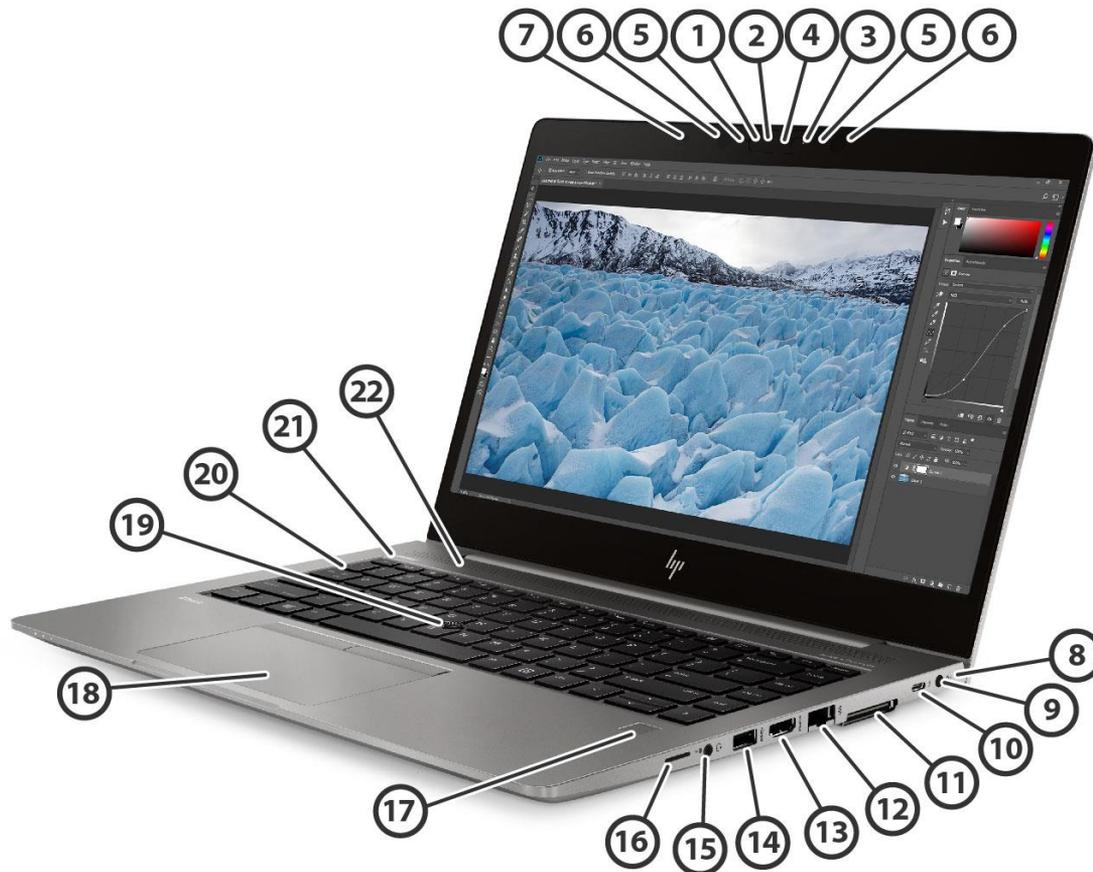


### Overview

### HP ZBook 14u G6 Mobile Workstation



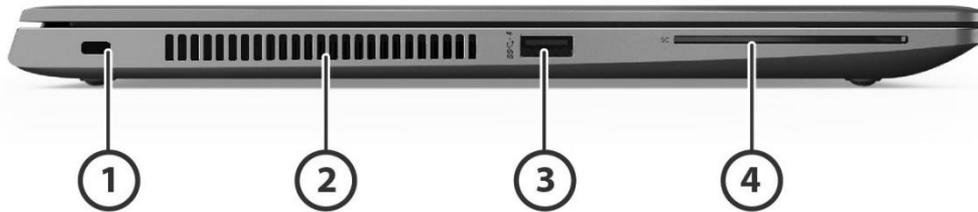
1. HD Camera (select models only)
2. IR Camera (select models only)
3. Webcam LED (select models only)
4. HP Privacy Camera shutter
5. Internal microphones
6. IR Camera LEDs (select models only)
7. Ambient light sensor (optional)
8. Battery Charging LED
9. Power connector
10. USB Type-C™ with Thunderbolt™
11. Docking Connector

#### Left

12. Ethernet port
13. HDMI port (Cable not included)
14. USB 3.1 Gen 1 port
15. Audio combo jack
16. SIM card slot<sup>1</sup>
17. Fingerprint sensor (optional)
18. Clickpad
19. Pointstick with 2 buttons
20. HP Collaboration Keyboard
21. Power button
22. Speakers

<sup>1</sup>All units have a SIM card slot and icon but units that do not support WWAN are shipped with a non-removable SIM slot plug

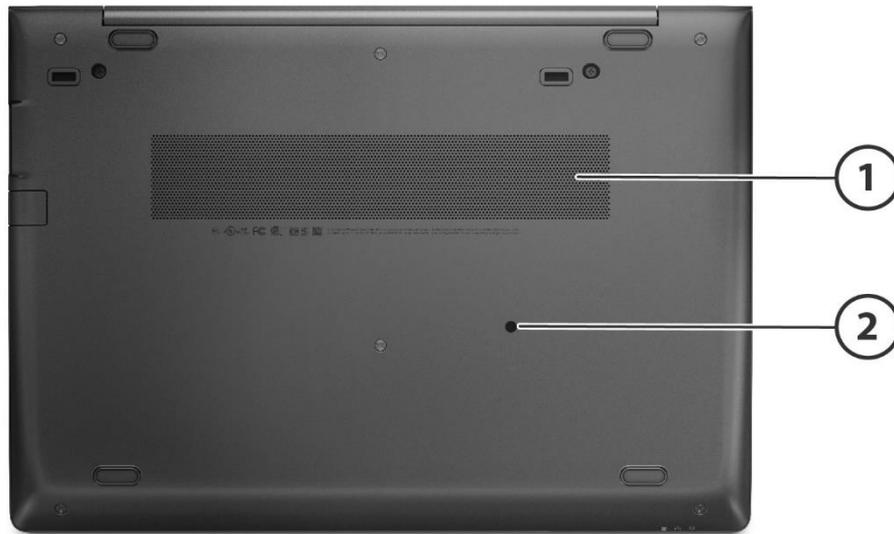
### Overview



#### Right

1. Security lock slot (lock sold separately)
2. Vent
3. USB 3.1 Gen 1 charging port
4. Smart card reader (optional)

### Overview



### Bottom

1. Fan Venting
2. Keyboard liquid drain

### Overview

#### At A Glance

- Eye-catching ultraslim design, premium precision-crafted machined aluminum (CNC), seamless formed aluminum chassis for clean, crisp, premium look and feel
- Bring your ideas to life quickly and effectively with the latest 8th gen quad core Intel® Core™ processors<sup>1</sup> with up to 4.8 GHz of acceleration when you need it most.
- Plug in to greater connectivity at your desktop with the HP ZBook Dock for lightning-fast Thunderbolt™ 3<sup>2</sup> transfers and the flexibility to run up to two external 4K displays.<sup>3</sup>
- Launch and manage calls from anywhere using Skype®<sup>4</sup> with HP Noise Cancellation and the world-facing third microphone. Shortcut keys, including start/stop call, calendar and screen share, enable efficient and effective collaboration.
- Strenuously tested to meet software certification and deliver superb performance with leading software providers, including Autodesk and Adobe®<sup>5</sup>.
- Get powerful protection from evolving malware threats with self-healing, hardware-enforced security solutions like HP Sure Start Gen4<sup>6</sup> which protects against BIOS attacks. Plus, easily manage multiple devices with the HP Manageability Integration Kit Gen2<sup>7</sup>.
- Leave password-only authentication behind with HP Client Security Manager Gen4<sup>8</sup> and Windows Hello.
- Choice of displays<sup>2</sup>:
  - Non-Touch:
    - HP SureView Integrated Privacy Display<sup>9</sup> 35.6cm (14.0") diagonal FHD IPS eDP + PSR Anti-Glare LED-backlit, 950 cd/m<sup>2</sup>, 100% sRGB (1920 x 1080)
    - 35.6cm (14.0") diagonal UHD IPS 100% AdobeRGB eDP + PSR Anti-Glare LED-backlit, 600 cd/m<sup>2</sup> (3840 x 2160)
    - 35.6cm (14.0") diagonal UHD IPS eDP + PSR Anti-Glare LED-backlit, 400 cd/m<sup>2</sup>, 100% sRGB (3840 x 2160)
    - 35.6 cm (14.0") diagonal FHD IPS eDP + PSR Anti-Glare LED-backlit 400 cd/m<sup>2</sup>, 100% sRGB (1920 x 1080)
    - 35.6 cm (14.0") diagonal FHD IPS eDP Anti-Glare LED-backlit, 250 cd/m<sup>2</sup>, 67% sRGB (1920 x 1080)
  - Touch:
    - HP SureView Integrated Privacy Display<sup>9</sup> 35.6cm (14.0") diagonal FHD IPS Anti-Glare LED-backlit On-Cell Touch with Corning® Gorilla® Glass 3, 900 cd/m<sup>2</sup>, 100% sRGB (1920 x 1080)
    - 35.6 cm (14.0") diagonal FHD IPS eDP Anti-Glare LED-backlit On-Cell Touch with Corning® Gorilla® Glass 3, 250 cd/m<sup>2</sup>, 67% sRGB (1920 x 1080)
    - 35.6 cm (14.0") diagonal FHD IPS eDP eDP + PSR Edge-to-Edge Touch Glass LED-backlit with Corning® Gorilla® Glass 3, 250 cd/m<sup>2</sup>, 67% sRGB (1920 x 1080)
- With the HP Privacy Camera,<sup>10</sup> you can easily control who and what the webcam sees by simply sliding the privacy shutter.
- Get rich visual immersion and real-time visualization of complex, multi-layered files and projects with AMD Radeon™ Pro WX3200<sup>2</sup> discrete graphics with 4GB GDDR5 video memory
- Work without limits in any location with up to 32GB of DDR4 RAM and up to 2TB of local PCIe storage that's up to 6x faster than SATA SSD, and up to 21x faster than traditional HDD storage<sup>11</sup>.
- No need to risk riding someone else's network when you have your own. 4G LTE<sup>12</sup> leverages the SIM card from your wireless provider for enhanced security.
- HP Extended Range Wireless LAN isolates the wireless antenna to improve signal integrity and range, minimizing interruptions so you can work all day without a hitch.
- Leave power supply anxiety behind with up to 14 hours of battery life<sup>13</sup>. Plus, ultra-fast recharge takes you from zero to 50% charge in just 30 minutes.<sup>14</sup>
- Our ZBooks are designed to undergo extensive MIL-STD 810G testing.<sup>15</sup>

<sup>1</sup> Multicore is designed to improve performance of certain software products. Not all customers or software applications will necessarily benefit from use of this technology. Performance and clock frequency will vary depending on application workload and your hardware and software configurations. Intel's numbering, branding and/or naming is not a measurement of higher performance. Intel® Turbo Boost technology requires a PC with a processor with Intel Turbo Boost capability. Intel Turbo Boost performance varies depending on hardware, software and overall system configuration. See [www.intel.com/technology/turboboost](http://www.intel.com/technology/turboboost) for more information.

<sup>2</sup> Sold separately or as an optional feature.

<sup>3</sup> Hybrid graphics setting is required to run up to two external 4K displays.

<sup>4</sup> Skype requires Internet access and is not available in China.

### Overview

<sup>5</sup> Adobe and Autodesk software sold separately.

<sup>6</sup> HP Sure Start Gen5 is available on select HP PCs with Intel processors. See product specifications for availability.

<sup>7</sup> HP Manageability Integration Kit Gen2 can be downloaded from <http://www8.hp.com/us/en/ads/clientmanagement/overview.html>.

<sup>8</sup> HP Client Security Manager Gen5 requires Windows and is available on select HP Pro, Elite, and ZBook PCs. See product specifications for details.

<sup>9</sup> HP Sure View Gen3 is optional and must be configured at purchase. HP Sure View Gen3 available on 2nd half of 2019.

<sup>10</sup> HP Privacy Camera only available on non-touch screens equipped with HD or IR camera and must be installed at the factory.

<sup>11</sup> For hard drives, GB = 1 billion bytes. TB = 1 trillion bytes. Actual formatted capacity is less. Up to 30GB (for Windows 10) of system disk is reserved for system recovery software.

<sup>12</sup> 4G LTE is an optional feature, requires separately purchased service contract, and configuration at purchase. Check with service provider for coverage and availability in your area. Connection speeds will vary due to location, environment, network conditions, and other factors. 4G LTE not available on all products, in all regions.

<sup>13</sup> 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 [www.bapco.com](http://www.bapco.com) External link icon for additional detail.

<sup>14</sup> Recharges your battery up to 50% within 30 minutes when the system is off or in standby mode. Power adapter with a minimum capacity of 65 watts is required. After charging has reached 50% capacity, charging will return to normal. Charging time may vary +/-10% due to System tolerance.

<sup>15</sup> MIL STD 810G 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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### Features

#### OPERATING SYSTEM

<b>Preinstalled OS</b>	Windows 10 Pro 64 - HP recommends Windows 10 Pro. <sup>1</sup> Windows 10 Home 64 <sup>1</sup> Windows 10 Home Single Language 64 <sup>1</sup> Windows 10 Pro 64 <sup>1</sup> Windows 10 China Government Editions <sup>1</sup> FreeDOS 3.0
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<sup>1</sup> Not all features are available in all editions or versions of Windows. Systems may require upgraded and/or separately purchased hardware, drivers, software or BIOS update to take full advantage of Windows functionality. Windows 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>.

#### PROCESSOR

8<sup>th</sup> Generation Intel® Core™ i7-8565U with Intel® UHD Graphics 620 (1.8 GHz base frequency, up to 4.6 GHz with Intel® Turbo Boost Technology, 8 MB L3 cache, 4 cores)<sup>2, 3, 4, 5, 6</sup>

8<sup>th</sup> Generation Intel® Core™ i7-8665U vPro™ with Intel® UHD Graphics 620 (1.9 GHz base frequency, up to 4.8 GHz with Intel® Turbo Boost Technology, 8 MB L3 cache, 4 cores)<sup>2, 3, 4, 5, 6</sup>

8<sup>th</sup> Generation Intel® Core™ i5-8265U with Intel® UHD Graphics 620 (1.6 GHz base frequency, up to 3.9 GHz with Intel® Turbo Boost Technology, 6 MB L3 cache, 4 cores)<sup>2, 3, 4, 5, 6</sup>

8<sup>th</sup> Generation Intel® Core™ i5-8365U vPro™ with Intel® UHD Graphics 620 (1.6 GHz base frequency, up to 4.1 GHz with Intel® Turbo Boost Technology, 6 MB L3 cache, 4 cores)<sup>2, 3, 4, 5, 6</sup>

<sup>2</sup> Multicore is designed to improve performance of certain software products. Not all customers or software applications will necessarily benefit from use of this technology. Performance and clock frequency will vary depending on application workload and your hardware and software configurations. Intel's numbering, branding and/or naming is not a measurement of higher performance.

<sup>3</sup> Processor speed denotes maximum performance mode; processors will run at lower speeds in battery optimization mode.

<sup>4</sup> Intel® Turbo Boost performance varies depending on hardware, software and overall system configuration. See [www.intel.com/technology/turboboost](http://www.intel.com/technology/turboboost) for more information.

<sup>5</sup> In accordance with Microsoft's support policy, HP does not support the Windows 8 or Windows 7 operating system on products configured with Intel and AMD 7th generation and forward processors or provide any Windows 8 or Windows 7 drivers on <http://www.support.hp.com>.

<sup>6</sup> Some functionality of vPro, such as Intel Active management technology and Intel Virtualization technology, requires additional 3rd party software in order to run. Availability of future "virtual appliances" applications for Intel vPro technology is dependent on 3rd party software providers. Compatibility with future "virtual appliances" is yet to be determined.

### Features

#### CHIPSET

Chipset is integrated with processor

#### INTEL® CORE™ I5 WITH VPRO/CORE™ I7 WITH VPRO/XEON® WITH VPRO TECHNOLOGY CAPABLE

Intel® Core™ i5 with vPro™, Core™ i7 with vPro™ and Xeon® with vPro™ technology is a selectable feature that is available on units configured with select processors, a qualified Intel® WLAN module and a preinstalled Windows® operating system. It provides advances in remote manageability, security, energy efficient performance, and wireless connectivity. Intel® Active Management Technology (iAMT) offers built-in manageability and proactive security for networked mobile workstations, even when they are powered off\* or when the operating system is inoperable. It can help identify threats before they reach the network, isolate infected systems, and update regardless of their power state.

<sup>1</sup> Requires a Windows operating system, network hardware and software, connection with a power source, and a direct (non-VPN) corporate network connection which is either cable or wireless LAN.

<sup>2</sup> Some functionality of Intel® Core™ i5 with vPro™/Core™ i7 with vPro™/Xeon® with vPro™ technology, such as Intel® Active Management technology and Intel® Virtualization technology, requires additional third-party software in order to run. Availability of future "virtual appliances" applications for Intel® Core™ i5 with vPro™/Core™ i7 with vPro™/XEON® with vPro™ technology is dependent on third-party software providers. Compatibility with future "virtual appliances" is yet to be determined.

#### GRAPHICS

##### Integrated

Intel® UHD Graphics 620<sup>1, 3, 5, 6</sup>

##### Discrete

AMD Radeon™ Pro WX 3200 (4 GB GDDR5 video memory)<sup>2, 4</sup>

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

<sup>2</sup> Both UMA & Discrete configurations support 3 independent displays when on the HP UltraSlim Dock (sold separately) - Max. resolution = 2.5K @60Hz (DP1) & 2.5K @60Hz (DP2) & FHD (VGA), and support 3 independent displays when on the HP Thunderbolt Dock G2 (sold separately) - Max. resolution = 2.5K @60Hz (DP1) & 2.5K @60Hz (DP2) & FHD (VGA) OR 4K @60Hz (one DP Port) & 4K @60Hz (Type-C output port using a Type C-to-DP adapter).

<sup>3</sup> Support HD decode, DX12, HDMI 1.4, HDCP 2.2 via DP up to 4K @ 60Hz and via HDMI up to 4K @ 30Hz

<sup>4</sup> HDMI cable Sold Separately

<sup>5</sup> Shared video memory (UMA) uses part of the total system memory for video performance. System memory dedicated to video performance is not available for other use by other programs.

#### DISPLAY

##### Non-touch

- HP SureView Integrated Privacy Display Gen3 14" diagonal FHD IPS eDP + PSR anti-glare, 100% sRGB at 950 nits (1920 x 1080)
- 14" diagonal UHD IPS eDP + PSR anti-glare, 100% sRGB at 400 nits with ambient light sensor (3840 x 2160)
- 14" diagonal FHD IPS eDP + PSR anti-glare, 100% sRGB at 400 nits with ambient light sensor (1920 x 1080)
- 14" diagonal FHD IPS eDP anti-glare, 67% sRGB at 250 nits (1920 x 1080)

### Features

- 14" diagonal 4K UHD IPS eDP + PSR anti-glare, 100% AdobeRGB, 600 nits with ambient light sensor (3840 x 2160)

#### **Touch**

- 14" diagonal FHD IPS eDP touch screen with Corning® Gorilla® Glass 3, 67% sRGB at 250 nits (1920 x 1080)
- HP SureView Integrated Privacy Display Gen3 14" diagonal FHD IPS eDP + PSR touch screen with Corning® Gorilla® Glass 3, 100% sRGB at 900 nits (1920 x 1080)

<sup>1</sup> HP Sure View Gen3 is optional and must be configured at purchase.

<sup>2</sup> HP Sure View Gen3 available in 2nd half of 2019.

<sup>3</sup> UHD content required to view UHD images.

<sup>4</sup> Sold separately or as an optional feature.

<sup>5</sup> Resolutions are dependent upon monitor capability, and resolution and color depth settings.

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### Features

#### STORAGE AND DRIVES

**M.2 SATA Solid State Drive**

128 GB SATA Solid State Drive

512 GB SATA FIPS-140-2 Solid State Drive\*\*

**HP Z Turbo Drive (NVMe PCIe SSD)**

256 GB PCIe (NVMe) TLC Self Encrypting (SED) Solid State Drive

512 GB PCIe (NVMe) TLC Self Encrypting (SED) Solid State Drive

256 GB PCIe (NVMe) Solid State Drive

2 TB PCIe (NVMe) Solid State Drive

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

\*\*Available as an option on select HP PCs

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#### DRIVE CONTROLLERS

M.2 Storage Bay (SATA):

HP Z Turbo Drive:

RAID:

SATA-3 for Solid State Drive

PCIe Gen 3 x 4 lanes NVMe Solid State Drive

Not supported

#### MEMORY

**Maximum Memory**

32 GB DDR4-2400 non-ECC SDRAM

Slots are customer accessible / upgradeable

4 DDR4 SODIMMS

Supports Dual Channel Memory

Slots are customer accessible / upgradeable

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### Features

#### NETWORKING/COMMUNICATIONS

##### LAN<sup>1</sup>

Integrated Intel® I219-LM GbE, vPro™

Integrated Intel® I219-V GbE, non-vPro™

<sup>1</sup>GbE - 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.

##### WLAN<sup>2</sup>

Intel® Dual Band Wireless-AC 9560 802.11ac (2x2) Wi-Fi® and Bluetooth® 5 Combo, vPro™

Intel® Dual Band Wireless-AC 9560 802.11ac (2x2) Wi-Fi® and Bluetooth® 5 Combo, non-vPro™

Intel® Dual Band Wireless 6 AX200 802.11ax (2x2) Wi-Fi® and Bluetooth® 5.0 Combo, vPro™

Intel® Dual Band Wireless 6 AX200 802.11ax (2x2) Wi-Fi® and Bluetooth® 5.0 Combo, non-vPro™

<sup>2</sup> 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. Only available in countries where 802.11ax is supported.

##### WWAN<sup>3,4</sup>

Intel® XMM™ 7262 LTE-Advanced

Intel® XMM™ 7360 LTE-Advanced

Intel® XMM™ 7560 LTE-Advanced

<sup>3</sup> WWAN is an optional feature and requires factory configuration and 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, and in all regions.

<sup>4</sup> Gigabit class Category 16 4G LTE module is optional and must be configured at the factory. Module designed for up to 1 Gbps download speeds as carriers deploy 5 carrier aggregation and 100Mhz channel bandwidth, requires activation and separately purchased service contract. Backwards compatible to HSPA 3G technologies. Check with service provider for coverage and availability in your area. Connection, upload and download speeds will vary due to network, location, environment, network conditions, and other factors. 4G LTE not available on all products, in all regions.

##### NXP NPC300 Near Field Communication module

Native Miracast Support

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#### AUDIO/MULTIMEDIA

##### Audio

Audio by Bang & Olufsen, dual stereo speakers, HP World Facing Microphone dual array digital microphone, functions keys for volume up and down, combo microphone/headphone jack, HD audio.

##### Camera<sup>1,2</sup>

720p HD webcam with IR

720p HD webcam

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

<sup>2</sup> Windows Hello face authentication utilizes a camera specially configured for near infrared (IR) imaging to authenticate and unlock Windows devices as well as unlock your Microsoft Passport.

## Features

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### Features

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

##### Keyboard

HP Collaboration Keyboard, full-size, spill-resistant, backlit, with drain and DuraKeys, clickpad with image sensor and glass surface, multi-touch gestures and taps enabled

##### Pointing Devices

Dual pointstick; Clickpad with multi-touch gestures enabled, taps enabled as default; Microsoft Precision Touchpad Default Gestures Support

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#### SOFTWARE AND SECURITY

##### Software

Bing search for IE11  
Buy Office  
CyberLink Power Media Player  
HP Hotkey Support  
HP Noise Cancellation Software  
HP Performance Advisor<sup>9</sup>  
HP Recovery Manager  
HP Remote Graphics Software<sup>2</sup>  
HP Support Assistant<sup>1</sup>  
Skype for Business Certified<sup>3</sup>  
HP JumpStart  
HP Mobile Connect Pro<sup>4</sup>  
Native Miracast support<sup>5</sup>  
HP Connection Optimizer<sup>10</sup>

##### Security Management

Absolute persistence module<sup>7</sup>  
HP Device Access Manager  
HP FingerPrint Sensor  
HP Manageability Integration Kit<sup>12</sup>  
HP Power On Authentication  
HP Support Assistant<sup>8</sup>  
Security lock slot<sup>13</sup>  
Trusted Platform Module TPM 2.0 Embedded Security Chip  
Master Boot Record security  
Pre-boot authentication  
Microsoft Defender<sup>11</sup>  
HP Client Security Manager Gen5<sup>8, 18</sup>  
HP BIOSphere Gen5<sup>6</sup>  
HP Sure Recover Gen2<sup>14</sup>  
HP Sure Recover with Embedded Reimaging Gen2<sup>15</sup>  
HP Sure Start Gen5<sup>6, 16</sup>  
HP Secure Erase<sup>17</sup>  
HP Sure Sense<sup>19</sup>

**For more information on HP Client Security Software Suite, refer to <http://www.hp.com/go/clientsecurity>.**

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

<sup>2</sup> HP Remote Graphics Software - The remote desktop solution for serious workstation users and their most demanding applications. Download at: <http://www.hp.com/go/RGS>.

<sup>3</sup> Skype is not offered in China.

<sup>4</sup> HP Mobile Connect Pro is only available on preconfigured devices with WWAN. For geographic availability refer to <http://www.hp.com/go/mobileconnect>.

### Features

<sup>5</sup> Miracast is a wireless technology your PC can use to project your screen to TVs, projectors, and streaming media players that also support Miracast. You can use Miracast to share what you're doing on your PC and present a slide show. For more information:

<http://windows.microsoft.com/en-us/windows-8/project-wireless-screen-miracast>.

<sup>6</sup> HP BIOSphere - Requires Intel® 8th generation processors. HP Sure Start Gen5 - Available on HP Elite and HP Z Workstation products equipped with Intel® 8th generation processors.

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

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

<sup>8</sup> Requires Windows and Intel® 8th generation processors.

<sup>9</sup> HP Performance Advisor Software - HP Performance Advisor is ready and waiting to help you get the most out of your HP Workstation from day one—and every day after. Learn more or download at: <https://www8.hp.com/us/en/workstations/performance-advisor.html>

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

<sup>11</sup> Microsoft Defender Opt in and internet connection required for updates.

<sup>12</sup> HP Manageability Integration Kit can be downloaded from <http://www.hp.com/go/clientmanagement>.

<sup>13</sup> Security lock slot is Lock sold separately.

<sup>14</sup> HP Sure Recover Gen2: See product specifications for availability. Requires an open, wired network connection. Not available on platforms with multiple internal storage drives. You must back up important files, data, photos, videos, etc. before using HP Sure Recover to avoid loss of data. HP Sure Recover (Gen1) does not support platforms with Intel® Optane™.

<sup>15</sup> HP Sure Recover with Embedded Reimaging Gen2 is an optional feature which must be configured at purchase. See product specifications for availability. Not available on platforms with multiple internal storage drives. You must back up important files, data, photos, videos, etc. before use to avoid loss of data. HP Sure Recover with Embedded Reimaging (Gen1) does not support platforms with Intel® Optane™.

<sup>16</sup> HP Sure Start Gen5 is available on select HP PCs with Intel processors. See product specifications for availability.

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

<sup>18</sup> HP Client Security Manager Gen5 requires Windows and is available on select HP Pro, Elite and ZBook PCs. See product specifications for details.

<sup>19</sup> HP Sure Sense requires Windows 10. See product specifications for availability.

### Features

#### **POWER**

##### **Power Supply**

Up to 14 hours<sup>1</sup>

HP Long Life 3-cell, 50 Wh Li-ion polymer<sup>2</sup>

HP Smart 65 W External AC Power Adapter

HP Smart 45 W External AC Power Adapter

<sup>1</sup> Battery life will vary depending on the 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 MobileMark14 battery benchmark <https://bapco.com/products/mobilemark-2014/> for additional details.

<sup>2</sup> Supports HP Fast Charge Technology

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#### **ENVIRONMENTAL**

ENERGY STAR® certified and EPEAT® Silver registered configurations available<sup>1</sup>

Low halogen<sup>2</sup>

<sup>1</sup>EPEAT® registered where applicable. EPEAT® registration varies by country. See <http://www.epeat.net> for registration status by country. Search keyword generator on HP's 3rd party option store for solar generator accessories at [www.hp.com/go/options](http://www.hp.com/go/options).

<sup>2</sup> External power supplies, power cords, cables and peripherals are not low halogen. Service parts obtained after purchase may not be low halogen.

### Features

#### WEIGHTS & DIMENSIONS

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

32.6 x 23.43 x 1.79 cm

12.84 x 9.22 x 0.71 in

**Weights**

Starting at 1.48 kg

Weight varies by configuration and components.

Starting at 3.27 lb

Weight varies by configuration and components.

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#### PORTS/SLOTS

1 smart card reader

**Left side**

1 USB 3.1 (charging)

**Right side**

1 HDMI 1.4b

1 headphone/microphone combo

1 power connector

1 RJ-45

Ultra Slim Dock Connector

1 USB Type-C™ (Thunderbolt™ 3)

1 USB 3.1

#### SERVICE AND SUPPORT

3-year limited warranty options available, depending on country. Batteries have the same 3-year limited warranty as the platform. 24/7 operation will not void the HP warranty. Optional<sup>1</sup> HP Care Pack Services are extended service contracts which go beyond your standard limited warranties. To choose the right level of service for your HP product, use the HP Care Pack Services Lookup Tool at <http://www.hp.com/go/cpc>.

<sup>1</sup>Sold separately or as an optional feature. 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. 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. Consult your local HP Customer Support Center for details.

### Technical Specifications – System Unit

#### SYSTEM UNIT

<b>Stand-Alone Power Requirements (AC Power)</b>	<b>Nominal Operating Voltage</b>	19V
	<b>Integrated graphics</b>	6.78W
	<b>Discrete Graphics</b>	18W
	<b>Max Operating Power</b>	Discrete < 65W UMA < 45W
<b>Temperature</b>	<b>Operating</b>	32° to 95° F (0° to 35° C) (not writing optical) '41° to 95° F (5° to 35° C) (writing optical)
	<b>Non-operating</b>	-4° to 140° F (-20° to 60° C)
<b>Relative Humidity</b>	<b>Operating</b>	10% to 90%, non-condensing
	<b>Non-operating</b>	5% to 95%, 101.6° F (38.7° C) maximum wet bulb temperature
<b>Shock</b>	<b>Operating</b>	40 G, 2 ms, half-sine
	<b>Non-operating</b>	200 G, 2 ms, half-sine
<b>Random Vibration</b>	<b>Operating</b>	0.75 grms
	<b>Non-operating</b>	1.50 grms
<b>Altitude (unpressurized)</b>	<b>Operating</b>	-50 to 10,000 ft. (-15.24 to 3,048 m)
	<b>Non-operating</b>	-50 to 15,000 ft. (-15.24 to 12,192 m)
<b>Planned Industry Standard Certifications</b>	<b>UL</b>	Yes
	<b>CSA</b>	Yes
	<b>FCC Compliance</b>	Yes
	<b>ENERGY STAR®</b>	Select models <sup>1</sup>
	<b>EPEAT®</b>	Registered Silver in United States <sup>2</sup>
	<b>ICES</b>	Yes
	<b>Australia / NZ A-Tick Compliance</b>	Yes
	<b>CCC</b>	Yes
	<b>Japan VCCI Compliance</b>	Yes
	<b>KCC</b>	Yes
	<b>BSMI</b>	Yes
	<b>CE Marking Compliance</b>	Yes
	<b>MIL STD 810G</b>	Yes
	<b>BNCI or BELUS</b>	Yes
	<b>CIT</b>	Yes
	<b>GOST</b>	Yes
<b>Saudi Arabian Compliance (ICCP)</b>	Yes	

<sup>1</sup>Configurations of the HP ZBOOK 14u G6 that are ENERGY STAR® qualified are identified as HP ZBOOK 14u G6 ENERGY STAR on HP websites and on <http://www.energystar.gov>.

<sup>2</sup> EPEAT® registered where applicable. EPEAT registration varies by country. See <http://www.epeat.net> for registration status by country. Search keyword generator on HP's 3rd party option store for solar generator accessories at [www.hp.com/go/options](http://www.hp.com/go/options).

### Technical Specifications – Displays

#### DISPLAYS

<b>14.0" diagonal 4K UHD LED IPS 100% AdobeRGB (3840 x 2160) (600 nits)</b>	<b>Outline Dimensions (W x H)</b>	315.31 x 199.54 mm (max)		
	<b>Active Area</b>	309.31 x 173.98 mm (typ.)		
	<b>Weight</b>	235 g (max)		
	<b>Diagonal Size</b>	14.0 inch		
	<b>Thickness</b>	2.4 mm (max)		
	<b>Interface</b>	eDP 1.4 + PSR2 (4 lane)		
	<b>Panel Technology</b>	IPS		
	<b>Surface Treatment</b>	Anti-Glare (AG)		
	<b>Touch enabled</b>	No		
	<b>Contrast Ratio</b>	1200:1 (typ.)		
	<b>Refresh Rate</b>	60 Hz		
	<b>Brightness</b>	600 nits		
	<b>Pixel Resolution</b>	<b>Format</b>	3840 x 2160 (UHD)	
		<b>Configuration</b>	RGB	
	<b>Backlight</b>	LED		
	<b>Color Gamut Coverage</b>	Adobe RGB 100% (NTSC 95.5%)		
	<b>Color Depth</b>	8 bits		
<b>Viewing Angle</b>	UWVA 85/85/85/85			

#### DISPLAYS

<b>14.0" diagonal 4K UHD LED IPS xx% sRGB (3840 x 2160) (400 nits)</b>	<b>Outline Dimensions (W x H)</b>	315.31 x 199.54 mm (max) (w/ PCB)		
	<b>Active Area</b>	309.31 x 173.99 mm		
	<b>Weight</b>	<240 g (max)		
	<b>Diagonal Size</b>	14.0 inch		
	<b>Thickness</b>	2.4 mm (max)		
	<b>Interface</b>	eDP 1.3 + PSR (4 lane)		
	<b>Panel Technology</b>	IPS		
	<b>Surface Treatment</b>	Anti-Glare (AG)		
	<b>Touch enabled</b>	No		
	<b>Contrast Ratio</b>	1200:1 (typ.)		
	<b>Refresh Rate</b>	60 Hz		
	<b>Brightness</b>	400 nits (typ.)		
	<b>Pixel Resolution</b>	<b>Format</b>	3840 x 2160 (UHD)	
		<b>Configuration</b>	RGB	
	<b>Backlight</b>	LED		
	<b>Color Gamut Coverage</b>	72%		
	<b>Color Depth</b>	8 bits		
<b>Viewing Angle</b>	UWVA 85/85/85/85			
	<b>Outline Dimensions (W x H)</b>	316.11 x 197.98 mm (max)		
	<b>Active Area</b>	309.31 x 173.99 mm		
	<b>Weight</b>	<285 g (max)		

### Technical Specifications – Displays

<b>14.0" diagonal FHD LED IPS xx% sRGB (1920 x 1080) (400 nits)</b>	<b>Diagonal Size</b>	14.0 inch	
	<b>Thickness</b>	3.0 mm (max)	
	<b>Interface</b>	eDP 1.3 + PSR (2 lane)	
	<b>Panel Technology</b>	IPS	
	<b>Surface Treatment</b>	Anti-Glare (AG)	
	<b>Touch enabled</b>	No	
	<b>Contrast Ratio</b>	600:1 (typ.)	
	<b>Refresh Rate</b>	60 Hz	
	<b>Brightness</b>	400 nits	
	<b>Pixel Resolution</b>	<b>Format</b>	1920 x 1080 (FHD)
		<b>Configuration</b>	RGB
	<b>Backlight</b>	LED	
	<b>Color Gamut Coverage</b>	72%	
<b>Color Depth</b>	6 bits + Hi FRC		
<b>Viewing Angle</b>	UWVA 85/85/85/85		
<b>14.0" diagonal FHD LED IPS On-Cell with Gorilla Glass 3 touch screen 67% sRGB (1920 x 1080) (250 nits)</b>	<b>Outline Dimensions (W x H)</b>	316.112 x 197.98 mm (max)	
	<b>Active Area</b>	309.37 x 174.02 mm (typ.)	
	<b>Weight</b>	290 g (max)	
	<b>Diagonal Size</b>	14.0 inch	
	<b>Thickness</b>	3.0 mm (panel side) / 3.2 mm (PCBA Side) (max)	
	<b>Interface</b>	eDP 1.2	
	<b>Panel Technology</b>	IPS	
	<b>Surface Treatment</b>	Anti-Glare (AG)	
	<b>Touch Enabled</b>	Yes	
	<b>Contrast Ratio</b>	600:1 (typ.)	
	<b>Refresh Rate</b>	60 Hz	
	<b>Brightness</b>	250 nits	
	<b>Pixel Resolution</b>	<b>Format</b>	1920 x 1080 (FHD)
	<b>Configuration</b>	RGB	
<b>Backlight</b>	LED		
<b>Color Gamut Coverage</b>	45%		
<b>Color Depth</b>	6 bits		
<b>Viewing Angle</b>	UWVA 85/85/85/85		
<b>14.0" diagonal FHD LED IPS Edge-to-Edge with Gorilla Glass 3 touch screen 67% sRGB (1920 x 1080) (250 nits)</b>	<b>Outline Dimensions (W x H)</b>	316.112 x 197.98 mm (max)	
	<b>Active Area</b>	309.37 x 174.02 mm (typ.)	
	<b>Weight</b>	425 g (max)	
	<b>Diagonal Size</b>	14.0 inch	
	<b>Thickness</b>	3.8 mm (panel side w/ glass) / 4 mm (PCBA side) (max)	
<b>Interface</b>	eDP 1.2		

### Technical Specifications – Displays

<b>Panel Technology</b>	
<b>Surface Treatment</b>	Bright-View (BV)
<b>Touch enabled</b>	Yes
<b>Contrast Ratio</b>	600:1 (typ.)
<b>Refresh Rate</b>	60 Hz
<b>Brightness</b>	250 nits
<b>Pixel Resolution</b>	<b>Format</b> 1920 x 1080 (FHD)
	<b>Configuration</b> RGB
<b>Backlight</b>	LED
<b>Color Gamut Coverage</b>	45%
<b>Color Depth</b>	6 bits
<b>Viewing Angle</b>	UWVA 85/85/85/85

### Technical Specifications – Storage

#### STORAGE AND DRIVES\*

<b>128 GB M.2 SATA SSD</b>	<b>Form Factor</b>	M.2 2280		
	<b>Drive Weight</b>	0.02 lb (10 g)		
	<b>Capacity</b>	128GB		
	<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>	ATA-8, SATA 3.0		
	<b>Performance</b>	<b>Maximum Sequential Read</b>	<b>Maximum Sequential Write</b>	
		Around 540 ~ 560 MB/s	Around 380 ~ 530 MB/s	
		<b>Logical Blocks</b>	250,069,680	
	<b>Operating Temperature</b>	32 to 158F (0 to 70C) [ambient temp]		
	<b>Features</b>	ATA Security; DIPM; TRIM; DEVSLP		
		<b>Note:</b> 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>256 GB M.2 PCIe® Gen3 x4 NVMe™ SSD</b>	<b>Form Factor</b>	M.2 2280		
	<b>Drive Weight</b>	0.02 lb (10 g)		
	<b>Capacity</b>	256GB128GB		
	<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>Performance</b>	<b>Maximum Sequential Read</b>	<b>Maximum Sequential Write</b>	
		Up to 3000 MB/s	Around 1300 ~ 1600 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		
		<b>Note:</b> 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>256 GB M.2 PCIe® Gen3 x4 NVMe™ SED SSD</b>	<b>Form Factor</b>	M.2 2280		
	<b>Drive Weight</b>	0.02 lb (10 g)		
	<b>Capacity</b>	256GB		
	<b>NAND Type</b>	TLC		
	<b>Height</b>	0.09 in (2.3 mm)		
	<b>Width</b>	0.87 in (22 mm)		
	<b>Interface</b>	ATA-8, SATA 3.0		
	<b>Performance</b>	<b>Maximum Sequential Read</b>	<b>Maximum Sequential Write</b>	
		Around 530 ~ 560 MB/s	Around 500 ~ 530 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; TCG OPAL 2.0; DIPM; TRIM; DEVSLP		

### Technical Specifications – Storage

**Note:** 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>512 GB M.2 PCIe® Gen3 x4 NVMe™ SSD</b>	<b>Form Factor</b>	M.2 2280	
	<b>Drive Weight</b>	0.02 lb (10 g)	
	<b>Capacity</b>	512GB	
	<b>NAND Type</b>	TLC	
	<b>Height</b>	0.09 in (2.3 mm)	
	<b>Width</b>	0.87 in (22 mm)	
	<b>Interface</b>	PCIe NVMe Gen3X4	
	<b>Performance</b>	<b>Maximum Sequential Read</b>	<b>Maximum Sequential Write</b>
		Around 2700 ~ 3400 MB/s	Around 1390 ~ 2500 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		

**Note:** 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>512 GB M.2 PCIe® Gen3 x4 NVMe™ SED SSD</b>	<b>Form Factor</b>	M.2 2280	
	<b>Drive Weight</b>	0.02 lb (10 g)	
	<b>Capacity</b>	512GB	
	<b>NAND Type</b>	TLC	
	<b>Height</b>	0.09 in (2.3 mm)	
	<b>Width</b>	0.87 in (22 mm)	
	<b>Interface</b>	PCIe NVMe Gen3X4	
	<b>Performance</b>	<b>Maximum Sequential Read</b>	<b>Maximum Sequential Write</b>
		Around 1500 ~ 1700 MB/s	Around 780 ~ 1300 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; TCG OPAL 2.0; DIPM; TRIM; DEVSLP		

**Note:** 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>512 GB M.2 SATA SED SSD (FIPS-140-2)</b>	<b>Form Factor</b>	M.2 2280	
	<b>Drive Weight</b>	0.02 lb (10 g)	
	<b>Capacity</b>	512GB	
	<b>NAND Type</b>	TLC	
	<b>Height</b>	0.09 in (2.3 mm)	
	<b>Width</b>	0.87 in (22 mm)	
	<b>Interface</b>	ACS-3, SATA 3.2	
	<b>Performance</b>	<b>Maximum Sequential Read</b>	<b>Maximum Sequential Write</b>
		Up to 530 MB/s	Up to 400 MB/s
	<b>Logical Blocks</b>	1,000,215,216	
	<b>Operating Temperature</b>	32° to 158°F (0° to 70°C) [ambient temp]	
<b>Features</b>	ATA Security; TCG Opal 2.0; FIPS; DIPM; TRIM; DEVSLP		

### Technical Specifications – Storage

**Note:** 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>1 TB M.2 PCIe® Gen3 x4 NVMe™ SSD</b>	<b>Form Factor</b>	M.2 2280	
	<b>Drive Weight</b>	0.02 lb (10 g)	
	<b>Capacity</b>	1TB	
	<b>NAND Type</b>	TLC	
	<b>Height</b>	0.09 in (2.3 mm)	
	<b>Width</b>	0.87 in (22 mm)	
	<b>Interface</b>	PCIe NVMe Gen3X4	
	<b>Performance</b>	<b>Maximum Sequential Read</b>	<b>Maximum Sequential Write</b>
		Around 3200 ~ 3480 MB/s	Around 2400 ~ 2800 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		

**Note:** 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>2 TB M.2 PCIe® Gen3 x4 NVMe™ SSD</b>	<b>Form Factor</b>	M.2 2280	
	<b>Drive Weight</b>	0.02 lb (10 g)	
	<b>Capacity</b>	2TB	
	<b>NAND Type</b>	TLC	
	<b>Height</b>	0.09 in (2.3 mm)	
	<b>Width</b>	0.87 in (22 mm)	
	<b>Interface</b>	PCIe NVMe Gen3X4	
	<b>Performance</b>	<b>Maximum Sequential Read</b>	<b>Maximum Sequential Write</b>
		Around 2900 ~ 3000 MB/s	Up to 2100 MB/s
	<b>Logical Blocks</b>	3,907,029,168	
	<b>Operating Temperature</b>	32° to 158°F (0° to 70°C) [ambient temp]	
<b>Features</b>	ATA Security; TRIM; L1.2		

**Note:** 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>256GB M.2 PCIe® NVMe™ Value SSD</b>	<b>Form Factor</b>	M.2 2280	
	<b>Drive Weight</b>	0.02 lb (10 g)	
	<b>Capacity</b>	256GB	
	<b>NAND Type</b>	TLC	
	<b>Height</b>	0.09 in (2.3 mm)	
	<b>Width</b>	0.87 in (22 mm)	
	<b>Interface</b>	PCIe NVMe Gen3X4	
	<b>Performance</b>	<b>Maximum Sequential Read</b>	<b>Maximum Sequential Write</b>
		Around 1500 ~ 1700 MB/s	Around 780 ~ 1300 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		

### Technical Specifications – Storage

**Note:** 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.

### Technical Specifications – Networking

#### NETWORKING/COMMUNICATION

<p><b>Intel® Dual Band Wireless-AC 9560 802.11a/b/g/n/ac (2x2) Wi-Fi® and Bluetooth® 5 Combo, vPro™</b></p>	<p><b>Wireless LAN Standards</b></p>	<p>IEEE 802.11a IEEE 802.11b IEEE 802.11g IEEE 802.11n IEEE 802.11ac</p>
	<p><b>Interoperability</b></p>	<p>Wi-Fi certified</p>
	<p><b>Frequency Band</b></p>	<p>802.11b/g/n •2.402 – 2.482 GHz 802.11a/n •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</p>
	<p><b>Data Rates</b></p>	<p>•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 &amp; 160MHz)</p>
	<p><b>Modulation</b></p>	<p>Direct Sequence Spread Spectrum BPSK, QPSK, CCK, 16-QAM, 64-QAM, 256-QAM</p>
	<p><b>Security<sup>1</sup></b></p>	<p>•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 •Cisco Certified Extensions, all versions through CCX4 and CCX Lite •WAPI</p>
	<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> <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>
	<p><b>Power Consumption</b></p>	<ul style="list-style-type: none"> <li>•Transmit mode2.0 W</li> <li>•Receive mode1.6 W</li> <li>•Idle mode (PSP)180 mW(WLAN Associated)</li> <li>•Idle mode50 mW(WLAN unassociated)</li> <li>•Connected Standby 10mW</li> <li>•Radio disabled8 mW</li> </ul>

### Technical Specifications – Networking

<b>Power Management</b>	ACPI and PCI Express compliant power management 802.11 compliant power saving mode	
<b>Receiver Sensitivity<sup>3</sup></b>	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	
<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>	Type 2230 : 2.3 x 22.0 x 30.0 mm	
<b>Weight</b>	Type 2230 : 2.8g	
<b>Operating Voltage</b>	3.3v +/- 9%	
<b>Temperature</b>	Operating	14° to 158° F (-10° to 70° C)
	Non-operating	-40° to 176° F (-40° to 80° C)
<b>Humidity</b>	Operating	10% to 90% (non-condensing)
	Non-operating	5% to 95% (non-condensing)
<b>Altitude</b>	Operating	0 to 10,000 ft (3,048 m)
	Non-operating	0 to 50,000 ft (15,240 m)
<b>LED Activity</b>	LED Amber – Radio OFF; LED White – Radio ON	
<b>HP Integrated Module with Bluetooth 4.0/4.1/4.2/5.0 Wireless Technology</b>		
<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)	
<b>Data Rates and Throughput</b>	Legacy : 3 Mbps data rate; throughput up to 2.17 Mbps BLE : 1 Mbps data rate; throughput up to 0.2 Mbps Legacy : Synchronous Connection Oriented links up to 3, 64 kbps, voice channels Legacy : Asynchronous Connection Less links 2178.1 kbps/177.1 kbps asymmetric (3-DH5) or 864 kbps symmetric (3-EV5)	
<b>Transmit Power</b>	The Bluetooth component shall operate as a Class II Bluetooth device with a maximum transmit power of + 4 dBm for BR and EDR.	
<b>Power Consumption</b>	Peak (Tx) 330 mW Peak (Rx) 230 mW Selective Suspend 17 mW	
<b>Bluetooth Software Supported</b>	Microsoft Windows Bluetooth Software	
<b>Link Topology</b>		
<b>Power Management</b>	Microsoft Windows ACPI, and USB Bus Support	
<b>Certifications</b>	FCC (47 CFR) Part 15C, Section 15.247 & 15.249	

### Technical Specifications – Networking

<b>Power Management Certifications</b>	ETS 300 328, ETS 300 826 Low Voltage Directive IEC950 UL, CSA, and CE Mark
<b>Bluetooth Profiles Supported</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 & Interlaced Scan BT4.2 ESR08 Compliance 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)

**Intel® 9560  
802.11a/b/g/n/ac (2x2)  
WiFi and Bluetooth® 5.0  
Combo non-vPro**

<b>Wireless LAN Standards</b>	IEEE 802.11a IEEE 802.11b IEEE 802.11g IEEE 802.11n IEEE 802.11ac
<b>Interoperability</b>	Wi-Fi certified
<b>Frequency Band</b>	802.11b/g/n •2.402 – 2.482 GHz 802.11a/n •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
<b>Data Rates</b>	•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)
<b>Modulation</b>	Direct Sequence Spread Spectrum BPSK, QPSK, CCK, 16-QAM, 64-QAM, 256-QAM
<b>Security<sup>1</sup></b>	•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.

### Technical Specifications – Networking

	<ul style="list-style-type: none"> <li>•WPA2 certification</li> <li>•IEEE 802.11i</li> <li>•Cisco Certified Extensions, all versions through CCX4 and CCX Lite</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> <li>• 802.11ac VHT160(5GHz) : +11.5dBm minimum</li> </ul>
<b>Power Consumption</b>	<ul style="list-style-type: none"> <li>•Transmit mode2.0 W</li> <li>•Receive mode1.6 W</li> <li>•Idle mode (PSP)180 mW(WLAN Associated)</li> <li>•Idle mode50 mW(WLAN unassociated)</li> <li>•Connected Standby 10mW</li> <li>•Radio disabled8 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>	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
<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>	Type 2230 : 2.3 x 22.0 x 30.0 mm
<b>Weight</b>	Type 2230 : 2.8g
<b>Operating Voltage</b>	3.3v +/- 9%
<b>Temperature</b>	Operating 14° to 158° F (-10° to 70° C) Non-operating -40° to 176° F (-40° to 80° C)
<b>Humidity</b>	Operating 10% to 90% (non-condensing) Non-operating 5% to 95% (non-condensing)
<b>Altitude</b>	Operating Non-operating 0 to 10,000 ft (3,048 m) 0 to 50,000 ft (15,240 m)
<b>LED Activity</b>	LED Amber – Radio OFF; LED White – Radio ON
<b>HP Integrated Module with Bluetooth 4.0/4.1/4.2/5.0 Wireless Technology</b>	

### Technical Specifications – Networking

<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)
<b>Data Rates and Throughput</b>	Legacy : 3 Mbps data rate; throughput up to 2.17 Mbps BLE : 1 Mbps data rate; throughput up to 0.2 Mbps Legacy : Synchronous Connection Oriented links up to 3, 64 kbps, voice channels Legacy : Asynchronous Connection Less links 2178.1 kbps/177.1 kbps asymmetric (3-DH5) or 864 kbps symmetric (3-EV5)
<b>Transmit Power</b>	The Bluetooth component shall operate as a Class II Bluetooth device with a maximum transmit power of + 4 dBm for BR and EDR.
<b>Power Consumption</b>	Peak (Tx) 330 mW Peak (Rx) 230 mW Selective Suspend 17 mW
<b>Bluetooth Software Supported Link Topology</b>	Microsoft Windows Bluetooth Software
<b>Power Management</b>	Microsoft Windows ACPI, and USB Bus Support
<b>Certifications</b>	FCC (47 CFR) Part 15C, Section 15.247 & 15.249
<b>Power Management Certifications</b>	ETS 300 328, ETS 300 826 Low Voltage Directive IEC950 UL, CSA, and CE Mark
<b>Bluetooth Profiles Supported</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 & Interlaced Scan BT4.2 ESR08 Compliance 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)

**Intel® 22260  
802.11a/b/g/n/ac/ax  
(2x2) WiFi and  
Bluetooth® 5.1 Combo  
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

### Technical Specifications – Networking

	IEEE 802.11h IEEE 802.11i IEEE 802.11k IEEE 802.11r IEEE 802.11v
<b>Interoperability</b>	Wi-Fi certified
<b>Frequency Band</b>	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
<b>Data Rates</b>	•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)
<b>Modulation</b>	Direct Sequence Spread Spectrum OFDM, BPSK, QPSK, CCK, 16-QAM, 64-QAM, 256-QAM , 1024QAM
<b>Security<sup>1</sup></b>	•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 •Cisco Certified Extensions, all versions through CCX4 and CCX Lite •WAPI
<b>Network Architecture</b>	Ad-hoc (Peer to Peer)
<b>Models</b>	Infrastructure (Access Point Required)
<b>Roaming</b>	IEEE 802.11 compliant roaming between access points
<b>Output Power<sup>2</sup></b>	• 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
<b>Power Consumption</b>	•Transmit mode2.0 W •Receive mode1.6 W •Idle mode (PSP)180 mW(WLAN Associated) •Idle mode50 mW(WLAN unassociated)

### Technical Specifications – Networking

	<ul style="list-style-type: none"> <li>•Connected Standby 10mW</li> <li>•Radio disabled 8 mW</li> </ul>				
<b>Power Management</b>	ACPI and PCI Express compliant power management 802.11 compliant power saving mode				
<b>Receiver Sensitivity<sup>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>	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>	<ul 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> </ul>				
<b>Weight</b>	<ul style="list-style-type: none"> <li>1. Type 2230 : 2.8g</li> <li>2. Type 126: 1.3g</li> </ul>				
<b>Operating Voltage</b>	3.3v +/- 9%				
<b>Temperature</b>	<table border="0"> <tr> <td>Operating</td> <td>14° to 158° F (-10° to 70° C)</td> </tr> <tr> <td>Non-operating</td> <td>-40° to 176° F (-40° to 80° C)</td> </tr> </table>	Operating	14° to 158° F (-10° to 70° C)	Non-operating	-40° to 176° F (-40° to 80° C)
Operating	14° to 158° F (-10° to 70° C)				
Non-operating	-40° to 176° F (-40° to 80° C)				
<b>Humidity</b>	<table border="0"> <tr> <td>Operating</td> <td>10% to 90% (non-condensing)</td> </tr> <tr> <td>Non-operating</td> <td>5% to 95% (non-condensing)</td> </tr> </table>	Operating	10% to 90% (non-condensing)	Non-operating	5% to 95% (non-condensing)
Operating	10% to 90% (non-condensing)				
Non-operating	5% to 95% (non-condensing)				
<b>Altitude</b>	<table border="0"> <tr> <td>Operating</td> <td>0 to 10,000 ft (3,048 m)</td> </tr> <tr> <td>Non-operating</td> <td>0 to 50,000 ft (15,240 m)</td> </tr> </table>	Operating	0 to 10,000 ft (3,048 m)	Non-operating	0 to 50,000 ft (15,240 m)
Operating	0 to 10,000 ft (3,048 m)				
Non-operating	0 to 50,000 ft (15,240 m)				
<b>LED Activity</b>	LED Amber – Radio OFF; LED White – Radio ON				
<b>HP Integrated Module with Bluetooth 4.0/4.1/4.2/5.0/5.1 Wireless Technology</b>					
<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>Data Rates and Throughput</b>	Legacy : 3 Mbps data rate; throughput up to 2.17 Mbps BLE : 1 Mbps data rate; throughput up to 0.2 Mbps Legacy : Synchronous Connection Oriented links up to 3, 64 kbps, voice channels Legacy : Asynchronous Connection Less links 2178.1 kbps/177.1 kbps asymmetric (3-DH5) or 864 kbps symmetric (3-EV5)				
<b>Transmit Power</b>	The Bluetooth component shall operate as a Class II Bluetooth device with a maximum transmit power of + 9.5 dBm for BR and EDR.				

### Technical Specifications – Networking

<b>Power Consumption</b>	Peak (Tx): 330 mW Peak (Rx): 230 mW Selective Suspend: 17 mW
<b>Bluetooth Software Supported</b>	Microsoft Windows Bluetooth Software
<b>Link Topology</b>	
<b>Power Management</b>	Microsoft Windows ACPI, and USB Bus Support
<b>Certifications</b>	FCC (47 CFR) Part 15C, Section 15.247 & 15.249
<b>Power Management Certifications</b>	ETS 300 328, ETS 300 826 Low Voltage Directive IEC950 UL, CSA, and CE Mark
<b>Bluetooth Profiles Supported</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 & Interlaced Scan BT4.2 ESR08 Compliance 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)
<b>Security &amp; Manageability</b>	Intel® vPro™ support with appropriate Intel® chipset components

**Intel® 22260  
802.11a/b/g/n/ac/ax  
(2x2) WiFi and  
Bluetooth® 5.1 Combo  
non-vPro**

<b>Wireless LAN Standards</b>	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
<b>Interoperability</b>	Wi-Fi certified
<b>Frequency Band</b>	802.11b/g/n/ac •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

### Technical Specifications – Networking

<b>Data Rates</b>	<ul style="list-style-type: none"><li>•5.47 – 5.725 GHz</li><li>•5.825 – 5.850 GHz</li><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>
<b>Modulation</b>	Direct Sequence Spread Spectrum OFDM, BPSK, QPSK, CCK, 16-QAM, 64-QAM, 256-QAM , 1024QAM
<b>Security<sup>1</sup></b>	<ul style="list-style-type: none"><li>•IEEE and WiFi compliant 64 / 128 bit WEP encryption for a/b/g mode only</li><li>•AES-CCMP: 128 bit in hardware</li><li>•802.1x authentication</li><li>•WPA, WPA2: 802.1x. WPA-PSK, WPA2-PSK, TKIP, and AES.</li><li>•WPA2 certification</li><li>•IEEE 802.11i</li><li>•Cisco Certified Extensions, all versions through CCX4 and CCX Lite</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><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 mode2.0 W</li><li>•Receive mode1.6 W</li><li>•Idle mode (PSP)180 mW(WLAN Associated)</li><li>•Idle mode50 mW(WLAN unassociated)</li><li>•Connected Standby 10mW</li><li>•Radio disabled8 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></ul>

### Technical Specifications – Networking

<b>Antenna Type</b>	<ul style="list-style-type: none"> <li>•802.11ax, MCS11(HT40): -59dBm maximum</li> <li>•802.11ax, MCS11(VHT160): -58.5dBm maximum</li> </ul> <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>	<p>1. Type 2230 : 2.3 x 22.0 x 30.0 mm</p> <p>2. Type 1216: 1.67 x 12.0 x 16.0 mm</p>
<b>Weight</b>	<p>1. Type 2230 : 2.8g</p> <p>2. Type 126: 1.3g</p>
<b>Operating Voltage</b>	3.3v +/- 9%
<b>Temperature</b>	<p>Operating 14° to 158° F (-10° to 70° C)</p> <p>Non-operating -40° to 176° F (-40° to 80° C)</p>
<b>Humidity</b>	<p>Operating 10% to 90% (non-condensing)</p> <p>Non-operating 5% to 95% (non-condensing)</p>
<b>Altitude</b>	<p>Operating Non-operating 0 to 10,000 ft (3,048 m)</p> <p>0 to 50,000 ft (15,240 m)</p>
<b>LED Activity</b>	LED Amber – Radio OFF; LED White – Radio ON
<b>HP Integrated Module with Bluetooth 4.0/4.1/4.2/5.0/5.1 Wireless Technology</b>	
<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>	<p>Legacy : 0~79 (1 MHz/CH)</p> <p>BLE : 0~39 (2 MHz/CH)</p>
<b>Data Rates and Throughput</b>	<p>Legacy : 3 Mbps data rate; throughput up to 2.17 Mbps</p> <p>BLE : 1 Mbps data rate; throughput up to 0.2 Mbps</p> <p>Legacy : Synchronous Connection Oriented links up to 3, 64 kbps, voice channels</p> <p>Legacy : Asynchronous Connection Less links 2178.1 kbps/177.1 kbps asymmetric (3-DH5) or 864 kbps symmetric (3-EV5)</p>
<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.
<b>Power Consumption</b>	<p>Peak (Tx): 330 mW</p> <p>Peak (Rx): 230 mW</p> <p>Selective Suspend: 17 mW</p>
<b>Bluetooth Software Supported</b>	Microsoft Windows Bluetooth Software
<b>Link Topology</b>	
<b>Power Management</b>	Microsoft Windows ACPI, and USB Bus Support
<b>Certifications</b>	FCC (47 CFR) Part 15C, Section 15.247 & 15.249
<b>Power Management Certifications</b>	<p>ETS 300 328, ETS 300 826</p> <p>Low Voltage Directive IEC950</p> <p>UL, CSA, and CE Mark</p>

### Technical Specifications – Networking

#### Bluetooth Profiles Supported

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 & Interlaced Scan  
 BT4.2 ESR08 Compliance  
 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)

#### Intel® XMM 7262 LTE-Advanced (Cat 6)

<b>Technology/Operating bands</b>	FDD LTE: 2100 (Band 1), 1800 (Band 3), 850 (Band 5), 2600 (Band 7), 900 (Band 8), 800 (Band 20), 700 (Band 28), HSPA+: 2100 (Band 1), 850 (Band 5), 900 (Band 8)
<b>Wireless protocol standards</b>	3GPP Release 11 LTE Specification CAT.6, DL 40MHz BW throughput up to 300Mbps; UL 20MHz throughput up to 50Mbps WCDMA R99, 3GPP Release 5, 6, 7 and 8 UMTS Specification
<b>GPS</b>	Standalone, A-GPS (MS-A, MS-B and XTRA)
<b>GPS bands</b>	1575.42 MHz ± 1.023 MHz, GLONASS 1596-1607MHz
<b>Maximum data rates</b>	LTE: 300 Mbps (Download), 50 Mbps (Upload) DC-HSPA+: 42 Mbps (Download), 5.76 Mbps (Upload) UMT: 384 kbps (Download), 384 kbps (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</b> (Length x Width x Thickness)	42 x 30 x 2.3 mm

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

#### Intel® XMM™ 7560 LTE-Advanced Pro (CAT16)

<b>Technology/Operating bands</b>	FDD LTE: 2100 (Band 1), 1900 (Band 2), 1800 (Band 3), 1700/2100 (Band 4), 850 (Band 5), 2600 (Band 7), 900 (Band 8), 700 (Band 12 lower), 700 (Band 13 upper), 700 (Band 14 upper), 700 (Band 17 lower), 850 (Band 18 lower), 850 (Band 19 upper), 800 (Band 20), 1900 (Band 25), 850 (Band 26), 700 (Band 28), 700 (Band 29 RX only), 2300 (Band 30), 1700/2100 (Band 66). TDD LTE: 2600 (Band 38), 1900 (Band 39), 2400 (Band 40), 2500 (Band 41), 3500 (Band 42),
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### Technical Specifications – Networking

	5200 (Band 46 RX only) HSPA+: 2100 (Band 1), 1900 (Band 2), 1700/2100 (Band 4), 850 (Band 5), 900 (Band 8) MHz
<b>Wireless protocol standards</b>	3GPP Release 12 LTE Specification DL-CAT.16, DL 100MHz BW throughput up to 978Mbps; UL-CAT.13 40MHz throughput up to 150Mbps WCDMA R99, 3GPP Release 5, 6, 7 and 8 UMTS Specification
<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: 978 Mbps (Download), 150 Mbps (Upload) DC-HSPA+: 42 Mbps (Download), 5.76 Mbps (Upload) HSPA+: 21Mbps (Download), 5.76 Mbps (Upload)
<b>Maximum Output Power</b>	LTE: 23 dBm in all bands except B41 LTE B41 HPUE : 26dBm HSPA+: 23.5 dBm
<b>Maximum Power Consumption</b>	LTE: 1,200 mA (peak); 900 mA (average) HSPA+: 1,100 mA (peak); 800 mA (average)
<b>Form Factor</b>	M.2, 3042-S3 Key B
<b>Weight</b>	6 g
<b>Dimensions</b> (Length x Width x Thickness)	42 x 30 x 2.3 mm

### Intel® XMM™ 7360 LTE-Advanced (CAT9)

<b>Technology/Operating bands</b>	FDD LTE: 2100 (Band 1), 1900 (Band 2), 1800 (Band 3), 1700/2100 (Band 4), 850 (Band 5), 2600 (Band 7), 900 (Band 8), 1400 (Band 11), 700 (Band 12 lower), 700 (Band 13 upper), 700 (Band 17 lower), 850 (Band 18 lower), 850 (Band 19 upper), 800 (Band 20), 1400 (Band 21), 850 (Band 26), 700 (Band 28), 700 (Band 29 RX only), 2300 (Band 30), 1700/2100 (Band 66). TDD LTE: 2600 (Band 38), 1900 (Band 39), 2400 (Band 40), 2500 (Band 41). HSPA+: 2100 (Band 1), 1900 (Band 2), 1700/2100 (Band 4), 850 (Band 5), 900 (Band 8) MHz
<b>Wireless protocol standards</b>	3GPP Release 11 LTE Specification CAT.9, DL 60MHz BW throughput up to 450Mbps; UL 20MHz throughput up to 50Mbps WCDMA R99, 3GPP Release 5, 6, 7 and 8 UMTS Specification
<b>GPS</b>	Standalone, A-GPS (MS-A, MS-B)
<b>GPS Bands</b>	1575.42 MHz ± 1.023 MHz, GLONASS 1596-1607MHz, Beidou 1561.098 MHz
<b>Maximum Data Rates</b>	LTE: 450 Mbps (Download), 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>	5.8 g
<b>Dimensions</b> (Length x Width x Thickness)	42 x 30 x 2.3 mm

### Technical Specifications – Networking

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

#### NXP NPC300 Near Field Communication module

<b>Dimensions (L x W x H)</b>	Module 17 mm by 10 mm by 2.0 mm	
<b>Chipset</b>	NPC300	
<b>System interface</b>	I2C	
<b>NFC RF standards</b>	ISO/IEC 14443 A ISO/IEC 14443 B ISO/IEC 15693 ISO/IEC 18092 ECMA-340 NFCIP-1 Target and Initiator ECMA-320 NFCIP-2	
<b>NFC Forum Support Reader (PCD-VCD) Mode(1)</b>	Tag Type 1, Type 2, Type3 and Type 4, NFCIP-1 and NFCIP-2 ISO/IEC 14443 A ISO/IEC 14443 B ISO/IEC 15693 MIFARE 1K MIFARE 4K MIFARE DESFire FeliCa Jewel and Topaz cards	
<b>Card Emulation (PICC-VICC) Mode(1)</b>	ISO/IEC 14443 A ISO/IEC 14443 B and B' MIFARE FeliCa	
<b>Frequency</b>	13.56 MHz	
<b>NFC Modes Supported</b>	Reader/Writer, Peer-to-Peer	
<b>Raw RF Data Rates</b>	106, 212, 424, 848 kbps	
<b>Operating temperature</b>	-25 C to 80°C	
<b>Storage temperature</b>	-20°C to 125°C	
<b>Humidity</b>	10-90% operating 5-95% non-operating	
<b>Supply Operating voltage</b>	2.7 to 5.5 Volts	
<b>I/O Voltage</b>	1.8V or 3.3V	
<b>Power Consumption</b>	<b>Booster enable, VCC_BOOST = 5V) Mode Power Consumption,</b>	VBAT= 3.3V, Typical Polling 710.93 mW Detected Test Tag Type 1 Total 152.09 mW Detected Test Tag Type 2 Total 341.26 mW Detected Test Tag Type 3 Total 383.76 mW Detected Test Tag Type 4 Total 312.26 mW
<b>Antenna</b>	Antenna connector, 0.3mm pitch, 7 connector FPC. Antenna matching is external to module.	

### Technical Specifications – Power

#### POWER

<b>AC Adapter 65 Watt nPFC USB type C</b>	<b>Dimensions</b>	74x74x28.5mm
	<b>Weight</b>	unit: 245g +/- 10g
	<b>Input</b>	<b>Input Efficiency</b> " 81.5% min at 115 Vac/ 230Vac @ 5V/3A 86.7% min at 115 Vac/ 230Vac @ 9V/3A 88% min at 115 Vac/ 230Vac @ 10V/5A 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>Output</b>	<b>Input AC current</b> 1.7 A at 90 VAC and maximum load
		<b>Output power</b> 65W
		<b>DC output</b> 5V/9V/10V/12V/15V/20V
		<b>Hold-up time</b> 5ms at 115 Vac input
		<b>Output current limit</b> <8.0A
	<b>Connector</b>	Non-Standard C6
	<b>Environmental Design</b>	<b>Operating temperature</b> 32° to 95° F (0° to 35° C)
		<b>Non-operating (storage) temperature</b> -4° to 185° F (-20° to 85° C)
		<b>Altitude</b> 0 to 16,400 ft (0 to 5,000 m)
		<b>Humidity</b> 5% to 95%
		<b>Storage Humidity</b> 5% to 95%
	<b>EMI and Safety Certifications</b>	Eg: *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 100,000 hours at 25°C ambient condition.

<b>AC Adapter 45 Watt nPFC USB type C</b>	<b>Dimensions</b>	62.0x62.0x28.5mm
	<b>Weight</b>	unit: 220g +/- 10g
	<b>Input</b>	<b>Input Efficiency</b> Average Efficiency of 25%, 50%, 75%, 100% load condition with 115Vac/230Vac Spec: 5V : 81.5% 9V : 86.7% 10V : 87.5% 12V : 87.8% 15V : 87.8% 20V : 87.8%
		<b>Input frequency range</b> 47 to 63 Hz
		<b>Input AC current</b> Max. 1.4 A at 90 Vac

### Technical Specifications – Power

<b>Output</b>	<b>Output power</b>	Average Efficiency of 25%, 50%, 75%, 100% load condition with 115Vac/230Vac Spec:
	<b>DC output</b>	5V: 81.5%
	<b>Hold-up time</b>	9V: 86.7%
	<b>Output current limit</b>	10V : 87.5%
<b>Connector</b>	Non-Standard C6	
<b>Environmental Design</b>	<b>Operating temperature</b>	32° to 95° F (0° to 35° C)
	<b>Non-operating (storage) temperature</b>	-4° to 185° F (-20° to 85° C)
	<b>Altitude</b>	0 to 16,400 ft (0 to 5,000 m)
	<b>Humidity</b>	20% to 95%
	<b>Storage Humidity</b>	10% to 95%
<b>EMI and Safety Certifications</b>	<ul style="list-style-type: none"> <li>*CE Mark - full compliance with LVD and EMC directives</li> <li>* 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.</li> <li>* MTBF - over 200,000 hours at 25°C ambient condition.</li> </ul>	

<b>HP 45W Smart AC adapter</b>	<b>Dimensions</b>	95.0x40.0x26.5mm
	<b>Weight</b>	unit: 200g +/- 10g
	<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</b>	<b>Output power</b> 45W
		<b>DC output</b> 19.5V
		<b>Hold-up time</b> 5ms at 115 Vac input
		<b>Output current limit</b> <8.0A
	<b>Connector</b>	C6
	<b>Environmental Design</b>	<b>Operating temperature</b> 32° to 95° F (0° to 35° C)
		<b>Non-operating (storage) temperature</b> -4° to 185° F (-20° to 85° C)
		<b>Altitude</b> 0 to 16,400 ft (0 to 5,000 m)
		<b>Humidity</b> 20% to 95%
		<b>Storage Humidity</b> 10% to 95%
	<b>EMI and Safety Certifications</b>	<ul style="list-style-type: none"> <li>*CE Mark - full compliance with LVD and EMC directives</li> <li>* 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.</li> <li>* MTBF - over 200,000 hours at 25°C ambient condition.</li> </ul>

### Technical Specifications – Power

<b>HP 65W Smart AC adapter</b>	<b>Dimensions</b>	102x55x30mm	
	<b>Weight</b>	unit: 250g +/- 10g	
	<b>Input</b>	<b>Input Efficiency</b>	88.0 % at 115 Vac and 89.0 % at 230Vac
		<b>Input frequency range</b>	47 ~ 63 Hz
	<b>Output</b>	<b>Input AC current</b>	Max. 1.7 A at 90 Vac
		<b>Output power</b>	65W
		<b>DC output</b>	19.5V
		<b>Hold-up time</b>	5ms at 115 Vac input
		<b>Output current limit</b>	<11.0A
		<b>Connector</b>	C6
	<b>Environmental Design</b>	<b>Operating temperature</b>	32° to 95° F (0° to 35° C)
		<b>Non-operating (storage) temperature</b>	-4° to 185° F (-20° to 85° C)
		<b>Altitude</b>	0 to 16,400 ft (0 to 5,000 m)
		<b>Humidity</b>	20% to 95%
		<b>Storage Humidity</b>	20% 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>	
<b>HP 65W EM Smart AC adapter</b>	<b>Dimensions</b>	102x55x30mm	
	<b>Weight</b>	unit: 250g +/- 10g	
	<b>Input</b>	<b>Input Efficiency</b>	88.0 % at 115 Vac and 89.0 % at 230Vac
		<b>Input frequency range</b>	47 ~ 63 Hz
	<b>Output</b>	<b>Input AC current</b>	Max. 1.7 A at 90 Vac
		<b>Output power</b>	65W
		<b>DC output</b>	19.5V
		<b>Hold-up time</b>	5ms at 115 Vac input
		<b>Output current limit</b>	<11.0A
		<b>Connector</b>	C6
	<b>Environmental Design</b>	<b>Operating temperature</b>	32° to 95° F (0° to 35° C)
		<b>Non-operating (storage) temperature</b>	-4° to 185° F (-20° to 85° C)
		<b>Altitude</b>	0 to 16,400 ft (0 to 5,000 m)
		<b>Humidity</b>	20% to 95%
		<b>Storage Humidity</b>	10% to 95%

### Technical Specifications – Power

	<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>	
<b>AC Adapter 65 Watt Smart nPFC Travel Adapter</b>	<b>Dimensions</b>	120.0x57.6x16.7mm	
	<b>Weight</b>	unit: 250g +/- 10g	
	<b>Input</b>	<b>Input Efficiency</b>	88.0 % at 115 Vac and 89.0 % at 230Vac
		<b>Input frequency range</b>	47 to 63 Hz
		<b>Input AC current</b>	1.7 A at 90 Vac
	<b>Output</b>	<b>Output power</b>	65W
		<b>DC output</b>	19.5V/5V
		<b>Hold-up time</b>	5 ms at 115 Vac input
		<b>Output current limit</b>	<11.0A
	<b>Connector</b>	DC plug 4.5mm/7.4mm tips	
	<b>Environmental Design</b>	<b>Operating temperature</b>	32° to 95° F (0° to 35° C)
		<b>Non-operating (storage) temperature</b>	-4° to 185° F (-20° to 85° C)
		<b>Altitude</b>	0 to 16,400 ft (0 to 5,000 m)
<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>	
<b>HP 3-Cell Long Life Battery</b>	<b>Dimensions (H x W x L)</b>	L 278.7mm x W 76.3mm x H 7.1mm	
	<b>Weight</b>	193 +/- 10g	
	<b>Cells/Type</b>	3cell Lithium-Ion Polymer cell / P604883A1	
	<b>Energy</b>	<b>Voltage</b>	11.55V
		<b>Amp-hour capacity</b>	4.113Ah/ 4.330Ah
		<b>Watt-hour capacity</b>	50Wh
	<b>Temperature</b>	<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>Fuel Gauge LED</b>	NA	
	<b>Warranty</b>	based on system offering	
<b>Optional Travel Battery Available</b>	No		

### Technical Specifications – Environmental

#### 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.

##### 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, 60Hz
Normal Operation (Short idle)	7.38 W	7.86 W	7.56 W
Normal Operation (Long idle)	3.58 W	4.01 W	3.91 W
Sleep	0.88 W	0.94 W	0.9 W
Off	0.48 W	0.53 W	0.49 W

##### NOTE:

Energy efficiency data listed is for an ENERGY STAR® compliant product if offered within the model family. HP computers marked with the ENERGY STAR® Logo are compliant with the applicable U.S. Environmental Protection Agency (EPA) ENERGY STAR® specifications for computers. If a model family does not offer ENERGY STAR® compliant configurations, then energy efficiency data listed is for a typically configured PC featuring a hard disk drive, a high efficiency power supply, and a Microsoft Windows® operating system.

##### Heat Dissipation\*

	115VAC, 60Hz	230VAC, 50Hz	100VAC, 60Hz
Normal Operation (Short idle)	25 BTU/hr	27 BTU/hr	26 BTU/hr
Normal Operation (Long idle)	12 BTU/hr	14 BTU/hr	13 BTU/hr
Sleep	3 BTU/hr	3 BTU/hr	3 BTU/hr
Off	2 BTU/hr	2 BTU/hr	2 BTU/hr

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

##### Declared Noise Emissions (in accordance with ISO 7779 and ISO 9296)

	Sound Power (L <sub>WAd</sub> , bels)	Sound Pressure (L <sub>pAm</sub> , decibels)
Typically Configured – Idle	2.6	16
Fixed Disk – Random writes	3.7	22

##### 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

### Technical Specifications – Environmental

- 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 than 1ppm by weight  
Cadmium greater than 20ppm by weight

Battery description: 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 (EPEAT) standard at the gold 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 7.8% post-consumer recycled plastic (by wt.)
- This product is 96.1% recycle-able when properly disposed of at end of life.

#### Packaging Materials

<b>External:</b>	PAPER/Cardboard & misc	345 g
<b>Internal:</b>	PLASTIC/EPE (Expanded Polyethylene)	4 g
	PLASTIC/Polyethylene low density	76 g
	PLASTIC/Polypropylene	15 g

The plastic packaging material contains at least 50% recycled content.

The corrugated paper packaging materials contains at least 70% recycled content.

#### 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)

### Technical Specifications – Environmental

- Polybrominated Biphenyl Ethers (PBBEs)
- Polybrominated Biphenyl Oxides (PBBOs)
- Polychlorinated Biphenyl (PCB)
- Polychlorinated Terphenyls (PCT)
- Polyvinyl Chloride (PVC) – except for wires and cables, 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.

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

Hewlett-Packard 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://h20195.www2.hp.com/V2/GetDocument.aspx?docname=c04755842>

and

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

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

Type	Description	Part #
<b>Cases</b>	HP Slim Ultrabook Messenger (up to 15.6" x .88"/22/5mm)	F3W14AA
	HP Slim Ultrabook Backpack (up to 15.6" x .88"/22/5mm)	F3W16AA
	HP Essential Backpack (up to 15.6")	H1D24AA
	HP Essential Top Load Case (up to 15.6")	H2W17AA#xxx
<b>Docking</b>	HP USB-C Universal Dock	1MK33AA
	HP USB-C Mini Dock	1PM64AA
	HP Thunderbolt Dock Audio	3AQ21AA
	HP USB-C Dock G4	3FF69AA#xxx
	HP TB Docks 120W G2 w/Audio	3YE87AA#xxx
	HP Travel Hub	TOK30AA
	HP 3005pr USB 3.0 Port Replicator w/ USB-C™ Adapter	Y4H06AA
<b>Input/Output</b>	HP Wireless Premium Mouse	1JR31AA
	HP USB Premium Mouse	1JR32AA
	HP Slim Bluetooth Mouse	F3J92AA#xxx
	HP USB Travel Mouse	G1K28AA#xxx
	HP Comfort Grip Mouse	H2L63AA
	HP X4000 Bluetooth Mouse	H3T50AA#xxx
	HP 3-Button Laser Mouse	H4B81AA#xxx
	HP Ultra Mobile Wireless Mouse	H6F25AA#xxx
	HP Slim Wireless Keyboard and Mouse	T6L04AA
HP Slim USB Keyboard and Mouse	T6T83AA	
<b>Power</b>	HP 150W Slim Smart AC Adapter	4SC18AA/UT#xxx
	HP 200W Slim Smart AC Adapter	4SC19AA/UT#xxx
	HP 65W Slim A/C Adapter w/USB	H6Y82AA
	HP 90W Slim A/C Adapter w/USB	H6Y83AA
	HP 90W Slim Auto Combo AC Adapter w/USB	H6Y84AA
	HP 90W Smart AC Adapter	H6Y90AA
<b>Storage</b>	HP 1TB 2280 M2 PCIe3x4 SS NVME (TLC)	TBD
	HP 2TB 2280 M2 PCIe3x4 SS NVME (TLC)	TBD
<b>Security</b>	HP Nano Keyed Cable Lock	1AJ39AA
	HP Nano Dual Head Keyed Cable Lock	1AJ41AA
	HP Docking Station Cable Lock	AU656AA#XXX
	HP Keyed Cable Lock	TOY14AA
	HP Combination Lock	TOY15AA
	HP Essential Combination Lock	TOY16AA
	HP Keyed Cable Lock 10mm	T1A62AA

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

	HP Dual Head Cable Lock (Non-Master key)	T1A64AA
	HP Dual Head Cable Lock (Master Key)	T1A65AA
	HP 3 year Next business day onsite Hardware Support w/Accidental Damage Protection-G2 for Notebooks	UF631E
<b>UCC</b>	HP Elite Presenter Mouse	2CE30AA#xxx
	HP UC Conferencing Keyboard	K8P74AA#xxx
	HP Stereo 3.5mm Headset	T1A66AA
	HP Stereo USB Headset	T1A67AA
	HP USB Collaboration Keyboard	Z9N38AA
	HP Wireless Collaboration Keyboard	Z9N39AA#xxx
<b>Displays</b>	Z27x G2 27-inch DreamColor Studio display	2NJ08A4#xxx
	Z38c 37.5-inch Curved Display	Z4W65A4#xxx

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<b>Date of change:</b>	<b>Version History:</b>		<b>Description of change:</b>
September 29, 2019	From v1 to v2	Changed	PROCESSOR, DISPLAY and PORTS/SLOTS sections