers>. 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.**

### *HP, Inc. Corporate Environmental Information*

**For more information about HP's commitment to the environment:  
Global Citizenship Report**

<http://www.hp.com/hpinfo/globalcitizenship/gcreport/index.html>

**Eco-label certifications**

<http://www8.hp.com/us/en/hp-information/environment/ecolabels.html>

**ISO 14001 certificates:**

[http://www.hp.com/hpinfo/globalcitizenship/environment/pdf/PC\\_GBU\\_Product\\_Design\\_ISO\\_14K\\_Certificate.pdf](http://www.hp.com/hpinfo/globalcitizenship/environment/pdf/PC_GBU_Product_Design_ISO_14K_Certificate.pdf)

**and**

<http://www.hp.com/hpinfo/globalcitizenship/environment/pdf/cert.pdf>



## Technical Specifications

### SYSTEM UNIT

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

<b>Nominal Operating Voltage</b>	<b>19V</b>
<b>Average Operating Power</b>	<b>Win 10</b>
<b>Integrated graphics</b>	<b>Yes</b>
<b>Max Operating Power</b>	<b>UMA&lt;45W</b>

#### Temperature

<b>Operating</b>	<b>32° to 95° F (0° to 35° C)</b>
<b>Non-operating</b>	<b>-4° to 140° F (-20° to 60° C)</b>

#### Relative Humidity

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

#### Shock

<b>Operating</b>	<b>40 G, 2 ms, half-sine</b>
<b>Non-operating</b>	<b>240 G, 2 ms, half-sine</b>

#### Random Vibration

<b>Operating</b>	<b>0.75 grms</b>
<b>Non-operating</b>	<b>1.50 grms</b>

#### Altitude (unpressurized)

<b>Operating</b>	<b>-50 to 10,000 ft (-15.24 to 3,048 m)</b>
<b>Non-operating</b>	<b>-50 to 40,000 ft (-15.24 to 12,192 m)</b>

#### Planned Industry Standard Certifications

<b>UL</b>	<b>Yes</b>
<b>CSA</b>	<b>Yes</b>
<b>FCC Compliance</b>	<b>Yes</b>
<b>ENERGY STAR®</b>	<b>Yes<sup>36</sup></b>
<b>EPEAT® 2019</b>	<b>Yes, Silver in U.S.<sup>37</sup></b>
<b>ICES</b>	<b>Yes</b>
<b>Australia</b>	<b>Yes</b>
<b>NZ A-Tick Compliance</b>	<b>Yes</b>
<b>CCC</b>	<b>Yes</b>
<b>Japan VCCI Compliance</b>	<b>Yes</b>
<b>KC</b>	<b>Yes</b>
<b>BSMI</b>	<b>Yes</b>
<b>CE Marking Compliance</b>	<b>Yes</b>
<b>BNCI or BELUS</b>	<b>Yes</b>
<b>CIT</b>	<b>Yes</b>
<b>GOST</b>	<b>Yes</b>
<b>Saudi Arabian Compliance (ICCP)</b>	<b>Yes</b>
<b>SABS</b>	<b>Yes</b>
<b>UKRSERTCOMPUTER</b>	<b>Yes</b>



## Technical Specifications

36. Configurations of the HP ProBook x360 11 G5 EE is ENERGY STAR® qualified are identified as HP ProBook x360 11 G5 EE ENERGY STAR on HP websites and on <http://www.energystar.gov>.

37. Based on US EPEAT® registration according to IEEE 1680.1-2018 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.**

<i>Panel LCD 11.6 HD AG WLED SVA 45% NTSC 220 nits eDP Slim</i>	<i>Outline Dimensions (W x H x D)</i>	<b>278.5 x 168.5 mm (max)</b>
	<i>Active Area</i>	<b>256.125 x 144 mm</b>
	<i>Weight</i>	<b>210 g max</b>
	<i>Diagonal Size</i>	<b>11.6 (inches)</b>
	<i>Thickness</i>	<b>3.0 mm (max)</b>
	<i>Interface</i>	<b>eDP1.2</b>
	<i>Surface Treatment</i>	<b>BrightView Glass</b>
	<i>Touch Enabled</i>	<b>Yes</b>
	<i>Contrast Ratio</i>	<b>400:1 (typical)</b>
	<i>Refresh Rate</i>	<b>60 Hz</b>
	<i>Brightness</i>	<b>220 nit typical (panel only)</b>
	<i>Pixel Resolution</i>	<b>1366 x 768 (HD)</b>
	<i>Format of LCD Pixel Arrangement</i>	<b>RGB</b>
	<i>Backlight</i>	<b>LED</b>
	<i>Color Gamut Coverage</i>	<b>45% of NTSC</b>
	<i>Color Depth</i>	<b>6 bits</b>
	<i>Viewing Angle</i>	<b>SVA 45/45/15/35</b>

<i>Panel LCD 11.6 inch HD AG WLED UWVA 50% NTSC 220 nits eDP slim</i>	<i>Outline Dimensions (W x H x D)</i>	<b>278.5 x 168.5 mm (max)</b>
	<i>Active Area</i>	<b>256.125 x 144 mm</b>
	<i>Weight</i>	<b>200 g max</b>
	<i>Diagonal Size</i>	<b>11.6 (inches)</b>
	<i>Thickness</i>	<b>3.2 mm max</b>
	<i>Interface</i>	<b>eDP1.2</b>
	<i>Surface Treatment</i>	<b>BrightView Glass</b>
	<i>Touch Enabled</i>	<b>Yes</b>



## Technical Specifications

<i>Contrast Ratio</i>	<b>800:1 (typical)</b>
<i>Refresh Rate</i>	<b>60 Hz</b>
<i>Brightness</i>	<b>220 nit typical (panel only)</b>
<i>Pixel Resolution</i>	<b>1366 x 768 (HD)</b>
<i>Format of LCD Pixel Arrangement</i>	<b>RGB</b>
<i>Backlight</i>	<b>LED</b>
<i>Color Gamut Coverage</i>	<b>50% of NTSC</b>
<i>Color Depth</i>	<b>6 bits</b>
<i>Viewing Angle</i>	<b>UWVA 85/85/85/85</b>

## STORAGE AND DRIVES

<i>eMMC 64 GB M0-276 MMCv5.0</i>	<i>Drive Weight</i>	<b>0.2</b>	
	<i>Height</i>	<b>1.4 mm</b>	
	<i>Width</i>	<b>11.5 x 13 mm</b>	
	<i>Interface</i>	<b>MMC potocal</b>	
	<i>Seek Time</i>	<i>Sequential Read</i>	<i>Sequential Write</i>
		<b>Up to 250 MB/s</b>	<b>Up to 70 MB/s</b>
	<i>Logical Blocks</i>	<b>32 GB(31,268,536,320 Bytes)/64 GB(62,537,072,640 Bytes)</b>	
	<i>Operating Temperature</i>	<b>0 to 70</b>	
	<i>Security Features</i>	<b>HS400</b>	

<i>128 GB 2280 M2 SATA-3 TLC Solid State Drive</i>	<i>Form Factor</i>	<b>M.2 2280</b>	
	<i>Capacity</i>	<b>128 GB</b>	
	<i>NAND Type</i>	<b>TLC</b>	
	<i>Height</i>	<b>0.09 in (2.3 mm)</b>	
	<i>Width</i>	<b>0.87 in (22 mm)</b>	
	<i>Weight</i>	<b>0.02 lb (10 g)</b>	
	<i>Interface</i>	<b>ATA-8, SATA 3.0</b>	
	<i>Seek Time</i>	<i>Sequential Read</i>	<i>Sequential Write</i>
		<b>Up To 520 MB/s</b>	<b>Up To 450 MB/s</b>
	<i>Logical Blocks</i>	<b>250,069,680</b>	
<i>Operating Temperature</i>	<b>32° to 158°F (0° to 70°C) [ambient temp]</b>		
<i>Features</i>	<b>DIPM; TRIM; DEVSLP</b>		

<i>256 GB 2280 M2 SATA-3 TLC Solid State Drive</i>	<i>Form Factor</i>	<b>M.2 2280</b>
	<i>Capacity</i>	<b>256 GB</b>



## Technical Specifications

NAND Type	TLC	
Height	0.09 in (2.3 mm)	
Width	0.87 in (22 mm)	
Interface	ATA-8, SATA 3.0	
Seek Time	Sequential Read	Sequential Write
	Up To 540 MB/s	Up To 515 MB/s
Logical Blocks	500,118,192	
Operating Temperature	32° to 158°F (0° to 70°C) [ambient temp]	
Features	DIPM; TRIM; DEVSLP	

## NETWORKING/COMMUNICATIONS

Intel® 9560	Wireless LAN	IEEE 802.11a
802.11a/b/g/n/ac (2x2)	Standards	IEEE 802.11b
WiFi and Bluetooth® 5.0		IEEE 802.11g
Combo <sup>1</sup> non-vPro		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
	Interoperability	Wi-Fi® certified
	Frequency Band	•802.11b/g/n
		2.402 – 2.482 GHz
		•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
	Data Rates	•802.11b: 1, 2, 5.5, 11 Mbps
		•802.11g: 6, 9, 12, 18, 24, 36, 48, 54 Mbps
		•802.11a: 6, 9, 12, 18, 24, 36, 48, 54 Mbps
		•802.11n: MCS 0 ~ MCS 15, (20MHz, and 40MHz)
		•802.11ac: MCS0 ~ MCS9, (1SS, and 2SS) (20MHz, 40MHz, 80MHz & 160MHz)
	Modulation	Direct Sequence Spread Spectrum
		BPSK, QPSK, CCK, 16-QAM, 64-QAM, 256-QAM
	Security <sup>3</sup>	•IEEE and WiFi compliant 64 / 128 bit WEP encryption for a/b/g mode only
		•AES-CCMP: 128 bit in hardware
		•802.1x authentication



## Technical Specifications

	<ul style="list-style-type: none"> <li>•WPA, WPA2: 802.1x, WPA-PSK, WPA2-PSK, TKIP, and AES.</li> <li>•WPA2 certification</li> <li>•IEEE 802.11i</li> <li>•WAPI</li> </ul>				
<i>Network Architecture Models</i>	<p><b>Ad-hoc (Peer to Peer)</b></p> <p><b>Infrastructure (Access Point Required)</b></p>				
<i>Roaming</i>	<p><b>IEEE 802.11 compliant roaming between access points</b></p>				
<i>Output Power<sup>2</sup></i>	<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> <li>• 802.11ac VHT160(5GHz) : +11.5dBm minimum</li> </ul>				
<i>Power Consumption</i>	<ul style="list-style-type: none"> <li>•Transmit mode 2.0 W</li> <li>•Receive mode 1.6 W</li> <li>•Idle mode (PSP)180 mW (WLAN Associated)</li> <li>•Idle mode 50 mW (WLAN unassociated)</li> <li>•Connected Standby 10mW</li> <li>•Radio disabled 8 mW</li> </ul>				
<i>Power Management</i>	<p><b>ACPI and PCI Express compliant power management</b></p> <p><b>802.11 compliant power saving mode</b></p>				
<i>Receiver Sensitivity<sup>3</sup></i>	<p><b>802.11b, 1Mbps: -93.5dBm maximum</b></p> <p><b>802.11b, 11Mbps: -84dBm maximum</b></p> <p><b>802.11a/g, 6Mbps: -86dBm maximum</b></p> <p><b>802.11a/g, 54Mbps: -72dBm maximum</b></p> <p><b>802.11n, MCS07: -67dBm maximum</b></p> <p><b>802.11n, MCS15: -64dBm maximum</b></p> <p><b>802.11ac, MCS0: -84dBm maximum</b></p> <p><b>802.11ac, MCS9: -59dBm maximum</b></p>				
<i>Antenna type</i>	<p><b>High efficiency antenna with spatial diversity, mounted in the display enclosure</b></p> <p><b>Two embedded dual band 2.4/5 GHz antennas are provided to the card to support WLAN MIMO communications and Bluetooth communications</b></p>				
<i>Form Factor</i>	<p><b>PCI-Express M.2 MiniCard with CNVi Interface</b></p>				
<i>Dimensions</i>	<ol style="list-style-type: none"> <li><b>Type 2230 : 2.3 x 22.0 x 30.0 mm</b></li> <li><b>Type 1216: 1.67 x 12.0 x 16.0 mm</b></li> </ol>				
<i>Weight</i>	<ol style="list-style-type: none"> <li><b>Type 2230 : 2.8 g</b></li> <li><b>Type 126: 1.3 g</b></li> </ol>				
<i>Operating Voltage</i>	<p><b>3.3v +/- 9%</b></p>				
<i>Temperature</i>	<table> <tr> <td><b>Operating</b></td> <td><b>14° to 158° F (-10° to 70° C)</b></td> </tr> <tr> <td><b>Non-operating</b></td> <td><b>-40° to 176° F (-40° to 80° C)</b></td> </tr> </table>	<b>Operating</b>	<b>14° to 158° F (-10° to 70° C)</b>	<b>Non-operating</b>	<b>-40° to 176° F (-40° to 80° C)</b>
<b>Operating</b>	<b>14° to 158° F (-10° to 70° C)</b>				
<b>Non-operating</b>	<b>-40° to 176° F (-40° to 80° C)</b>				



## Technical Specifications

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

- 1. Check latest software/driver release for updates on supported security features.**
- 2. Maximum output power may vary by country according to local regulations.**
- 3. Receiver sensitivity is measured at a packet error rate of 8% for 802.11b (CKK modulation) and a packet error rate of 10% for 802.11a/g (OFDM modulation).**

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

<i>Bluetooth Specification</i>	<b>4.0/4.1/4.2/5.0 Compliant</b>
<i>Frequency Band</i>	<b>2402 to 2480 MHz</b>
<i>Number of Available Channels</i>	<b>Legacy: 0~79 (1 MHz/CH) BLE: 0~39 (2 MHz/CH)</b>
<i>Signaling Data Rate</i>	<b>Legacy: 3 Mbps signaling data rate<sup>1</sup> 2.17 Mbps BLE: 1 Mbps signaling data rate<sup>1</sup> 0.2 Mbps 1. Actual throughput may vary.</b>
<i>Transmit Power</i>	<b>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) The Bluetooth component shall operate as a Class II Bluetooth device with a maximum transmit power of + 4 dBm for BR and EDR.</b>
<i>Power Consumption</i>	<b>Peak (Tx) 330 mW Peak (Rx) 230 mW Selective Suspend 17 mW</b>
<i>Bluetooth Software Supported</i>	<b>Microsoft Windows Bluetooth Software</b>
<i>Link Topology</i>	
<i>Power Management</i>	<b>Microsoft Windows ACPI, and USB Bus Support</b>
<i>Certifications</i>	<b>FCC (47 CFR) Part 15C, Section 15.247 &amp; 15.249</b>
<i>Power Management</i>	<b>ETS 300 328, ETS 300 826</b>
<i>Certifications</i>	<b>Low Voltage Directive IEC950 UL, CSA, and CE Mark</b>
<i>Bluetooth Profiles Supported</i>	<b>BT4.1-ESR 5/6/7 Compliance LE Link Layer Ping LE Dual Mode LE Link Layer LE Low Duty Cycle Directed Advertising LE L2CAP Connection Oriented Channels Train Nudging &amp; Interlaced Scan BT4.2 ESR08 Compliance LE Secure Connection- Basic/Full LE Privacy 1.2 –Link Layer Privacy</b>



## Technical Specifications

LE Privacy 1.2 –Extended Scanner Filter Policies  
 LE Data Packet Length Extension  
 FAX Profile (FAX)  
 Basic Imaging Profile (BIP)2  
 Headset Profile (HSP)  
 Hands Free Profile (HFP)  
 Advanced Audio Distribution Profile (A2DP)

Intel® Wi-Fi 6 AX200 +  
 Bluetooth 5 (802.11ax  
 2x2, non-vPro,  
 supporting gigabit file  
 transfer speeds)  
 non-vPro

### Wireless LAN Standards

IEEE 802.11a  
 IEEE 802.11b  
 IEEE 802.11g  
 IEEE 802.11n  
 IEEE 802.11ac  
 IEEE 802.11ax  
 IEEE 802.11d  
 IEEE 802.11e  
 IEEE 802.11h  
 IEEE 802.11i  
 IEEE 802.11k  
 IEEE 802.11r  
 IEEE 802.11v

### Interoperability Frequency Band

Wi-Fi® certified  
 •802.11b/g/n/ax  
 2.402 – 2.482 GHz  
 •802.11a/n/ac/ax  
 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

### Data Rates

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

### Modulation

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

### Security<sup>3</sup>

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



## Technical Specifications

### Network Architecture

#### Models

#### Roaming

#### Output Power<sup>2</sup>

#### •WAPI

#### Ad-hoc (Peer to Peer)

#### Infrastructure (Access Point Required)

#### IEEE 802.11 compliant roaming between access points

- 802.11b : +18.5dBm minimum
- 802.11g : +17.5dBm minimum
- 802.11a : +18.5dBm minimum
- 802.11n HT20(2.4GHz) : +15.5dBm minimum
- 802.11n HT40(2.4GHz) : +14.5dBm minimum
- 802.11n HT20(5GHz) : +15.5dBm minimum
- 802.11n HT40(5GHz) : +14.5dBm minimum
- 802.11ac VHT80(5GHz) : +11.5dBm minimum
- 802.11ac VHT160(5GHz) : +11.5dBm minimum
- 802.11ax HT40(2.4GHz) : +10dBm minimum
- 802.11ax VHT160(5GHz) : +10dBm minimum

#### Power Consumption

- Transmit mode: 2.0 W
- Receive mode: 1.6 W
- Idle mode (PSP) 180 mW (WLAN Associated)
- Idle mode: 50 mW (WLAN unassociated)
- Connected Standby/Modern Standby: 10mW
- Radio disabled: 8 mW

#### Power Management

ACPI and PCI Express compliant power management  
802.11 compliant power saving mode

#### Receiver Sensitivity<sup>3</sup>

- 802.11b, 1Mbps : -93.5dBm maximum
- 802.11b, 11Mbps : -84dBm maximum
- 802.11a/g, 6Mbps : -86dBm maximum
- 802.11a/g, 54Mbps : -72dBm maximum
- 802.11n, MCS07 : -67dBm maximum
- 802.11n, MCS15 : -64dBm maximum
- 802.11ac, MCS0 : -84dBm maximum
- 802.11ac, MCS9 : -59dBm maximum
- 802.11ax, MCS11(HT40): -59dBm maximum
- 802.11ax, MCS11(VHT160): -58.5dBm maximum

#### Antenna type

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

#### Form Factor

#### PCI-Express M.2 MiniCard

#### Dimensions

1. Type 2230 : 2.3 x 22.0 x 30.0 mm
2. Type 1216: 1.67 x 12.0 x 16.0 mm

#### Weight

1. Type 2230: 2.8 g
2. Type 126: 1.3 g

#### Operating Voltage

3.3v +/- 9%

#### Temperature

Operating 14° to 158° F (-10° to 70° C)  
Non-operating -40° to 176° F (-40° to 80° C)



## Technical Specifications

<i>Humidity</i>	<b>Operating</b>	<b>10% to 90% (non-condensing)</b>
	<b>Non-operating</b>	<b>5% to 95% (non-condensing)</b>
<i>Altitude</i>	<b>Operating</b>	<b>0 to 10,000 ft (3,048 m)</b>
	<b>Non-operating</b>	<b>0 to 50,000 ft (15,240 m)</b>
<i>LED Activity</i>	<b>LED Amber – Radio OFF</b>	
	<b>LED OFF – Radio ON</b>	
	<ol style="list-style-type: none"> <li><b>1. Check latest software/driver release for updates on supported security features.</b></li> <li><b>2. Maximum output power may vary by country according to local regulations.</b></li> <li><b>3. 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).</b></li> </ol>	
	<i>HP Integrated Module with Bluetooth 4.0/4.1/4.2/5.0/5.1 Wireless Technology</i>	
<i>Bluetooth Specification</i>	<b>4.0/4.1/4.2/5.0/5.1 Compliant</b>	
<i>Frequency Band</i>	<b>2402 to 2480 MHz</b>	
<i>Number of Available Channels</i>	<b>Legacy: 0~79 (1 MHz/CH)</b>	
	<b>BLE: 0~39 (2 MHz/CH)</b>	
<i>Signaling Data Rate</i>	<b>Legacy: 3 Mbps signaling data rate<sup>1</sup> 2.17 Mbps</b>	
	<b>BLE: 1 Mbps signaling data rate<sup>1</sup> 0.2 Mbps</b>	
	<b>1. Actual throughput may vary.</b>	
	<b>Legacy: Synchronous Connection Oriented links up to 3, 64 kbps, voice channels</b>	
	<b>Legacy: Asynchronous Connection Less links 2178.1 kbps/177.1 kbps asymmetric (3-DH5) or 864 kbps symmetric (3-EV5)</b>	
<i>Transmit Power</i>	<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.</b>	
<i>Power Consumption</i>	<b>Peak (Tx) 330 mW</b>	
	<b>Peak (Rx) 230 mW</b>	
	<b>Selective Suspend 17 mW</b>	
<i>Bluetooth Software Supported</i>	<b>Microsoft Windows Bluetooth Software</b>	
<i>Link Topology</i>	<b>Microsoft Windows ACPI, and USB Bus Support</b>	
<i>Power Management</i>	<b>FCC (47 CFR) Part 15C, Section 15.247 &amp; 15.249</b>	
<i>Certifications</i>	<b>ETS 300 328, ETS 300 826</b>	
<i>Power Management</i>	<b>Low Voltage Directive IEC950</b>	
<i>Certifications</i>	<b>UL, CSA, and CE Mark</b>	
<i>Bluetooth Profiles Supported</i>	<b>BT4.1-ESR 5/6/7 Compliance</b>	
	<b>LE Link Layer Ping</b>	
	<b>LE Dual Mode</b>	
	<b>LE Link Layer</b>	
	<b>LE Low Duty Cycle Directed Advertising</b>	
	<b>LE L2CAP Connection Oriented Channels</b>	
	<b>Train Nudging &amp; Interlaced Scan</b>	
	<b>BT4.2 ESR08 Compliance</b>	



## Technical Specifications

**LE Secure Connection- Basic/Full**  
**LE Privacy 1.2 –Link Layer Privacy**  
**LE Privacy 1.2 –Extended Scanner Filter Policies**  
**LE Data Packet Length Extension**  
**FAX Profile (FAX)**  
**Basic Imaging Profile (BIP)2**  
**Headset Profile (HSP)**  
**Hands Free Profile (HFP)**  
**Advanced Audio Distribution Profile (A2DP)**

### POWER

HP 45 W Smart  
AC adapter

<i>Dimensions (H x W x D)</i>	<b>3.74 x 1.57 x 1.04 in (9.5 x 4.0 x 2.65 cm)</b>
<i>Weight</i>	<b>0.386 lb (175 g) max</b> <b>Not including power cord. Power cord varies by country</b>
<i>Input</i>	<b>90 to 265 VAC</b>
	<i>Input Efficiency</i> <b>87.74% at 115Vac and 88.4% at 230Vac</b>
	<i>Input frequency range</i> <b>47 to 63 Hz</b>
	<i>Input AC current</i> <b>1.4 A at 90 VAC</b>
<i>Output</i>	<i>Output power</i> <b>45 W</b>
	<i>DC output</i> <b>19.5 V</b>
	<i>Hold-up time</i> <b>5ms at 115 VAC input</b>
	<i>Output current protection</i> <b>&lt;8.0A</b>
<i>Connector</i>	<b>4.5mm Barrel Type, 3 pin/grounded, mates with interchangeable cords</b>
<i>Environmental Design</i>	<i>Operating temperature</i> <b>32° to 95° F (0° to 35° C)</b>
	<i>Non-operating (storage) temperature</i> <b>-4° to 185° F (-20° to 85° C)</b>
	<i>Altitude</i> <b>0 to 16,400 ft (0 to 5000m)</b>
	<i>Humidity</i> <b>20% to 95%</b>
	<i>Storage Humidity</i> <b>10% to 95%</b>
<i>EMI and Safety Certifications</i>	<b>CE Mark - full compliance with LVD and EMC directives</b> <b>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.</b> <b>MTBF - over 200,000 hours at 25°C ambient condition.</b>

## Technical Specifications

<i>HP 65 W EM Smart AC adapter</i>	<i>Dimensions</i>	<b>102 x 55 x 30 mm</b>
	<i>Weight</i>	<b>270 g +/- 10 g</b> <b>Not including power cord. Power cord varies by country</b>
<i>Input</i>	<i>Input Efficiency</i>	<b>87% min at 115V/230V</b>
	<i>Input frequency range</i>	<b>47 to 63 Hz</b>
	<i>Input AC current</i>	<b>1.7 A at 90 VAC and maximum load</b>
<i>Output</i>	<i>DC output</i>	<b>65W(19.5V/3.33A)</b>
	<i>Hold-up time</i>	<b>5 msec at 115 VAC input</b>
	<i>Output current limit</i>	<b>&lt;11A, Over voltage protection- 29V max automatic shutdown</b>
<i>Connector</i>	<b>4.5mm Barrel Type, 3 pin/grounded, mates with interchangeable cords</b>	
<i>Environmental Design</i>	<i>Operating temperature</i>	<b>0° to 35° C</b>
	<i>Non-operating (storage) temperature</i>	<b>-20° to 85° C</b>
	<i>Altitude</i>	<b>0 to 5,000 m</b>
	<i>Humidity</i>	<b>0% to 95%</b>
	<i>Storage Humidity</i>	<b>0% to 95%</b>
<i>EMI and Safety Certifications</i>	<b>CE Mark - 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; Reliability - failure rate of less than 0.1% annually within the first three years of operation.</b>	

<i>HP 45 W USB type C Straight 1.8 m AC Adapter</i>	<i>Dimensions</i>	<b>94.0mm x 40.0mm x 26.5 mm</b>	
	<i>Weight</i>	<b>192.5 g +/-10%</b> <b>Not including power cord. Power cord varies by country</b>	
<i>Input</i>	<i>Input Efficiency</i>	<b>Average Efficiency of 25%, 50%, 75%, 100% load condition with 115Vac/230Vac Spec:</b> <b>5V: 81.5%</b> <b>9V: 86.7%</b> <b>12V: 87.41%</b> <b>15V: 87.8%</b>	
	<i>Input frequency range</i>	<b>47 ~ 63Hz</b>	
	<i>Input AC current</i>	<b>Max. 1.4 A at 90 Vac</b>	
	<i>Output</i>	<i>Output power</i>	<b>5V/15W</b> <b>9V/27W</b> <b>12V/36W</b> <b>15V/45W</b>
		<i>DC output</i>	<b>5V/9V/12V/15V</b>
		<i>Hold-up time</i>	<b>5ms at 115 Vac input</b>
		<i>Output current limit</i>	<b>&lt;5.0A</b>
<i>Connector</i>	<b>USB Type-C</b>		



## Technical Specifications

<i>Environmental Design</i>	<i>Operating temperature</i>	<b>32°F to 95° F (0° to 35° C)</b>
	<i>Non-operating (storage) temperature</i>	<b>4°F to 185° F (-20° to 85° C)</b>
	<i>Altitude</i>	<b>0 to 16,400 ft (0 to 5000m)</b>
	<i>Humidity</i>	<b>20% to 95%</b>
	<i>Storage Humidity</i>	<b>10% to 95%</b>
<i>EMI and Safety Certifications</i>	<b>CE Mark - full compliance with LVD and EMC directives</b> <b>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.</b> <b>MTBF - over 200,000 hours at 25°C ambient condition.</b>	

<i>HP 3-cell Long Life Li-Ion (48 WHr)</i>	<i>Dimensions (H x W x L)</i>	<b>7.3 x 94 x 184.47 mm (0.287 x 3.7 x 7.263 inch)</b>
	<i>Weight</i>	<b>0.215 kg</b>
	<i>Cells/Type</i>	<b>3cell Lithium-Ion Prismatic cell / 596080</b> <b>3cell Lithium-Ion Polymer cell / 606072</b>
	<i>Voltage</i>	<b>11.4 V</b>
	<i>Amp-hour capacity</i>	<b>4.212Ah</b>
	<i>Watt-hour capacity</i>	<b>48Wh</b>
	<i>Operating (Charging)</i>	<b>32° to 113° F (0° to 45° C)</b>
	<i>Operating (Discharging)</i>	<b>14° to 122° F (-10° to 60° C)</b>
	<i>Optional Travel Battery Available</i>	<b>No</b>



## Technical Specifications

### COUNTRY OF ORIGIN

China

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

Type	Description	Part Number
Cases	HP Essential Top Load Case (up to 15.6")	H2W17AA
	HP Essential Backpack (up to 15.6")	H1D24AA
	HP Slim Ultrabook Top Load (up to 15.6" x .88"/22/5mm)	F3W15AA
	HP Slim Ultrabook Backpack (up to 15.6" x .88"/22/5mm)	F3W16AA
	HP Black 11.6 Always On Case	2MY57AA
	HP Slim Ultrabook Messenger	F3W14AA
Docking*	HP USB-C/A Universal Dock G2	5TW13AA
Input/Output	HP Comfort Grip Wireless Mouse	H2L63AA
	HP Slim USB Keyboard & Mouse Bundle	T6T83AA
	HP 3-Button Laser Mouse	H4B81AA
	HP USB Premium Mouse	1JR32AA
	HP Wireless Premium Mouse	1JR31AA
	HP Essential USB Mouse	2TX37AA
	HP USB Travel Mouse	G1K28AA
	HP Slim Bluetooth Mouse	F3J92AA
	HP Slim Wireless keyboard and mouse	T6L04AA
	HP USB-C to USB 3.0 Adapter	N2Z63AA
	HP USB-C to 3 and 4.5mm Adapter	N2Z65AA
	HP USB-C to VGA Adapter	N9K76AA
	HP USB-C to HDMI 2.0	1WC36AA
	HP HDMI to VGA Adapter	H4F02AA
HP Pro Pen with Spare Tips	TBD	
HP Pro Pen Nib Set	TBD	
Power	HP 45W Smart AC Adapter (4.5mm)	H6Y88AA
	HP 65W Smart AC Adapter (4.5mm)	H6Y89AA
	HP 45W LC USB-C Power Adapter	1MZ01AA
	HP Notebook Powerbank	N9F71AA
	HP USB-C ESSENTIAL POWER BANK	3TB55AA
	HP USB-C Notebook Power Bank	2NA10AA
Storage	HP External USB Optical Drive	F2B56AA
Security	HP Nano Keyed Cable Lock	1AJ39AA
UCC	HP Stereo USB Headset	T1A67AA
	HP Stereo 3.5mm Headset	T1A66AA

**\*Supported using the USB connection for video and data. Power is not supported and must be provided directly to the Notebook with the power adapter that comes with the unit**



## Summary of Changes

<i>Date of change:</i>	<i>Version History:</i>		<i>Description of change:</i>
<b>February 28, 2020</b>	<b>V1 to V2</b>	<b>Added</b>	<b>Environmental Section</b>
<b>May 13, 2020</b>	<b>V2 to V3</b>	<b>Updated</b>	<b>Military Standards information and removed old docking stations.</b>

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