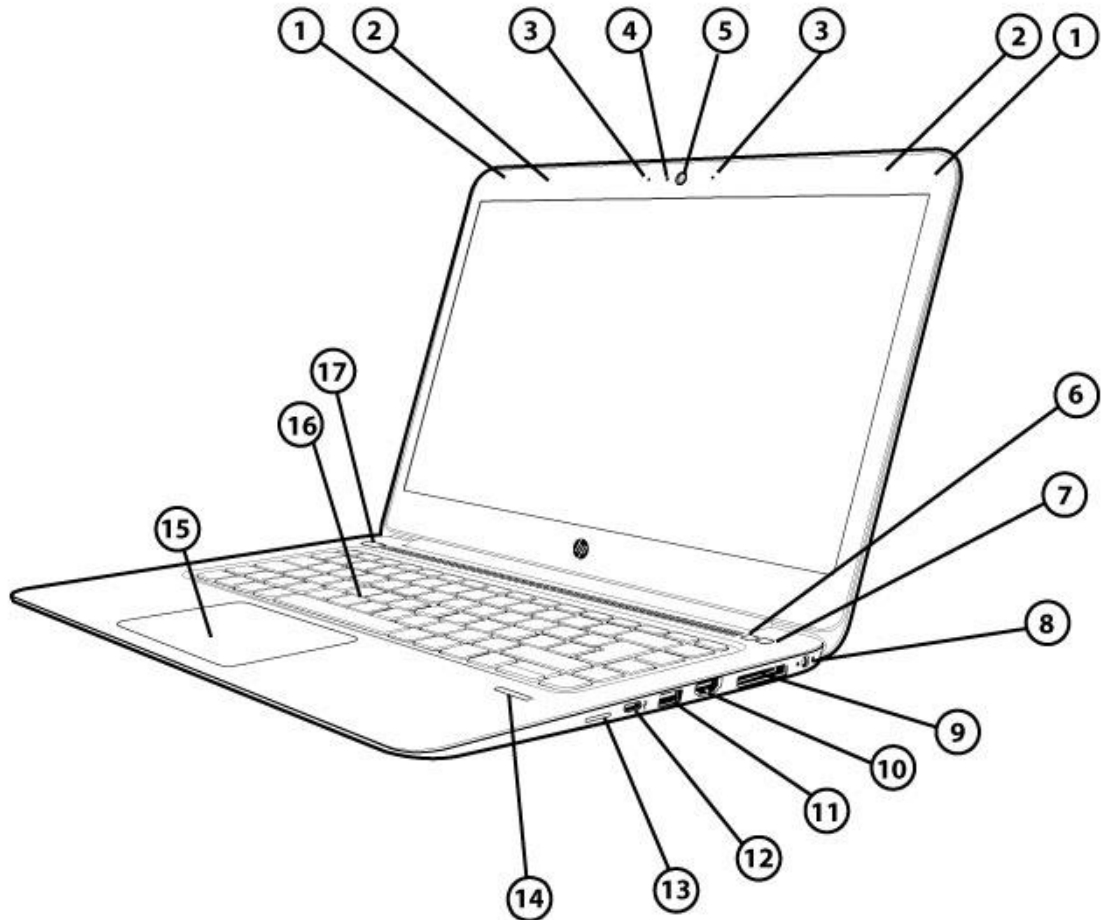


### Overview

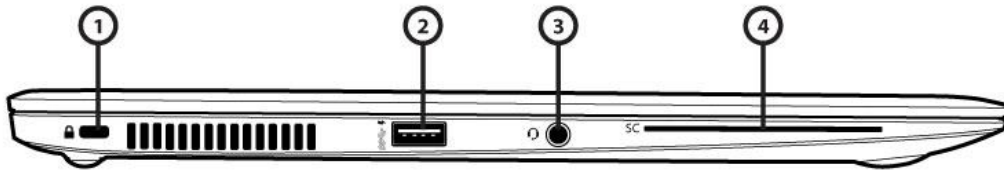
### HP EliteBook 1040 G3 Notebook PC



### Front Side View

- |  |  |
|--|--|
| 1. WLAN antennas (2)                         | 10. HDMI 1.4 port  |
| 2. WWAN antennas (2) (select models)         | 11. USB charging port  |
| 3. Internal microphones (2)                  | 12. USB-Type C™ charging port  |
| 4. Webcam LED (select models)                | 13. WWAN SIM with plug (Plug is removable only for units with optional WWAN) |
| 5. Optional 720p HD webcam                   | 14. Fingerprint reader   |
| 6. Wireless on/off button with LED indicator | 15. ClickPad™  |
| 7. Speaker mute button with LED indicator    | 16. Backlit keys   |
| 8. Power connector                           | 17. Power button   |
| 9. Docking connector                         |  |

### Overview



### Side View

- |                                |                               |
|--------------------------------|-------------------------------|
| 1. Security lock slot          | 3. Headphone/microphone combo |
| 2. USB 3.1 Gen 1 charging port | 4. Smart card reader          |

### At A Glance

- Weight starting at 3.15 lbs (1.43 kg) for Non-Touch or 3.40 lbs (1.54 kg) for Touch
- Height starting at of 15.8 mm (16.5 mm with Touchscreen)
- CNC Aluminum chassis with diamond cut design, wear-resistant “meteorite” HP DuraFinish, HP DisplaySafe frame, HP DuraKeys high durability keyboard finish, aluminum alloy keyboard deck, precision aluminum drop hinge
- Choice of 6<sup>th</sup> Generation Intel® Core™ i5, i7 Processors with integrated Intel® HD Graphics
- Supports wireless LAN and wireless WAN options for connectivity on the go
- Integrated docking connector and optional HP Ultralim Docking Station provide quick transition to a desktop setting
- Enhanced security features including HP Sure Start self-healing BIOS, HP Client Security, HP BIOSphere, and hardware security options like an HP Fingerprint Reader, optional VPro and integrated smart card reader
- Full-sized spill-resistant backlit keyboard with drain keeps you productive in low-light settings
- New Clickpad for both basic and advanced touch gestures
- 14.0” diagonal QHD (2560 x 1440) Touch, QHD (2560 x 1440) or FHD (1920 x 1080) Non-Touch Displays
- HP 6-cell (45.6 WHr) Long Life battery for battery life up to 11 hours and 30 minutes
- Up to 512 GB Solid State Drives
- Up to 16 GB total system memory
- 720p HD webcam with dual-microphone array for video conferencing
- Audio by Bang & Olufsen for precise sound
- Windows 10, Windows 7 Professional 64, FreeDOS 2.0
- Pass 12 MIL STD tests<sup>1</sup>

1. Testing was not intended to demonstrate fitness for Department of Defense contracts 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.

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

## Overview

### Technical Specifications

#### PRODUCT NAME

HP EliteBook 1040 G3 Notebook PC

#### OPERATING SYSTEM

**Preinstalled**

- Windows 10 Pro 64<sup>1</sup>
- Windows 10 Home 64<sup>1</sup>
- Windows 7 Professional 64 (available through downgrade rights from Windows 10 Pro 64)<sup>2</sup>
- Windows 7 Professional 64<sup>3</sup>
- FreeDOS 2.0

**Web-only Support**

- Windows 10 Enterprise<sup>1</sup>
- Windows 8.1 Enterprise 64<sup>3</sup>
- Windows 7 Professional 32<sup>3</sup>
- Windows 7 Enterprise 32<sup>3</sup>
- Windows 7 Enterprise 64<sup>3</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.microsoft.com>.
2. This system is preinstalled with Windows 7 Professional software and also comes with a license and media for Windows 10 Pro software. You may only use one version of the Windows software at a time. Switching between versions will require you to uninstall one version and install the other version. You must back up all data (files, photos, etc.) before uninstalling and installing operating systems to avoid loss of your data
3. 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. See <http://www.microsoft.com>.

#### PROCESSOR

Intel® Core™ i7-6600U with Intel HD Graphics 520 (2.6 GHz, up to 3.4 GHz with Intel Turbo Boost Technology, 4 MB cache, 2 cores)<sup>1</sup>

Intel® Core™ i7-6500U with Intel HD Graphics 520 (2.5 GHz, up to 3.1 GHz with Intel Turbo Boost Technology, 4 MB cache, 2 cores)<sup>1</sup>

Intel® Core™ i5-6300U with Intel HD Graphics 520 (2.4 GHz, up to 3 GHz with Intel Turbo Boost Technology, 3 MB cache, 2 cores)<sup>1</sup>

Intel® Core™ i5-6200U with Intel HD Graphics 520 (2.3 GHz, up to 2.8 GHz with Intel Turbo Boost Technology, 3 MB cache, 2 cores)<sup>1</sup>

1. 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 is not a measurement of higher performance.

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

#### CHIPSET

Integrated with processor

### Technical Specifications

#### GRAPHICS

##### Integrated:

Intel® HD Graphics 520

#### DISPLAY

##### Non-Touch

- 14.0" diagonal LED-backlit FHD<sup>1</sup> Anti-glare SVA (1920 x 1080), 300 nits
- 14.0" diagonal LED-backlit FHD<sup>1</sup> Anti-glare SVA (1920 x 1080), 300 nits with WWAN
- 14.0" diagonal LED-backlit FHD<sup>1</sup> Anti-glare SVA (1920 x 1080), 300 nits with camera
- 14.0" diagonal LED-backlit FHD<sup>1</sup> Anti-glare SVA (1920 x 1080), 300 nits with camera and WWAN

- 14.0" diagonal LED-backlit QHD<sup>1</sup> UWVA (2560 x 1440), 340 nits
- 14.0" diagonal LED-backlit QHD<sup>1</sup> UWVA (2560 x 1440), 340 nits with WWAN
- 14.0" diagonal LED-backlit QHD<sup>1</sup> UWVA (2560 x 1440), 340 nits with camera
- 14.0" diagonal LED-backlit QHD<sup>1</sup> UWVA (2560 x 1440), 340 nits with camera and WWAN

##### HP Sure View

##### Integrated Privacy Screen

14.0" diagonal LED backlight FHD Slim eDP SVA Anti-glare (1920 x 1080)

##### Touch<sup>2</sup>

- 14.0" diagonal LED-backlit QHD<sup>1</sup> UWVA (2560 x 1440), 340 nits with camera
- 14.0" diagonal LED-backlit QHD<sup>1</sup> UWVA (2560 x 1440), 340 nits with camera and WWAN

##### HP Sure View

##### Integrated Privacy Screen

- 14.0" diagonal LED backlight FHD Slim eDP SVA (1920 x 1080) Touch
- 14.0" diagonal LED backlight FHD Slim eDP SVA (1920 x 1080) Touch with camera

**Note:** Touch panel has chemically-strengthened Corning® Gorilla® Glass 3 top cover

1. HD content required to view HD images.

##### External

Up to 32-bit per pixel color depth

##### HDMI

HDMI 1.4 (Cable not included)

Docking Station	Number of Displays supported
Optional UltraSlim Docking Station <sup>1</sup>	3

1. Sold separately or as an optional feature.

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

#### STORAGE AND DRIVES

##### Primary Storage

### Technical Specifications

#### Solid State Drives

Supports M.2 (NGFF) 2280 Solid State Drive  
128 GB SATA-3 TLC SSD  
180 GB SATA-3 MLC SSD  
180 GB SATA-3 Self-Encrypting Drive (Opal 2) MLC SSD  
240 GB SATA-3 MLC SSD  
256 GB PCIe-3x4 NVMe SSD  
256 GB SATA-3 Self-Encrypting Drive (Opal 2) MLC SSD  
256 GB SATA-3 TLC SSD  
512 GB SATA-3 TLC SSD

1. For solid state drives, GB = 1 billion bytes. Actual formatted capacity is less. Up to 16 GB (for Windows 7) and up to 30 GB (for Windows 8.1 and 10) of system disk is reserved for the system recovery software.

**NOTE:** Internal component upgrades such as storage are not available after factory configuration.

### MEMORY

#### Standard

DDR4 PC4 – 2133 (Transfer rates up to 2133 MT/s)  
Memory soldered down (No sockets)  
Supports Dual Channel Memory

#### Standard memory

8192 MB Total System Memory (512 MB x 16 MB)  
16384 MB Total System Memory (512 MB x 16 MB x 2)

#### Maximum

16 GB Total System<sup>1</sup>

**NOTE:** Internal component upgrades to memory are not available after factory configuration.

1. Maximum memory capacities assume Windows 64-bit operating systems or Linux. With Windows 32-bit operating systems, memory above 3 GB may not all be available due to system resource requirements.

### NETWORKING/COMMUNICATIONS

#### Broadband Wireless (WWAN)

HP Lt4120 Qualcomm® Snapdragon™ X5 LTE Mobile Broadband Module<sup>1,2</sup>  
HP 3110 HSPA+ Mobile Broadband Module<sup>1,2</sup>

**NOTE:** WWAN modules are only available if preconfigured. WWAN 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.  
Not available with Ubuntu.

#### Wireless LAN (WLAN)

Intel® Dual Band Wireless AC-8260 802.11 a/b/g/n ac (2x2) Bluetooth® 4.2 Combo<sup>1,2</sup>

1. Wireless access point and Internet service is required and is not included.  
Availability of public wireless access points limited.
2. Sold separately or as an optional feature.

#### Communications



### Technical Specifications

Intel® Ethernet Connection I218LM 10/100/1000 Ethernet, with iAMT  
Optional Near Field Communication (NFC) with Secure Element <sup>2,3</sup>

1. 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.
2. NFC ships enabled by default on Windows 8.1 and is disabled by default on Windows 7.
3. Sold separately or as an option.

### AUDIO/WEBCAM

#### Audio

Audio by Bang & Olufsen

Two integrated stereo speakers

Integrated dual-array microphone

Button for speaker mute; function keys for volume up and down

Headphone/Microphone combo port

Intel® Smart Sound Technology (Windows 8.1 and Windows 10)

1. Works only with Windows.

#### Webcam

720p HD<sup>2</sup> webcam

1. HD format (widescreen)
2. Supports videoconferencing and still image capture
3. High quality fixed focus lens
4. Video capture at various resolutions up to 1280 x 720 resolution (720p) and up to 30fps
5. M-JPEG compression supports higher frame rates for video capture and videoconferencing
6. Improved low light sensitivity
7. Improved dynamic range

1. Sold separately as an optional feature.
2. HD content required to view HD images.

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

#### Keyboard

Spill-resistant with drain

Backlit

HP Dura Keys

#### Buttons and Function Keys

Discrete buttons provide easy access to the following features:

F1 - Sleep

F2 - Blank

F3 -Backlit Keyboard

F4 - Display Switching

F5 - Brightness Down

F6 - Brightness Up

F7 - Blank

F8 - Volume Down

F9 - Volume Up

### Technical Specifications

F10 - Mic Mute  
F11 - Blank  
F12 - Num Lock

#### **TouchPad**

ClickPad™  
Glass with chemical etched surface  
Taps enabled as default

#### **Gestures enabled by default**

2 Finger Scrolling  
2 Finger Zoom (Pinch)

## SOFTWARE AND SECURITY

### Preinstalled with Windows Operating System

#### **BIOS**

HP BIOSphere<sup>1</sup>  
HP Sure Start with Dynamic Protection  
HP DriveLock | HP Automatic DriveLock  
HP BIOS Protection<sup>2</sup>  
BIOS Update via Network  
HP Sparekey<sup>15</sup>  
Master Boot Record Security  
Power On Authentication  
Pre-Boot Security  
Secure Erase<sup>3</sup>  
Hybrid Boot  
Measure Boot  
Secure Boot  
Pre-boot Authentication

#### **Multi Media**

Cyberlink Power DVD, BD  
Cyberlink YouCam BE (Windows 7 only)

#### **Communication**

HP GPS and Location (Windows 7 only)<sup>5</sup>  
HP Connection Manager with support for HP Mobile Connect Pro (Windows 7 only)<sup>6</sup>  
HP Mobile Connect Pro (Windows 8.1 and Windows 10 only)<sup>6</sup>  
Intel® Wireless Display (WiDi) Software for Windows<sup>7</sup>  
Native Miracast Support<sup>8</sup>

#### **HP Value Add Software**

HP ePrint Driver<sup>9</sup>  
HP Hotkey Support  
HP Recovery Manager



### Technical Specifications

HP Recovery Disc Creator

HP Registration App (Windows 8.1 only)

HP Support Assistant

HP Noise Reduction Software

#### 3<sup>rd</sup> Party

Foxit PhantomPDF Express for HP

#### Microsoft Products

Buy Office

Bing Search

Skype for business certified<sup>10</sup>

#### Manageability

HP Driver Packs<sup>11</sup>

HP SoftPaq Download Manager (SDM)

HP System Software Manager (SSM)<sup>11</sup>

HP BIOS Config Utility (BCU)<sup>11</sup>

HP Client Catalog<sup>11</sup>

HP CIK for Microsoft SCCM<sup>11</sup>

LANDESK Management<sup>12</sup>

HP Image Assistant<sup>11</sup>

For more information on HP Client Management Solutions refer to: <http://www.hp.com/go/clientmanagement>.

#### Client Security Software

HP Client Security

- HP Security Manager (including Credential Manager and Password Manager)
- HP Drive Lock
- HP Fingerprint Sensor
- HP Password Manager
- Absolute Persistence Module<sup>4</sup>
- Power On Authentication

Microsoft Security Essentials<sup>13</sup>

Microsoft Defender<sup>13</sup>

#### Security

Trusted Platform Module (TPM) 1.2 Embedded Security Chip (Common Criteria EAL4+ Certified or FIPS 140-2). Field upgradeable to TPM 2.0<sup>14</sup>

Security lock slot (Cable not included)

Fingerprint Reader

Integrated Smart Card Reader

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

1. Available only on business PCs with HP BIOS.

2. May require a manual recovery step if all copies of BIOS are compromised or deleted

3. For the methods outlined in the National Institute of Standards and Technology Special Publication 800-88.

### Technical Specifications

4. 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.
5. GPS access requires an unobstructed path to multiple satellites. Performance may be affected if/when used inside of buildings, bridges or heavily congested metropolitan areas. Requires separately purchased GPS navigation software available from multiple GPS applications.
6. HP Mobile Connect Pro is only available on preconfigured devices with WWAN. For geographic availability refer to [www.hp.com/go/mobileconnect](http://www.hp.com/go/mobileconnect)
7. Integrated Intel Wi-Di feature is available on select configurations only and requires separately purchased projector, TV or computer monitor with an integrated or external Wi-Di receiver. External Wi-Di receivers connect to the projector, TV or computer monitor via a standard HDMI cable, also sold separately.
8. 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>
9. Requires an Internet connection to HP web-enabled printer and HP ePrint account registration (for a list of eligible printers, supported documents and image types and other HP ePrint details, see [www.hp.com/go/eprintcenter](http://www.hp.com/go/eprintcenter)). Requires optional broadband module. Broadband use requires separately purchased service contract. Check with service provider for coverage and availability in your area. Separately purchased data plans or usage fees may apply. Print times and connection speeds may vary.
10. Skype is not offered in China.
11. Not preinstalled, however available for download at <http://www.hp.com/go/clientmanagement>
12. Subscription required.
13. Opt in and internet connection required for updates.
14. This product ships with TPM 1.2 with option to upgrade to TPM 2.0. Upgrade utility is expected to be available by the end of 2015 via HP Customer Support
15. Requires initial user set up.

### POWER

#### Power Supply/AC Adapters

- 45W 2-prong AC Adapter
- 45W Smart AC Adapter
- 65W Smart EM AC Adapter
- 65W Slim Travel AC Adapter

Power cord included is 3.2 ft /1 m long.  
Optional: 1.8 m long power cord (5.9 ft)

#### Primary Battery

HP 6-Cell (45.6 Whr) polymer long life battery

#### Battery Life

- Up to 11 hours and 30 minutes (With FHD display)<sup>1</sup>
- Up to 10 hours (With QHD display)<sup>1</sup>

#### System Standby Time

Up to TBD

1. 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) for additional details.

### Technical Specifications

## WEIGHTS & DIMENSIONS

### Weight

Starting at 3.15 lbs (1.43 kg) for Non-Touch<sup>1</sup>

Starting at 3.40 lbs (1.54 kg) for Touch<sup>1</sup>

1. Weight varies by configuration and components.

### Dimensions (w x d x h)

#### Non-Touch

13.27 x 9.23 x 0.62 in (Front)

33.7 x 23.45 x 1.58 cm (Front)

#### Touch

13.27 x 9.23 x 0.65 in (Front)

33.7 x 23.45 x 1.65 cm (Front)

## PORTS/CONNECTORS

### Ports

#### Input / Output

(2) USB 3.1 Gen 1 charging port

(1) USB-Type C™ charging port (15W)

(1) Docking connector

(1) HDMI 1.4

(1) Headphone/microphone combo

(1) Multi-Pin AC port (4.5mm)

**Note:** Cables not included.

## SERVICE AND SUPPORT

HP Services offers a 1-year limited warranty. . Batteries have a default one year limited warranty same as the platform. On-site service and extended coverage is also available. HP Care Pack Services<sup>1,2</sup> 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>.

1. Sold separately or as an optional feature.
2. Service levels and response times for HP Care Services may vary depending on your geographic location. Service starts on date of hardware purchase. Restrictions and limitations apply. For details, visit [www.hp.com/go/cpc](http://www.hp.com/go/cpc)

### Technical Specifications

#### System Unit

TBD

#### Displays

**14.0" diagonal LED-backlit FHD Anti-glare SVA (1920 x 1080)**

<b>Active Area (W x H)</b>	308.851 (H) x 173.729 (V) mm
<b>Diagonal Size</b>	14.0"
<b>Surface Treatment</b>	Anti-Glare
<b>Contrast Ratio</b>	500:1 (typical)
<b>Refresh Rate</b>	60Hz
<b>Brightness</b>	300nit (typical, @5point)
<b>Pixel Resolution</b>	1920 x 1080
<b>Backlight</b>	WLED
<b>PPI</b>	157
<b>Viewing Angle</b>	SVA 45/45/20/45

**14.0" diagonal LED-backlit QHD UWVA (2560 x 1440)**

<b>Active Area (W x H)</b>	309.504 (H) x 174.096 (V) mm
<b>Diagonal Size</b>	14.0"
<b>Surface Treatment</b>	Anti-Glare
<b>Contrast Ratio</b>	600:1 (typical)
<b>Refresh Rate</b>	60Hz
<b>Brightness</b>	340nit (typical, @5point)
<b>Pixel Resolution</b>	2560 x 1440
<b>Backlight</b>	WLED
<b>PPI</b>	210
<b>Viewing Angle</b>	UWVA 85/85/85/85

**14.0" diagonal LED-backlit QHD UWVA (2560 x 1440), 340 nits with camera- Touch**

<b>Outline Dimensions (W x H x D)</b>	331.35 x 217.53 x 3.8 mm max. (w/LCD)
<b>Active Area</b>	309.504 (H) x 174.096 (V) mm
<b>Weight</b>	360g max (w/LCD)
<b>Diagonal Size</b>	14.0"
<b>Touch enabled</b>	Yes
<b>Contrast Ratio</b>	600:1 (typical)
<b>Refresh Rate</b>	60Hz
<b>Brightness</b>	340nit (typical, @5point)
<b>Pixel Resolution</b>	2560 x 1440
<b>Interface</b>	eDP 1.3+PSR (4 lane)
<b>LCD Mode</b>	IPS
<b>PPI</b>	210
<b>Viewing Angle</b>	UWVA 85/85/85/85

### Technical Specifications

#### STORAGE AND DRIVES

<b>128 GB M2 2280 SATA-3 TLC SSD</b>	<b>Drive Weight</b>	0.019lb ~ 0.022lb	
	<b>Capacity</b>	128 GB	
	<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>
		Up to 540 MB/s	Up to 300 MB/s
	<b>Logical Blocks</b>	250069680	
	<b>Operating Temperature</b>	32° to 158°F (0° to 70°C) [ambient temp]	
	<b>Features</b>	DIPM; TRIM; DEVSLP	
<b>Security Features</b>	ATA security		

<b>180 GB M2 2280 SATA-3 MLC SSD</b>	<b>Drive Weight</b>	0.022 lb (<10 g)	
	<b>Capacity</b>	180 GB	
	<b>Height</b>	0.09 in (2.23 mm)	
	<b>Width</b>	0.87 in (22 mm)	
	<b>Interface</b>	ATA-8, SATA 3.0, ACS-3, SATA 3.2	
	<b>Performance</b>	<b>Maximum Sequential Read</b>	<b>Maximum Sequential Write</b>
		Up to 540 MB/s	Up to 490 MB/s
	<b>Logical Blocks</b>	351651888	
	<b>Operating Temperature</b>	32° to 158°F (0° to 70°C) [ambient temp]	
	<b>Features</b>	DIPM; TRIM; DEVSLP	
<b>Security Features</b>	ATA Security		

<b>180 GB M2 2280 SATA-3 Self-Encrypting Drive (Opal 2) MLC SSD</b>	<b>Drive Weight</b>	0.022 lb (<10 g)	
	<b>Capacity</b>	180 GB	
	<b>Height</b>	0.09 in (2.23 mm)	
	<b>Width</b>	0.87 in (22 mm)	
	<b>Interface</b>	ATA-8, SATA 3.0, ACS-3, SATA 3.2	
	<b>Performance</b>	<b>Maximum Sequential Read</b>	<b>Maximum Sequential Write</b>
		Up to 540 MB/s	UP to 490 MB/s
	<b>Logical Blocks</b>	351651888	
	<b>Operating Temperature</b>	32° to 158°F (0° to 70°C) [ambient temp]	
	<b>Security Features</b>	ATA Security, TCG OPAL 2.x	

<b>240 GB M2 2280 SATA-3 MLC SSD</b>	<b>Drive Weight</b>	0.022 lb (<10 g)	
	<b>Capacity</b>	240 GB	

### Technical Specifications

<b>Height</b>	0.14 in (3.58 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 540 MB/s	UP to 490 MB/s
<b>Logical Blocks</b>	468862128	
<b>Operating Temperature</b>	32° to 158°F (0° to 70°C) [ambient temp]	
<b>Features</b>	DIPM; TRIM; DEVSLP	
<b>Security Features</b>	ATA Security	

<b>256 GB M2 2280 PCIe-3x4 NVMe SSD</b>	<b>Drive Weight</b>	0.022 lb. (<10 g)	
	<b>Capacity</b>	256 GB	
	<b>Height</b>	0.09 in (23mm)	
	<b>Width</b>	0.87 in (22.1mm)	
	<b>Interface</b>	PCIe GEN3X4	
	<b>Performance</b>	<b>Maximum Sequential Read</b>	<b>Maximum Sequential Write</b>
		Up to 2260 MB/s	Up to 1260 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>256 GB M2 2280 SATA-3 Self-Encrypting Drive (Opal 2) MLC SSD</b>	<b>Drive Weight</b>	0.02 lb (<10 g)	
	<b>Capacity</b>	256 GB	
	<b>Height</b>	0.14 in (3.58 mm) ~ 0.09 in (2.23 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>
		Up to 540 MB/s	UP to 460 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>	DIPM; TRIM; DEVSLP	
<b>Security Features</b>	ATA Security; TCG Opal 2.0		

<b>256 GB M2 2280 SATA-3 TLC SSD</b>	<b>Drive Weight</b>	0.019 lb (8.5 g) ~ 0.022 lb (10 g)	
	<b>Capacity</b>	256 GB	
	<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>
		Up to 540 MB/s	Up to 455 MB/s
	<b>Logical Blocks</b>	500118192	
	<b>Operating Temperature</b>	32° to 158°F (0° to 70°C) [ambient temp]	
	<b>Features</b>	DIPM; TRIM; DEVSLP	

### Technical Specifications

	Security Features	ATA Security		
<b>512 GB M2 2280 SATA-3 TLC SSD</b>	<b>Drive Weight</b>	0.019 lb (8.5 g) ~ 0.02 lb (10 g)		
	<b>Capacity</b>	512 GB		
	<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>	
		Up to 540 MB/s	UP to 500 MB/s	
	<b>Logical Blocks</b>	1000215216		
	<b>Operating Temperature</b>	32° to 158°F (0° to 70°C) [ambient temp]		
	<b>Features</b>	DIPM; TRIM; DEVSLP		
<b>Security Features</b>	ATA Security			

### NETWORKING/COMMUNICATIONS

	<b>HP It4120 Qualcomm® Snapdragon™ X5 LTE Mobile Broadband Module</b>
<b>Technology/Operating bands</b>	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 17 lower), 800 (Band 20), 700 (Band 28). HSPA+: 2100 (Band 1), 1900 (Band 2), 1700/2100 (Band 4), 850 (Band 5), 900 (Band 8) MHz EV-DO: 850 (BC0), 1900 (BC1) MHz (Only work with Verizon network) E-GPRS: 1900 (Band 2), 1800 (Band 3), 850 (Band 5), 900 (Band 8) MHz
<b>Wireless protocol standards</b>	3GPP Release 10 LTE Specification CAT.4, 20MHz BW WCDMA R99, 3GPP Release 5, 6, 7 and 8 UMTS Specification 1xEVDO Release 0, A and B. E-GPRS: Class B, Multi-slot class 12, coding schemes CS1 - CS4 and MSC1 - MSC9
<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: 150 Mbps (Download), 50 Mbps (Upload) DC-HSPA+: 42 Mbps (Download), 5.76 Mbps (Upload) HSPA+: 21Mbps (Download), 5.76 Mbps (Upload) CDMA 1xRTT: 153.6 kbps (Download), 153.6 kbps (Upload) EVDO Rel.A: 3.1 Mbps (Download), 1.8 Mbps (Upload) EVDO Rel.B: 14.7 Mbps (Download), 5.4Mbps (Upload) EDGE: 236.8 kbps (Download), 236.8 kbps (Upload) GPRS: 85.6 kbps(Download), 85.6 kbps (Upload)
<b>Maximum output power</b>	LTE: 23 dBm HSPA+: 23.5 dBm 1xRTT/EVDO: 24dBm E-GPRS 1900/1800: 26 dBm E-GPRS 900/850: 27 dBm GPRS 1900/1800: 29.5 dBm

### Technical Specifications

	GPRS 900/850: 32.5 dBm
<b>Maximum power consumption</b>	LTE: 1,200 mA (peak); 900 mA (average) HSPA+: 1,100 mA (peak); 800 mA (average) 1xRTT/EVDO: 1,000 mA (peak); 700 mA (average) E-GPRS: 2,800 mA (peak); 500 mA (average)
<b>Form Factor</b>	M.2, 3042-S3 Key B
<b>Weight</b>	6.2 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.

	<b>HP hs3110 HSPA+ Intel® Mobile Broadband Module*</b>
<b>Technology/Operating bands</b>	HSPA+: 2100 (Band 1), 1900 (Band 2), 1700 (Band 4), 850 (Band 5), 900 (Band 8) MHz E-GPRS: 1900 (Band 2), 1800 (Band 3), 850 MHz (Band 5), 900 (Band 8) MHz
<b>Wireless protocol standards</b>	WCDMA R99, 3GPP Release 5, 6 and 7 UMTS Specification E-GPRS: Class B, Multi-slot class 33, coding schemes CS1 - CS4 and MSC1 - MSC9
<b>GPS</b>	Standalone, A-GPS
<b>GPS bands</b>	1575.42 MHz ± 1.023 MHz
<b>Maximum data rates</b>	HSPA+: 21.6 Mbps (Download), 5.76 Mbps (Upload)  E-GPRS: 296 kbps (Download), 236.8 kbps (Upload) GPRS: 107 kbps (Download), 85.6 kbps (Upload)
<b>Maximum output power</b>	HSPA+: 24 dBm E-GPRS 1800/1900: 26 dBm E-GPRS 850/900: 27 dBm GPRS 1800/1900: 30 dBm GPRS 850/900: 33 dBm
<b>Maximum power consumption</b>	HSPA+: 1,100 mA (peak); 800 mA (average) E-GPRS: 2,800 mA (peak); 700 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)	1.65 x 1.18 x 0.09 in (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.

### Intel® Dual Band Wireless AC-8260 802.11 a/b/g/n ac (2x2) Bluetooth® 4.2 Combo

<b>Wireless LAN Standards</b>	IEEE 802.11a IEEE 802.11b IEEE 802.11g
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### Technical Specifications

<b>Interoperability Frequency Band</b>	<p>IEEE 802.11n IEEE 802.11ac Wi-Fi certified 802.11b/g/n</p> <ul style="list-style-type: none"> <li>• 2.402 – 2.482 GHz</li> </ul> <p>Note: The FCC has declared as of January 1, 2015 products that utilize passive scanning on channel 12/13 and are capable of transmitting must fully comply with requirements of 15.247 or otherwise disable those channels.</p> <p>802.11a/n</p> <ul style="list-style-type: none"> <li>• 4.9 – 4.95 GHz (Japan)</li> <li>• 5.15 – 5.25 GHz</li> <li>• 5.25 – 5.35 GHz</li> <li>• 5.47 – 5.725 GHz</li> <li>• 5.825 – 5.850 GHz</li> </ul> <p>Note: Indonesia no support this band)</p>
<b>Data Rates</b>	<ul style="list-style-type: none"> <li>• 802.11b: 1, 2, 5.5, 11 Mbps</li> <li>• 802.11g: 6, 9, 12, 18, 24, 36, 48, 54 Mbps</li> <li>• 802.11a: 6, 9, 12, 18, 24, 36, 48, 54 Mbps</li> <li>• 802.11n: MCS 0 ~ MCS 15, (20MHz, and 40MHz)</li> <li>• 802.11ac : MCS0 ~ MCS9, (1SS, and 2SS) (20MHz, 40MHz, and 80MHz)</li> </ul>
<b>Modulation</b>	<p>Direct Sequence Spread Spectrum BPSK, QPSK, CCK, 16-QAM, 64-QAM, 256-QAM</p>
<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 Roaming Output Power<sup>2</sup></b>	<p>Ad-hoc (Peer to Peer) Infrastructure (Access Point Required) IEEE 802.11 compliant roaming between access points</p> <ul style="list-style-type: none"> <li>• 802.11b : +16dBm minimum</li> <li>• 802.11g : +14dBm minimum</li> <li>• 802.11a : +14dBm minimum</li> <li>• 802.11n HT20(2.4GHz) : +14dBm minimum</li> <li>• 802.11n HT40(2.4GHz) : +12dBm minimum</li> <li>• 802.11n HT20(5GHz) : +14dBm minimum</li> </ul>

### Technical Specifications

- 802.11n HT40(5GHz) : +12dBm minimum

<b>Power Consumption</b>	Transmit: 2.0 W (max) Receive: 1.6 W (max) Idle mode (PSP): 180 mW (WLAN Associated) Idle mode: 50 mW (WLAN unassociated) Connect Standby: 10 mW (WLAN+BT) Radio disabled: 5 mW
<b>Power Management</b>	ACPI and PCI Express compliant power management
<b>Receiver Sensitivity<sup>3</sup></b>	802.11b, 1Mbps : -94dBm maximum 802.11b, 11Mbps : -86dBm maximum 802.11g, 6Mbps : -88dBm maximum 802.11g, 54Mbps : -74dBm maximum 802.11a, 6Mbps : -88dBm maximum 802.11a, 54Mbps : -74dBm maximum 802.11n, MCS07 : -69dBm maximum 802.11n, MCS15 : -66dBm maximum 802.11ac, 1SS, MCS-0 : -86dBm maximum 802.11ac, 1SS, MCS-9 : -61dBm maximum 802.11ac, 2SS, MCS-0 : -83dBm maximum 802.11ac, 2SS, MCS-9 : -58dBm 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 Or Type 1630 : 2.3 x 16.0 x 30.0 mm
<b>Weight</b>	Type 2230 : 2.8g Or Type 1630 : 2g
<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

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 Wireless Technology

<b>Bluetooth Specification</b>	4.0/4.1/4.2 Compliant
<b>Frequency Band</b>	2402 to 2480 MHz
<b>Number of Available Channels</b>	Legacy : 0~79 (1 MHz/CH) BLE : 0~39 (2 MHz/CH)
<b>Data Rates and Throughput</b>	Legacy : 3 Mbps data rate; throughput up to 2.17 Mbps

### Technical Specifications

<b>Transmit Power</b>	<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> <p>The Bluetooth component shall operate as a Class II Bluetooth device with a maximum transmit power of + 4 dBm for BR and EDR.</p>												
<b>Receiver Sensitivity Legacy</b>	<table border="1"> <thead> <tr> <th>Modulation</th> <th>0.01% BER</th> <th>0.001% BER</th> </tr> </thead> <tbody> <tr> <td>GFSK</td> <td>-80 dBm</td> <td>-70 dBm</td> </tr> <tr> <td><math>\pi/4</math>-DQPSK</td> <td>-80 dBm</td> <td>-70 dBm</td> </tr> <tr> <td>8DPSK</td> <td>-80 dBm</td> <td>-70 dBm</td> </tr> </tbody> </table>	Modulation	0.01% BER	0.001% BER	GFSK	-80 dBm	-70 dBm	$\pi/4$ -DQPSK	-80 dBm	-70 dBm	8DPSK	-80 dBm	-70 dBm
Modulation	0.01% BER	0.001% BER											
GFSK	-80 dBm	-70 dBm											
$\pi/4$ -DQPSK	-80 dBm	-70 dBm											
8DPSK	-80 dBm	-70 dBm											
<b>Power Consumption</b>	<p>Peak (Tx) 330 mW</p> <p>Peak (Rx) 230 mW</p> <p>Selective Suspend 17 mW</p>												
<b>Range</b>	<p>Legacy Up to 33 ft (10 m)</p> <p>BLE Up to 99 ft (30 m)</p>												
<b>Electrical Interface Bluetooth Software Supported Link Topology</b>	<p>USB 2.0 compliant</p> <p>Microsoft Windows Bluetooth Software</p>												
<b>Electrical Interface Bluetooth Software Supported Security</b>	<p>Point to Point, Multipoint Pico Nets up to 7 slaves</p> <p>Full support of Bluetooth Security Provisions</p>												
<b>Power Management Certifications</b>	<p>Microsoft Windows ACPI, and USB Bus Support</p> <p>Self-configurable to optimize power conservation in all operating modes, including Standby, Hold, Park, and Sniff</p> <p>All necessary regulatory approvals for supported countries, including: FCC (47 CFR) Part 15C, Section 15.247 &amp; 15.249</p>												
<b>Security Certifications Bluetooth Profiles Supported</b>	<p>ETS 300 328, ETS 300 826</p> <p>Low Voltage Directive IEC950</p> <p>UL, CSA, and CE Mark</p> <p>Serial Port Profile (SPP)<sup>1</sup></p> <p>Service Discovery Application Profile (SDAP)</p> <p>Dial-Up Networking (DUN)<sup>1,2</sup></p> <p>Generic Object Exchange Profile (GOEP)<sup>1,2</sup></p> <p>Object Push Profile (OPP)<sup>1,2</sup></p> <p>Hard Copy Cable Replacement (HCRP)<sup>1,2</sup></p> <p>Personal Area Networking Profile (PAN)<sup>1,2</sup></p> <p>Human Interface Device Profile (HID)<sup>1,2</sup></p> <p>Hands Free Profile (HFP)</p> <p>Advanced Audio Distribution Profile (A2DP)</p> <p>Audio Video Remote Control Profile (AVRCP)</p>												
<b>Certifications Bluetooth Profiles Supported</b>	<p>ETS 300 328, ETS 300 826</p> <p>Low Voltage Directive IEC950</p> <p>UL, CSA, and CE Mark</p> <p>Serial Port Profile (SPP)<sup>1</sup></p> <p>Service Discovery Application Profile (SDAP)</p> <p>Dial-Up Networking (DUN)<sup>1,2</sup></p> <p>Generic Object Exchange Profile (GOEP)<sup>1,2</sup></p> <p>Object Push Profile (OPP)<sup>1,2</sup></p> <p>Hard Copy Cable Replacement (HCRP)<sup>1,2</sup></p> <p>Personal Area Networking Profile (PAN)<sup>1,2</sup></p> <p>Human Interface Device Profile (HID)<sup>1,2</sup></p> <p>Hands Free Profile (HFP)</p> <p>Advanced Audio Distribution Profile (A2DP)</p> <p>Audio Video Remote Control Profile (AVRCP)</p>												
<b>Bluetooth V4.1/V4.2 support feature</b>	<p>V4.1: ESR5/6/7 compliant</p> <p>V4.2: ESR8 compliant, LE Secure Connection – Basic.</p>												

### Technical Specifications

#### POWER

<b>45W 2-prong AC Adapter</b>	<b>Dimensions</b>	95mm x 40mm mm x 26.5 mm	
	<b>Input</b>	90 to 265 VAC	
		<b>Input Efficiency</b>	'87.74% min at 115V/230V
	<b>Output</b>	<b>Input frequency range</b>	47 to 63 Hz
		<b>Input AC current</b>	1.4 A at 90 VAC
		<b>Output power</b>	45W
		<b>DC output</b>	19.5V
		<b>Hold-up time</b>	5 msec at 115 VAC input
		<b>Output current limit</b>	<8.0A
		<b>Connector</b>	2 pin/non-grounded, mates with Smart ID DC connector
	<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>EMI and Safety Certifications</b>	<b>Storage Humidity</b>	10% to 95%	
	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		
	* MTBF - over 200,000 hours at 25°C ambient condition.		
<b>45W Smart AC Adapter</b>	<b>Dimensions</b>	3.74 x 1.57 x 1.04 in (9.5 x 4.0 x 2.65 cm)	
	<b>Weight</b>	0.386 lb (175g) max	
	<b>Input</b>	90 to 265 VAC	
		<b>Input Efficiency</b>	'87.74% min at 115V/230V
	<b>Output</b>	<b>Input frequency range</b>	47 to 63 Hz
		<b>Input AC current</b>	1.4 A at 90 VAC
		<b>Output power</b>	45W
		<b>DC output</b>	19.5V
		<b>Hold-up time</b>	5 msec at 115 VAC input
		<b>Output current limit</b>	<8.0A
		<b>Connector</b>	3 pin/grounded, mates with interchangeable cords
	<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>EMI and Safety Certifications</b>	<b>Storage Humidity</b>	10% to 95%	
	*CE Mark - full compliance with LVD and EMC directives		
	* Worldwide safety standards - IEC60950, EN60950, UL60950, Class1, SELV; Agency approvals - C-UL-US, NORDICS, DENAN, EN55022 Class B, FCC Class B, CISPR22 Class B, CCC, NOM-1 NYCE.		

### Technical Specifications

\* MTBF - over 200,000 hours at 25°C ambient condition.

<b>65W Smart EM AC Adapter</b>	<b>Dimensions</b>	4.98 x 1.97 x 1.18 in (12.65 x 5.0 x 3.0 cm)	
	<b>Weight</b>	0.62 lb (290g) max	
	<b>Input</b>	90 to 265 VAC	
		<b>Input Efficiency</b>	87% min at 115 VAC
		<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
		<b>Hold-up time</b>	5 msec at 115 VAC input
		<b>Output current limit</b>	<11.0A
	<b>Connector</b>	3 pin/grounded, mates with interchangeable cords	
	<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>	*CE Mark - full compliance with LVD and EMC directives * Worldwide safety standards - IEC60950, EN60950, UL60950, Class1, SELV; Agency approvals - C-UL-US, NORDICS, DENAN, EN55022 Class B, FCC Class B, CISPR22 Class B, CCC, NOM-1 NYCE. * MTBF - over 200,000 hours at 25°C ambient condition.		
<b>65W Slim Travel AC Adapter</b>	<b>Dimensions</b>	120mm x 57.6mm x 16.7mm	
	<b>Weight</b>	0.55 lb (250g) max	
	<b>Input</b>	90 to 265 VAC	
		<b>Input Efficiency</b>	'87% min at 115V/230V
		<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
		<b>Hold-up time</b>	5 msec at 115 VAC input
		<b>Output current limit</b>	< 11A
	<b>Connector</b>	3 pin/grounded, mates with Smart ID DC connector	
	<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)

### Technical Specifications

	<b>Humidity</b>	20% to 95%
	<b>Storage Humidity</b>	10% to 95%
<b>EMI and Safety Certifications</b>	*CE Mark - EMC directives; *Worldwide safety standards - IEC60950, EN60950, UL60950, Class 1, SELV; Agency approvals - C-UL-US, NORDICS, DENAN, EN55022 Class B, FCC Class B, CISPR22 Class B, CCC, NOM-1 NYCE; * MTBF - over 200,000 hours at 25°C ambient condition.	
<b>HP 6-Cell (45.6 Whr) polymer long life battery</b>	<b>Dimensions (H x W x L)</b>	268mm x 108.1mm x 7.85mm
	<b>Weight</b>	0.49lb+/-0.02lb (0.221kg+/-0.010kg)
	<b>Cells/Type</b>	COSLIGHT CA295386HV/LISHEN SP295380SE
	<b>Energy</b>	<b>Voltage</b> 11.4V <b>Amp-hour capacity</b> 4.02Ah <b>Watt-hour capacity</b> 45.6Wh
	<b>Temperature</b>	<b>Operating (Charging)</b> 0°C ~ 45°C <b>Operating (Discharging)</b> -10°C ~ 60°C <b>Non-operating</b> -20°C ~ 60°C 1 month -20°C ~ 45°C 3 month -20°C ~ 30°C 6 month
	<b>Battery Re-Charge Time</b>	<b>System in OFF or Standby Mode (need charging time for both)</b> System off within 3 hours
	<b>Fuel Gauge LED</b>	No
	<b>Warranty</b>	1 years
	<b>Optional Travel Battery Available</b>	No

### ENVIRONMENTAL

#### 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 <Gold> 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)

	<b>115VAC, 60Hz</b>	<b>230VAC, 50Hz</b>	<b>100VAC, 60Hz</b>
Normal Operation (Short idle)	8.06 W	8.13 W	8.01 W
Normal Operation (Long idle)	2.65 W	2.68 W	2.65 W
Sleep	0.37 W	0.38 W	0.37 W
Off	0.16 W	0.18 W	0.16 W

### Technical Specifications

**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.

<b>Heat Dissipation*</b>	<b>115VAC, 60Hz</b>	<b>230VAC, 50Hz</b>	<b>100VAC, 60Hz</b>
Normal Operation (Short idle)	28 BTU/hr	28 BTU/hr	27 BTU/hr
Normal Operation (Long idle)	9 BTU/hr	9 BTU/hr	9 BTU/hr
Sleep	1 BTU/hr	1 BTU/hr	1 BTU/hr
Off	1 BTU/hr	1 BTU/hr	1 BTU/hr

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

<b>Declared Noise Emissions (in accordance with ISO 7779 and ISO 9296)</b>	<b>Sound Power (L<sub>WAd</sub>, bels)</b>	<b>Sound Pressure (L<sub>pAm</sub>, decibels)</b>
Typically Configured – Idle	2.6	14
Fixed Disk – Random writes	2.8	18

**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

Battery size: 6-cell high capacity Lithium-Ion battery (optional 8 cell available)

Battery type:

### Technical Specifications

#### 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 0% post-consumer recycled plastic (by wt.)
- This product is 97.2% recycle-able when properly disposed of at end of life.

#### Packaging Materials

<b>External:</b>	PAPER/Corrugated	337.2 g
<b>Internal:</b>	PLASTIC/EPE (Expanded Polyethylene)	21.7 g
	PLASTIC/Polyester	20 g

The plastic packaging material contains at least 0% recycled content.

The corrugated paper packaging materials contains at least 80% 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)
- 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)



### Technical Specifications

#### 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.

#### Hewlett-Packard Corporate Environmental Information

For more information about HP's commitment to the environment:

Global Citizenship Report

<http://www.hp.com/hpinfo/globalcitizenship/qcreport/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>

### COUNTRY OF ORIGIN

China

### Summary of Changes

Type	Description	Part Number
Cases	HP Business Slim Top Load (up to 14.1" x .75" thick)	H5M91AA
	HP Executive Leather Messenger (up to 14.0" x 1")	K0A31AA
	HP Slim Ultrabook Messenger (up to 15.6" x .88"/22/5mm)	F3W14AA
	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
Stands	HP Adjustable Dual Monitor Stand	AW664AA#xxx
	HP Display and Notebook Stand II	E8G00AA#xxx
Docking	HP UltraSlim Docking Station	D9Y32AA
Input Devices	HP Wireless Mobile Mouse	H2L63AA
	HP X4000b Bluetooth Mouse	H3T50AA#xxx
	HP Ultra Mobile Wireless Mouse	H6F25AA
	HP USB Travel Mouse	G1K28AA
	HP Stylish Wireless KB/Mouse	H4B79AA
Adapters	USB Graphics Adapter (DBU PL)	NL571AA/AT
	HP Dock Connector to Ethernet/VGA Adapter	G7U78AA
	HP Wireless Display Adapter	J1V25AA#xxx
Power Adapters	HP 45W Smart AC Adapter (4.5mm) (PL MP only)	H6Y88AA#xxx
	HP 65W Smart AC Adapter (4.5mm)	H6Y89AA#xxx
	HP 65W Slim AC Adapter	H6Y82AA#xxx
	HP 65W Smart Travel AC Adapter	JOE43AA#xxx
Security	HP Keyed Cable Lock 10mm	T1A62AA
Storage	HP External USB Optical Drive	F2B56AA
Monitors	HP EliteDisplay S270c	
	HP EliteDisplay E272q	K1M38AA
	HP EliteDisplay E240c	M1P04AA
	HP EliteDisplay S140u	M1P00AA
	HP EliteDisplay S240ml	G8R65AA F4M47AA

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