

Overview

HP ProBook x360 440 G1 Notebook PC



- | | |
|---|------------------------------------|
| 1. Security lock slot (Lock sold separately.) | 4. Headphone/microphone combo jack |
| 2. Power button | 5. SD Card reader |
| 3. USB 3.1 Gen 1 (Power port) | |

Overview



Right

- 1. Microphones (2)
- 2. Web/IR camera
- 3. Webcam light
- 4. Power connector
- 5. Ethernet port (RJ-R45)
- 6. HDMI port (Cable not included.)
- 7. USB 3.1 Gen 1
- 8. USB Type-C™ port (DisplayPort + Power Delivery)
- 9. Volume Up/Down
- 10. Fingerprint reader
- 11. Clickpad

Overview

AT A GLANCE

- Preinstalled with Windows 10 versions or FreeDOS 2.0
- Choice of Intel® Core™ processors
- HP's signature linear wedge design converts from a traditional laptop to tablet, media and tent modes for easy creation, presentation, collaboration and sharing at the office and on the go
- Full size HP Premium Keyboard, spill-resistant keyboard with a thin layer of mylar film to prevent minor spills
- Function keys provide control of features including: standby mode, display brightness, external display, microphone mute, volume down, volume up, and backlight toggle for backlit keyboard (Select models only.)
- Large Clickpad with gestures support
- Enhanced security features with preinstalled software and hardware options
- Optional HD webcam or IR camera with dual-microphone array for video conferencing¹
- Choice of displays 35.56 cm (14") diagonal FHD (1920 x 1080) UWVA LED backlit touch; 220 cd/m², 45% sRGB; or 400 cd/m², 72% sRGB
- Flexible wireless connectivity options
- Battery life up to 12 hours
- HP 3-cell, 48 WHr Li-ion battery
- Pending MIL-STD testing²

1. Sold separately or as an optional feature.

2. MIL-STD-810G testing is pending and is conducted on select HP products. Testing is not intended to demonstrate fitness of U.S. Department of Defense (DoD) 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.

Features

PRODUCT NAME

HP ProBook x360 440 G1 Notebook PC

OPERATING SYSTEM

Preinstalled

Windows® 10 Pro 64¹
Windows® 10 Pro 64 (National Academic License)²
Windows® 10 Home 64¹
Windows® 10 Home Single Language 64¹
FreeDos 2.0

1. Not all features are available in all editions or versions of Windows. Systems may require upgraded and/or separately purchased hardware, drivers, software or BIOS update to take full advantage of Windows functionality. Windows 10 is automatically updated, which is always enabled. ISP fees may apply and additional requirements may apply over time for updates. See <http://www.windows.com/>.

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

NOTE: Your product does not support Windows 8 or Windows 7

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

PROCESSORS

Intel® Core™ i7-8550U with Intel® UHD graphics 620 (1.8 GHz base frequency, up to 4 GHz with Intel® Turbo Boost Technology, 8 MB cache, 4 cores)^{3,4,5}

Intel® Core™ i5-8350U vPro™ processor with Intel® UHD Graphics 620 (1.7 GHz base frequency, up to 3.6 GHz with Intel® Turbo Boost Technology, 6 MB cache, 4 cores)^{3,4,5}

Intel® Core™ i5-8250U with Intel® UHD Graphics 620 (1.6 GHz base frequency, up to 3.4 GHz with Intel® Turbo Boost Technology, 6 MB cache, 4 cores)^{3,4,5}

Intel® Core™ i5-7200U with Intel® HD Graphics 620 (2.5 GHz base frequency, up to 3.1 GHz with Intel® Turbo Boost Technology, 3 MB cache, 2 cores)^{3,4,5}

Intel® Core™ i3-8130U with Intel® UHD graphics 620 (2.2 GHz base frequency, up to 3.4 GHz with Intel® Turbo Boost Technology, 4 MB cache, 2 cores)^{3,4,5}

Intel® Pentium® Gold 4415U with Intel® HD Graphics 610 (2.3 GHz, 2 MB cache, 2 cores)^{3,4,5}

Intel® Celeron® 3865U with Intel® HD Graphics 610 (1.8 GHz, 2 MB cache, 2 cores)^{3,4,5}

Processor Family

8th Generation Intel® Core™ i7 processor (i7-8550U model) ⁵

8th Generation Intel® Core™ i5 processor (i5-8350U) ⁵

8th Generation Intel® Core™ i5 processor (i5-8250U model) ⁵

8th Generation Intel® Core™ i3 processor (i3-8130U model) ⁵

7th Generation Intel® Core™ i5 processor (i5-7200U model) ⁵

Intel® Pentium® Gold processor ⁵

Intel® Celeron® processor (3865U is Windows 10 only) ⁵

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

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

Features

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

CHIPSET

Integrated with processor

GRAPHICS

Integrated

Intel® UHD Graphics 620 ⁶

Intel® HD Graphics 620 ⁶

Intel® HD Graphics 610 ⁶

Discrete

NVIDIA® GeForce® MX130 (2 GB DDR5 dedicated) ⁷

6. HD content required to view HD images.

7. Integrated graphics depends on processor. NVIDIA® Optimus™ technology requires an Intel processor, plus an NVIDIA® GeForce® discrete graphics configuration and is available on Windows 10 Pro OS. With NVIDIA® Optimus™ technology, full enablement of all discrete graphics video and display features may not be supported on all systems (e.g. OpenGL applications will run on the integrated GPU or the APU as the case may be).

Features

DISPLAY

Touch

35.56 cm (14") diagonal FHD IPS eDP + PSR LED-backlit touch screen, 400 cd/m², 100% sRGB for IR camera and WWAN (1920 x 1080) ^{8,9,10}

35.56 cm (14") diagonal FHD IPS eDP LED-backlit touch screen, 220 cd/m², 67% sRGB for IR camera and WWAN (1920 x 1080) ^{8,9,10}

35.56 cm (14") diagonal FHD IPS eDP LED-backlit touch screen, 220 cd/m², 67% sRGB for HD camera and WWAN (1920 x 1080) ^{8,9,10}

35.56 cm (14") diagonal FHD IPS eDP LED-backlit touch screen, 220 cd/m², 67% sRGB for IR camera (1920 x 1080) ^{8,9,10}

35.56 cm (14") diagonal FHD IPS eDP LED-backlit touch screen, 220 cd/m², 67% sRGB for HD camera (1920 x 1080) ^{8,9,10}

8. HD content required to view HD images.

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

10. Sold separately or as an optional feature.

Docking station model	Total number of supported displays (incl. the notebook display)	Max.resolutions supported	Dock Connectors	Technical limitations
HP UltraSlim Docking Station	3	Dual 2.5K @ 60Hz	2xDP, 1xVGA	Dual 2.5k only with both displays into DP
HP Elite 120W TB3 Dock	3	Dual 4K @ 60Hz	2xDP, 1xVGA, 1xTB, 1xUSB-C alt-mode	Dual 4k only with one display in to DP and + TB port or USB-C alt mode + TB port
HP Elite USB-C Dock G4	3	Dual 2K @ 60Hz Single 4K @ 60Hz (3840 x 1440)	1xHDMI, 2xDP	
HP USB-C Universal Dock	3	Dual 4K @ 60Hz Single 5K @ 60Hz	2xDP	
HP USB-C Travel Dock	2	Single 2K @ 60Hz	1xHDMI, 1xVGA	Single external display Only HDMI or VGA at the time
HP USB-C Mini Dock (2	Single 4K @ 60Hz"	1xHDMI, 1xVGA	Single external display Only HDMI or VGA at the time

Features

STORAGE AND DRIVES

Primary M.2 Storage M.2 2280 SSD (NGFF)

128 GB SATA TLC ¹¹
256 GB PCIe® NVMe™ Value ^{11,12}
256 GB SATA TLC ¹¹
512 GB PCIe® NVMe™ TLC ^{11,12}

11. 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.

12. Not available with Intel® Celeron® processor.

MEMORY

Maximum Memory 16 GB DDR4-2400 SDRAM ¹³

Memory

16 GB DDR4-2400 SDRAM (1 X 16 GB) ¹³
16 GB DDR4-2400 SDRAM (2 X 8 GB) Dual channel ¹³
12 GB DDR4-2400 SDRAM (8 GB + 4 GB) Dual channel ¹³
8 GB DDR4-2400 SDRAM (1 x 8 GB) ¹³
8 GB DDR4-2400 SDRAM (2 x 4 GB) Dual channel ¹³
4 GB DDR4-2400 SDRAM (1 x 4 GB) ¹³

Memory Slots

2 SODIMM
Both slots are upgradeable
System runs at 2400
Supports Dual Channel Memory

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

Features

NETWORKING/COMMUNICATIONS

WLAN

Intel® Dual Band Wireless-AC 8265 802.11a/b/g/n/ac (2x2) Wi-Fi® and Bluetooth® 4.2 Combo, non-vPro™¹⁴
Realtek RTL8822BE-CG 802.11a/b/g/n/ac (2x2) with Bluetooth® 4.2¹⁴

WWAN

HP lt4132 LTE/HSPA+ with GPS Mobile Broadband Module¹⁵
Intel® XMM™ 7360 LTE-Advanced¹⁵

Miracast

Support for Miracast¹⁷

Ethernet

Realtek PCIe GbE Family Controller 10/100/1000¹⁶

14. Wireless access point and Internet service required and sold separately. Availability of public wireless access points limited. The specifications for the 802.11ac WLAN are draft specifications and are not final. If the final specifications differ from the draft specifications, it may affect the ability of the notebook to communicate with other 802.11ac WLAN devices.

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

16. 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.

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

AUDIO/MULTIMEDIA

Audio

Integrated microphone (Mono) - On non-webcam configs only
Integrated microphone (Dual Array) - on webcam configs only
2 Stereo Speakers

Camera

720p HD camera⁸
HD IR webcam^{8,18}

8. HD content required to view HD images.

18. Internet access required.

Features

KEYBOARDS/POINTING DEVICES/BUTTONS & FUNCTION KEYS

Keyboard

HP Premium Keyboard
Full-sized chiclet keyboard
Backlit full-sized chiclet keyboard

Pointing Device

Clickpad
On/off control by driver
Taps enabled as default

Function Keys

ESC: system information
F1 - Display Switching
F2 - Blank
F3 - Brightness Down
F4 - Brightness Up
F5 - Speaker Mute
F6 - Volume Down
F7 - Volume Up
F8 - Mic Mute
F9 - Backlight Toggle (for backlit keyboard) or Blank
F10 - NumLock
F11 - Wifi Toggle
F12 - Sleep

Features

SOFTWARE AND SECURITY

Preinstalled Software

BIOS

HP BIOSphere Gen4 ¹⁹
HP DriveLock & Automatic DriveLock
BIOS Update via Network
Master Boot Record Security
Power On Authentication
Secure Erase ²⁰
Absolute Persistence Module ²¹
Pre-boot Authentication

Software

HP Native Miracast Support ¹⁷
HP LAN-Wireless Protection
HP Velocity
HP ePrint + JetAdvantage ²²
HP Hotkey Support - CMIT
HP Recovery Manager
HP Jumpstart
HP Support Assistant ²³
HP Noise Cancellation Software
HP Host Based MAC Address Manager
HP PhoneWise ²⁴
Buy Office (sold separately)

Manageability Features

HP Driver Packs ²⁵
HP System Software Manager (SSM)
HP Manageability Integration Kit Gen2 ²⁶
Ivanti Management Suite ²⁷

Client Security Software

HP Client Security Suite Gen4 including: ²⁸
HP Security Manager ²⁹ (including Credential Manager, HP Password Manager, HP Spare Key)
Power On Authentication
HP Fingerprint Reader ³⁰
HP Device Access Manager
Microsoft Defender ³¹

Features

Security Management

Secure Erase ²⁰

TPM 2.0 Embedded Security Chip shipped with Windows 10 (Common Criteria EAL4+ Certified)

Power-on password (viaBIOS)

Setup password (viaBIOS)

Support for chassis padlocks and cable lock devices

Integrated hood sensor

HP Sure Click ³²

Security

TPM

Model:

Version:

Revision:

FIPS 140-2 Compliant:

IPv6 Certification:

Yes / No

MD5 Hash: Please follow the instructions below to access MD5 Hash.

Graphics (Intel Video Driver): TBD

WWAN: TBD

WLAN: TBD

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

Yes/No

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

19. HP BIOSphere Gen4 requires Intel® or AMD 8th Gen processors. Features may vary depending on the platform and configurations.

20. Secure Erase for the methods outlined in the National Institute of Standards and Technology Special Publication 800-88 "Clear" sanitation method.

21. 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.

22. HP ePrint Driver 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). Print times and connection speeds may vary.

23. HP Support Assistant requires Windows and Internet access.

24. HP PhoneWise Client may not be available with HP Workwise. For supported platforms and HP PhoneWise system requirements see www.hp.com/go/HPPhoneWise.

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

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

27. Ivanti Management Suite subscription required.

Features

- 28. HP Client Security Suite Gen 4 requires Windows and Intel® or AMD 8th generation processors.
- 29. HP Password Manager requires Internet Explorer or Chrome or FireFox. Some websites and applications may not be supported. User may need to enable or allow the add-on / extension in the internet browser.
- 30. HP Fingerprint Sensor sold separately or as an optional feature.
- 31. Microsoft Defender Opt in and internet connection required for updates.
- 32. HP Sure Click is available on select HP platforms and supports Microsoft® Internet Explorer, Google Chrome, and Chromium™. Supported attachments include Microsoft Office (Word, Excel, PowerPoint) and PDF files in read only mode. Check <http://h20195.www2.hp.com/v2/GetDocument.aspx?docname=4AA7-0922ENW> for all compatible platforms as they become available.

POWER

Power Supply

HP Smart 45 W External AC power adapter ³⁴

HP Smart 65 W External AC power adapter ³⁴

Primary Battery

HP Long Life 3-cell, 48 Wh Li-ion prismatic ^{35,36}

Power Cord

3-wire plug (C5), 1.8m, Sticker, Conventional

3-wire plug (C5), 1.0m, Sticker, Conventional

Battery Life

Up to 13 hours ³⁷

34. Availability may vary by country.

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

36. Supports HP Fast Charging.

37. 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 for additional details.

WEIGHTS & DIMENSIONS

Weight

Starting at 3.8 lb ³⁸

Starting at 1.72 kg ³⁸

Dimensions (w x d x h)

12.99 x 9.13 x 0.78 in

33 x 23.2 x 1.99 cm

- 38. Weight will vary by configuration.
-

Features

PORTS/SLOTS

Ports

- 1 USB 3.1 Type-C™ Gen 1 (Power delivery, DisplayPort™)
- 1 USB 3.0 (charging)
- 1 USB 3.0
- 1 HDMI 1.4b ³⁹
- 1 RJ-45 ³⁹
- 1 headphone/microphone combo
- 1 AC power

Expansion Slots

- 1 SD Media Reader Slot
- Supports SDXC

³⁹. Cables are not included.

SERVICE AND SUPPORT

HP Services offers 3-year and 1-year limited warranties and 90 day software limited warranty options depending on country. Batteries have a default one year limited warranty except for Long Life batteries which will have same 1-year or 3-year limited warranty as the platform. On-site service and extended coverage is also available. HP Care Pack Services are optional extended service contracts that go beyond the standard limited warranties. To choose the right level of service for your HP product, use the HP Care Pack Services Lookup Tool at: <http://www.hp.com/go/cpc>. ⁴⁰

⁴⁰. HP Care Packs are sold separately. Service levels and response times for HP Care Packs may vary depending on your geographic location. Service starts on date of hardware purchase. Restrictions and limitations apply. For details, visit www.hp.com/go/cpc. 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.

CERTIFICATION AND COMPLIANCE

- ENERGY STAR® certified
- EPEAT® Gold ⁴¹
- Low halogen ⁴²
- TCO 5.0 Certified

⁴¹. 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.

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

Technical Specifications

SYSTEM UNIT

Stand-Alone Power Requirements (AC Power)	Nominal Operating Voltage	19V
	Average Operating Power	Win 10
	Integrated graphics	5.71W
	Discrete Graphics	6.78W
Temperature	Max Operating Power	Discrete < 65W UMA < 45W
	Operating	32° to 95° F (0° to 35° C)
Relative Humidity	Non-operating	-4° to 140° F (-20° to 60° C)
	Operating	10% to 90%, non-condensing
Shock	Non-operating	5% to 95%, 101.6° F (38.7° C) maximum wet bulb temperature
	Operating	40 G, 2 ms, half-sine
Random Vibration	Non-operating	200 G, 2 ms, half-sine
	Operating	0.75 grms
Altitude (unpressurized)	Non-operating	1.50 grms
	Operating	-50 to 10,000 ft (-15.24 to 3,048 m)
Planned Industry Standard Certifications	Non-operating	-50 to 40,000 ft (-15.24 to 12,192 m)
	UL	Yes
	CSA	Yes
	FCC Compliance	Yes
	ENERGY STAR 6.0®	Selected models [34]
	EPEAT	Registered Gold in United States [32]
	ICES	Yes
	Australia /	Yes
	NZ A-Tick Compliance	Yes
	CCC	Yes
	Japan VCCI Compliance	Yes
	KC	Yes
	BSMI	Yes
	CE Marking Compliance	Yes
	BNCI or BELUS	Yes
	CIT	Yes
	GOST	Yes
Saudi Arabian Compliance (ICCP)	Yes	
SABS	Yes	
UKRSERTCOMPUTER	Yes	

Technical Specifications

DISPLAYS

Panel LCD 14 inch FHD (1920x1080) WLED UWVA 45% cg 220nits eDP slim NB Touch	Outline Dimensions (W x H)	316.112 x 197.98 max.
	Active Area	309.312 x 173.988
	Weight	<413g max.
	Diagonal Size	14.0"
	Thickness	3.2mm max.
	Interface	eDP 1.2
	Surface Treatment	Bright-View
	Touch Enabled	Yes
	Contrast Ratio	600:1 (typical)
	Refresh Rate	60Hz
	Brightness	220 nits typical (Panel Only)
	Pixel Resolution	1920 x 1080 (FHD)
	Format	RGB
	Backlight	LED
	Color Gamut Coverage	45%
Color Depth	6 bits + Hi FRC	
Viewing Angle	UWVA 85/85/85/85	

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

Panel LCD 14 inch FHD (1920x1080) WLED UWVA 72% cg 400nits eDP 1.3 + PSR slim NB Touch	Outline Dimensions (W x H x D)	316.11 x 197.98 max.
	Active Area	309.31 x 173.99
	Weight	<285g max.
	Diagonal Size	14.0"
	Thickness	3.0mm max.
	Interface	eDP 1.3 + PSR (2 lane)
	Surface Treatment	Bright-View
	Touch Enabled	Yes
	Contrast Ratio	600:1 (typical)
	Refresh Rate	60Hz
	Brightness	400 nits typical (Panel Only)
	Pixel Resolution	1920 x 1080 (FHD)

Technical Specifications

Format	RGB
Backlight	LED
Color Gamut Coverage	72%
Color Depth	6 bits + Hi FRC
Viewing Angle	UWVA 85/85/85/85

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

STORAGE

128 GB 2280 M2 SATA-3 TLC Solid State Drive

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

256 GB 2280 PCIe NVMe Value Solid State Drive

Form Factor	M.2 2280
Capacity	256 GB
NAND Type	TLC
Height	0.09 in (2.3 mm)
Width	0.87 in (22 mm)
Weight	0.02 lb (10 g)
Interface	PCIe NVMe Gen3X4
Maximum Sequential Read	Up To 1700 MB/s
Maximum Sequential Write	Up To 600 MB/s
Logical Blocks	500,118,192
Operating Temperature	32° to 158°F (0° to 70°C) [ambient temp]
Features	TRIM; L1.2

Technical Specifications

512 GB 2280 M2 PCIe NVMe TLC Solid State Drive	Form Factor	M.2 2280
	Capacity	512 GB
	NAND Type	TLC
	Height	0.09 in (2.3 mm)
	Width	0.87 in (22 mm)
	Weight	0.02 lb (10 g)
	Interface	PCIe NVMe Gen3X4
	Maximum Sequential Read	Up To 2600 MB/s
	Maximum Sequential Write	Up To 1400 MB/s
	Logical Blocks	1,000,215,216
	Operating Temperature	32° to 158°F (0° to 70°C) [ambient temp]
	Features	TRIM; L1.2

Technical Specifications

NETWORKING/COMMUNICATIONS

HP It4132 LTE/HSPA+ 4G Mobile Broadband Module (Macan)¹	Technology/Operating bands	LTE: 2100 (Band 1), 1900 (Band 2), 1800 (Band 3) MHz, 850 (Band 5), 2600 (Band 7), 900 (Band 8) MHz, 800 (Band 20), 700 (Band 28) MHz. HSPA+: 2100 (Band 1), 1900 (Band 2), 850 (Band 5), 900 (Band 8) MHz E-GPRS: 1900 (Band 2), 1800 (Band 3), 850 (Band 5), 900 (Band 8) MHz
	Wireless protocol standards	3GPP Release 10 LTE Specification CAT.4, 20MHz BW WCDMA R99, 3GPP Release 5, 6, 7 and 8 UMTS Specification E-GPRS: Class B, Multi-slot class 12, coding schemes CS1 - CS4 and MSC1 - MSC9
	GPS	Standalone, A-GPS (MS-B and LTO)
	GPS bands	1575.42 MHz ± 1.023 MHz, GLONASS 1596-1607MHz
	Maximum data rates	LTE: 150 Mbps (Download), 50 Mbps (Upload) DC-HSPA+: 42 Mbps (Download), 5.76 Mbps (Upload) HSPA+: 21Mbps (Download), 5.76 Mbps (Upload) EDGE: 236.8 kbps (Download), 236.8 kbps (Upload) GPRS: 85.6 kbps(Download), 85.6 kbps (Upload)
	Maximum output power	LTE: 23 dBm HSPA+: 23.5 dBm E-GPRS 1900/1800: 26 dBm E-GPRS 900/850: 27 dBm GPRS 1900/1800: 29.5 dBm GPRS 900/850: 32.5 dBm
	Maximum power consumption	LTE: 1,200 mA (peak); 900 mA (average) HSPA+: 1,100 mA (peak); 800 mA (average) E-GPRS: 2,600 mA (peak); 500 mA (average)
	Form Factor	M.2, 3042-S3 Key B
	Weight	6 g
	Dimensions (Length x Width x Thickness)	42 x 30 x 2.3 mm

1. Wireless access point and Internet service is required. Availability of public wireless access point is limited. The specifications for the 802.11ac WLAN are draft specifications and are not final. If the final specifications differ from the draft specifications, it may affect the ability of the notebook to communicate with other 802.11ac WLAN devices

Technical Specifications

Intel® XMM™ 7360 LTE-Advanced CAT9 (Pandora) ¹	Technology/Operating bands	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
	Wireless protocol standards	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
	GPS	Standalone, A-GPS (MS-A, MS-B)
	GPS bands	1575.42 MHz ± 1.023 MHz, GLONASS 1596-1607MHz, Beidou 1561.098 MHz
	Maximum data rates	LTE: 450 Mbps (Download), 50 Mbps (Upload) DC-HSPA+: 42 Mbps (Download), 5.76 Mbps (Upload) HSPA+: 21Mbps (Download), 5.76 Mbps (Upload)
	Maximum output power	LTE: 23 dBm HSPA+: 23.5 dBm
	Maximum power consumption	LTE: 1,200 mA (peak); 900 mA (average) HSPA+: 1,100 mA (peak); 800 mA (average)
	Form Factor	M.2, 3042-S3 Key B
	Weight	5.8 g
	Dimensions (Length x Width x Thickness)	42 x 30 x 2.3 mm

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

Technical Specifications

Intel Windstorm Peak 8265 802.11a/b/g/n/ac (2x2) WiFi and Bluetooth® 4.2 Combo¹ Non-vPro	Wireless LAN Standards	IEEE 802.11a IEEE 802.11b IEEE 802.11g IEEE 802.11n IEEE 802.11ac	
	Interoperability	Wi-Fi certified	
	Frequency Band	802.11b/g/n	<ul style="list-style-type: none"> • 2.402 – 2.482 GHz
		802.11a/n	<ul style="list-style-type: none"> • 4.9 – 4.95 GHz (Japan) • 5.15 – 5.25 GHz • 5.25 – 5.35 GHz • 5.47 – 5.725 GHz • 5.825 – 5.850 GHz
	Data Rates	<ul style="list-style-type: none"> • 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, and 80MHz) 	
	Modulation	Direct Sequence Spread Spectrum BPSK, QPSK, CCK, 16-QAM, 64-QAM, 256-QAM	
	Security³	<ul style="list-style-type: none"> • 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 	
	Network Architecture	Ad-hoc (Peer to Peer)	
	Models	Infrastructure (Access Point Required)	
	Roaming	IEEE 802.11 compliant roaming between access points	
	Output Power²	<ul style="list-style-type: none"> • 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 	
	Power Consumption	<ul style="list-style-type: none"> • Transmit mode 2.0 W • Receive mode 1.6 W • Idle mode (PSP) 180 mW (WLAN Associated) • Idle mode 50 mW (WLAN unassociated) • Connected Standby 10mW • Radio disabled 8 mW 	

Technical Specifications

Power Management	ACPI and PCI Express compliant power management 802.11 compliant power saving mode	
Receiver Sensitivity³	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	
Antenna type	High efficiency antenna with spatial diversity, mounted in the display enclosure Two embedded dual band 2.4/5 GHz antennas are provided to the card to support WLAN MIMO communications and Bluetooth communications	
Form Factor	PCI-Express M.2 MiniCard	
Dimensions	Type 2230 : 2.3 x 22.0 x 30.0 mm	
Weight	Type 2230 : 2.8g	
Operating Voltage	3.3v +/- 9%	
Temperature	Operating:	14° to 158° F (-10° to 70° C)
	Non-operating:	-40° to 176° F (-40° to 80° C)
Humidity	Operating:	10% to 90% (non-condensing)
	Non-operating:	5% to 95% (non-condensing)
Altitude	Operating:	0 to 10,000 ft (3,048 m)
	Non-operating:	0 to 50,000 ft (15,240 m)
LED Activity	LED Amber	Radio OFF
	LED White	Radio ON

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

Bluetooth Specification	4.0/4.1/4.2 Compliant
Frequency Band	2402 to 2480 MHz
Number of Available Channels	Legacy : 0~79 (1 MHz/CH) BLE : 0~39 (2 MHz/CH)
Data Rates and Throughput	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)
Transmit Power	The Bluetooth component shall operate as a Class II Bluetooth device with maximum transmit power of + 4 dBm for BR and EDR.
Power Consumption	Peak (Tx) 330 mW Peak (Rx) 230 mW Selective Suspend 17 mW

Technical Specifications

Electrical Interface	USB 2.0 compliant
Bluetooth Software Supported	Microsoft Windows Bluetooth Software
Power Management Certifications	Microsoft Windows ACPI, and USB Bus Support FCC (47 CFR) Part 15C, Section 15.247 & 15.249
Power Management Certifications	ETS 300 328, ETS 300 826 Low Voltage Directive IEC950 UL, CSA, and CE Mark
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)

**Realtek
802.11a/b/g/n/ac (2x2)
WiFi and Bluetooth® 4.2
Combo ¹**

Wireless LAN Standards	IEEE 802.11a IEEE 802.11b IEEE 802.11g IEEE 802.11n IEEE 802.11ac
Interoperability	Wi-Fi certified
Frequency Band	802.11b/g/n <ul style="list-style-type: none"> • 2.402 – 2.482 GHz 802.11a/n <ul style="list-style-type: none"> • 4.9 – 4.95 GHz (Japan) • 5.15 – 5.25 GHz • 5.25 – 5.35 GHz • 5.47 – 5.725 GHz • 5.825 – 5.850 GHz
Data Rates	<ul style="list-style-type: none"> • 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, and 80MHz)
Modulation	Direct Sequence Spread Spectrum

Technical Specifications

	BPSK, QPSK, CCK, 16-QAM, 64-QAM, 256-QAM
Security³	<ul style="list-style-type: none"> • 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
Network Architecture Models	Ad-hoc (Peer to Peer) Infrastructure (Access Point Required)
Roaming	IEEE 802.11 compliant roaming between access points
Output Power²	<ul style="list-style-type: none"> • 802.11b : +14dBm minimum • 802.11g : +12dBm minimum • 802.11a : +12dBm minimum • 802.11n HT20(2.4GHz) : +12dBm minimum • 802.11n HT40(2.4GHz) : +12dBm minimum • 802.11n HT20(5GHz) : +10dBm minimum • 802.11n HT40(5GHz) : +10dBm minimum • 802.11ac VHT80(5GHz) : +10dBm minimum"
Power Consumption	<ul style="list-style-type: none"> • Transmit mode 2.0 W • Receive mode 1.6 W • Idle mode (PSP) 180 mW(WLAN Associated) • Idle mode 50 mW (WLAN unassociated) • Connected Standby 10mW • Radio disabled 8 mW
Power Management	ACPI and PCI Express compliant power management 802.11 compliant power saving mode
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Weight	Type 2230 : 2.8g
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Temperature	Operating: 14° to 158° F (–10° to 70° C) Non-operating: –40° to 176° F (–40° to 80° C)

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Humidity	Operating:	10% to 90% (non-condensing)
	Non-operating:	5% to 95% (non-condensing)
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Technical Specifications

Basic Imaging Profile (BIP)2
 Headset Profile (HSP)
 Hands Free Profile (HFP)
 Advanced Audio Distribution Profile (A2DP)

POWER

HP 45W Smart AC adapter	Dimensions	3.74 x 1.57 x 1.04 in (9.5 x 4.0 x 2.65 cm)	
	Weight	0.386 lb (175g) max	
	Input	Input	90 to 265 VAC
		Input Efficiency	87.74% at 115Vac and 88.4% at 230Vac
		Input frequency range	47 to 63 Hz
	Output	Input AC current	1.4 A at 90 VAC
		Output power	45W
		DC output	19.5V
		Hold-up time	5 msec at 115 VAC input
		Output current limit	<8.0A
	Connector	4.5mm Barrel Type, 3 pin/grounded, mates with interchangeable cords	
	Environmental Design	Operating temperature	32° to 95° F (0° to 35° C)
		Non-operating (storage) temperature	-4° to 185° F (-20° to 85° C)
		Altitude	0 to 16,400 ft (0 to 5,000 m)
		Humidity	20% to 95%
EMI and Safety Certifications	Storage Humidity	10% to 95%	
	CE Mark - full compliance with LVD and EMC directives		
	Worldwide safety standards - IEC60950, EN60950, UL60950, Class1, SELV; Agency approvals - C-UL-US, NORDICS, DENAN, EN55022 Class B, FCC Class B, CISPR22 Class B, CCC, NOM-1 NYCE. MTBF - over 200,000 hours at 25°C ambient condition.		

HP 65W Smart AC adapter	Dimensions	107.0x47.0x30.0mm	
	Weight	unit: 250g +/- 10g	
	Input	Input Efficiency	88.0 % at 115 Vac and 89.0 % at 230Vac
		Input frequency range	47 ~ 63 Hz
		Input AC current	Max. 1.7 A at 90 Vac
	Output	Output power	65W
		DC output	19.5V
		Hold-up time	5ms at 115 Vac input
		Output current limit	<11.0A
		Connector	4.5mm Barrel Type
	Environmental Design	Operating temperature	32°F to 95°F (0° to 35°C)
		Non-operating (storage) temperature	-4°F to 185°F (-20° to 85°C)
		Altitude	0 to 16,400 ft (0 to 5000m)

Technical Specifications

	Humidity	20% to 95%
	Storage Humidity	10% to 95%
EMI and Safety Certifications	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.	

HP 3 Cell Long Life -Li-On (48 WHr)	Dimensions (H x W x L)	7.3*94*184.47mm (0.287*3.7*7.263 inch)	
	Weight	0.215kg	
	Cells/Type	3cell Lithium-Ion Prismatic cell / 596080 3cell Lithium-Ion Polymer cell / 606072	
	Energy	Voltage	11.4V
		Amp-hour capacity	4.212Ah
		Watt-hour capacity	48Wh
	Temperature	Operating (Charging)	32° to 113° F (0° to 45° C)
		Operating (Discharging)	14° to 122° F (-10° to 60° C)
	Fuel Gauge LED	N/A	

COUNTRY OF ORIGIN

China

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

Type	Description	Part #
Cases	HP Essential Top Load Case	H2W17AA#xxx
	HP Essential Backpack (up to 15.6")	H1D24AA
	HP Essential Messenger Case (up to 17.3")	H1D25AA
Docking	HP USB-C Dock G4	3FF69AA#xxx
	HP USB-C Universal Dock	1MK33AA#xxx
	HP USB-C Universal Dock NF	3DV65AA#xxx
	HP USB-C Mini Dock	1PM64AA
	HP USB Travel Dock	T0K30AA
	HP Thunderbolt Dock 120W G2	2UK37AA#xxx
	HP TB Dock G2 w/ Combo Cable	3TR87AA#xxx
	HP TB Dock 120W G2 w/ Audio	3YE87AA#xxx
	HP Thunderbolt Dock Audio Module	3AQ21AA
	HP TB Dock 120W G2 cable	3XB94AA
	HP TB Dock G2 combo cable	3XB96AA
	HP Adjustable Display Stand	AW663AA
	Input/Output	HP Slim USB Keyboard and Mouse
HP Slim Wireless Keyboard and Mouse		T6L04AA#xxx
HP USB Collaboration Keyboard		Z9N38AA#xxx
HP Wireless Collaboration Keyboard		Z9N39AA#xxx
HP USB Essential Keyboard and Mouse		H6L29AA
HP Ultra Mobile Wireless Mouse		H6F25AA#xxx
HP USB Premium Mouse		1JR32AA
HP Wireless Premium Mouse		1JR31AA
HP Elite Presenter Mouse		2CE30AA
HP Comfort Grip Wireless Mouse		H2L63AA
HP 3-Button USB Laser Mouse		H4B81AA
HP USB Travel Mouse		G1K28AA
HP HDMI to DVI Adapter		F5A28AA
HP USB-C to DP		N9K78AA
HP USB-C to USB-A Hub		Z6A00AA
HP Stereo 3.5mm Headset		T1A66AA
HP Stereo USB Headset		T1A67AA
Power	HP 45W Smart AC Adapter 4.5mm	H6Y88AA#xxx
	HP 65W Smart AC Adapter	H6Y89AA#xxx
	HP 65W Slim AC Adapter	H6Y82AA#xxx
	HP Notebook Power Bank	N9F71AA#xxx
	HP 45W 4.5mm Smart AC Adapter (Japan Only)	L6F60AA#ABJ
Storage	HP External USB Optical Drive	F2B56AA
	HP 500GB 7200rpm HDD	F3B97AA

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

Security	HP Essential Combination Lock	T0Y16AA
	HP Combination Lock	T0Y15AA
	HP Keyed Cable lock	T0Y14AA
	HP Keyed Cable Lock 10mm	T1A62AA
UCC	HP Conferencing Keyboard	K8P74AA#xxx
	HP Speaker Phone	K7V16AA
	HP Wired Headset	K7V17AA
	HP UC Wireless Mono Headset	W3K08AA
	HP UC Wireless Duo Headset	W3K09AA
Displays	HP EliteDisplay E243 23.8-inch Monitor	1FH47AA
	HP EliteDisplay E243i 23.8-inch Monitor	1FH49AA
	HP EliteDisplay E273 27-inch Monitor	1FH50AA
	HP EliteDisplay E273m 27-inch Monitor	1FH51AA
	HP EliteDisplay E273m 27-inch Monitor	1FH51AA

Summary of Changes

Date of change:	Version History:		Description of change:
June 14, 2018	v1 to v2	Update	Memory, display and displays sections updated according to current MAT

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