

Overview

HP EliteBook x360 1040 G7 Notebook PC



Left

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|----|--|----|-----------------------------|
| 1. | Webcam and IR Camera | 6. | WWAN SIM (Nano) |
| 2. | IR Camera LEDs | 7. | Audio Combo Jack |
| 3. | Internal microphones | 8. | USB 3.1 Gen 1 Charging Port |
| 4. | Glass Clickpad | | |
| 5. | Nano Security lock slot (Lock sold separately) | | |

Overview



Right

1.

Power button
2.

USB 3.1 Gen 1 charging port
3.

HDMI port (Cable not included)
4.

USB Type-C® with Thunderbolt™
5.

USB Type-C® with Thunderbolt™

Overview

AT A GLANCE

- An updated all metal CNC Aluminum chassis that is .6 inches (1.66 cm) thin and with a starting weight of 2.88 lbs. (1.32 Kg)
- A 360° convertible notebook with 4 usage modes: Laptop mode, Tablet mode, Tent mode, and Media mode
- Choice of 10th Generation Intel® Core™ i5, i7 Processors (with up to 6 cores) with integrated Intel® UHD Premium Graphics
- Display choices include 35.56 cm (14.0") diagonal IPS FHD touch screen or UHD HDR-400 touch screen. Brightness choices up to 1000 Nits. Optional Anti-glare screen available on FHD panels. Get added protection in open or public places with the optional HP Sure View Reflect integrated privacy screen
- Connectivity with 4G/LTE WWAN, 5G/LTE WWAN, WiFi6 + Bluetooth®5, WLAN, USB Type-C®, USB Type-A, HDMI and optional Thunderbolt™ Docking¹
- Featuring redesigned quiet HP Keyboard with the HP Programmable key. The power button and the fingerprint sensor have been moved to the keyboard
- HP Sure Shutter - industry's 1st and only privacy camera with an electric shutter. The on/off button for this shutter is located on the function row of the keyboard
- An optional HP Rechargeable Active Pen 3¹ with Magnetic Attach and 4096 Levels of pressure
- Never forget your password with your choice of simple authentication methods, including the IR camera for face recognition and Touch Fingerprint Sensor for Windows Hello
- Enterprise grade security with HP Sure Sense, HP SureStart Gen5, HP Privacy Camera, HP Sure View Reflect, HP Sure Run Gen2, HP Sure Recover Gen2 with Embedded Reimaging, HP Sure Click, and Touch Fingerprint sensor
- Track your PC and use it to find other Tile-enabled devices with optional Tile™ ²
- Two choices for the system battery: a 54.5 Whr battery for lighter configurations and a 78.5 Whr battery for the longest battery life
- Battery life up to xxxx hours³ with the 78.5 Whr battery, and up to xxxx hours with the 54 Whr battery
- Supports fast charging (50% in 30 minutes) with no impact on battery recharge cycles
- Choice of solid state drives up to 2 TB and LPDDR4 memory up to 32 GB
- Tested for 19 MIL-STD 810H tests⁴

1. Sold separately or as an optional feature.

2. Tile is an optional feature that must be configured at the factory and requires Windows 10. Some features require optional subscription to Tile Premium. Not available on models with WWAN M.2 module. Tile application for Windows 10 available for download from the Windows Store. Mobile phone app available for download from App Store and Google Play. Requires iOS 11 and greater or Android 6.0 and greater see <https://support.thetileapp.com/hc/en-us/articles/200424778> for more information. HP Tile will function as long as the PC has battery power.

3. 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.

4. MIL-STD 810H is not intended to demonstrate fitness of 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.

Technical Specifications

PRODUCT NAME

HP EliteBook x360 1040 G7 Notebook PC

OPERATING SYSTEM

Preinstalled	Windows 10 Pro 64 Windows 10 Pro 64 (National Academic only) ² Windows 10 Home 64 ¹ Windows 10 Home Single Language 64 ¹ Windows® 10 Enterprise 64 (Web Support) ¹ FreeDOS
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1. Not all features are available in all editions or versions of Window. 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>. A full list of HP products.

PROCESSORS

- Intel® Core™ i7-10810U with Intel® UHD Graphics Premium (1.1 GHz base frequency, up to 4.7 GHz with Intel® Turbo Boost Technology, 12 MB L3 cache, 6 cores)^{3,4,5,6}
- Intel® Core™ i7-10710U with Intel® UHD Graphics Premium (1.1 GHz base frequency, up to 4.7 GHz with Intel® Turbo Boost Technology, 12 MB L3 cache, 6 cores)^{3,4,5,6}
- Intel® Core™ i7-10610U with Intel® UHD Graphics Premium (1.8 GHz base frequency, up to 4.3 GHz with Intel® Turbo Boost Technology, 8 MB L3 cache, 4 cores)^{3,4,5,6}
- Intel® Core™ i5-10310U with Intel® UHD Graphics Premium (1.7 GHz base frequency, up to 4.8 GHz with Intel® Turbo Boost Technology, 6 MB L3 cache, 4 cores)^{3,4,5,6}
- Intel® Core™ i5-10210U with Intel® UHD Graphics Premium (1.6 GHz base frequency, up to 4.2 GHz with Intel® Turbo Boost Technology, 6 MB L3 cache, 4 cores)^{3,4,5,6}

Processor Family	10th Generation Intel® Core™ i7 processor (i7-10810U , i7-10710U, i7-10610U) 10th Generation Intel® Core™ i5 processor (i5-10310U, i5-10210U)
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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.
5. Intel® Turbo Boost performance varies depending on hardware, software and overall system configuration. See <http://www.intel.com/technology/turboboost> for more information.
6. 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>.

Technical Specifications

CHIPSET

Chipset is integrated with processor.

GRAPHICS

Integrated
Intel® HD Graphics Premium⁷

Supports
Support HD decode, DX12, HDMI 1.4b⁸

7. HD content required to view HD images.
8. HDMI cable sold separately

DISPLAY

Touch
35.56 cm (14") diagonal FHD IPS Ultraslim 2.0mm eDP + PSR2 BrightView touch screen with 0.4mm Gorilla® Glass 5, 400 nits, 72% NTSC (1920 x 1080)^{7,9,10}
35.56 cm (14") diagonal FHD IPS Ultraslim 2.0mm eDP + PSR2 Anti-Glare touch screen with 0.4mm Gorilla® Glass 5, 400 nits, 72% NTSC (1920 x 1080)^{7,9,10}
35.56 cm (14") diagonal UHD HDR400 IPS Ultraslim 2.0mm eDP + PSR BrightView touch screen with 0.4mm Gorilla® Glass 5, 550 nits, 72% NTSC (3840 x 2160)^{7,9,10}
HP Sure View Reflect Integrated Privacy Screen 35.56 cm (14") diagonal FHD IPS Ultraslim 2.0mm eDP + PSR BrightView touch screen with 0.4mm Gorilla® Glass 5, 1000 nits, 72% NTSC (1920 x 1080)^{7,9,10,11}
HP Sure View Reflect Integrated Privacy Screen 35.56 cm (14") diagonal FHD IPS Ultraslim 2.0mm eDP + PSR Anti-Glare touch screen with 0.4mm Gorilla® Glass 5, 1000 nits, 72% NTSC (1920 x 1080)^{7,9,10,11}

HDMI 1.4b
Supports resolutions up to 4K@60Hz

7. HD content required to view HD images.
9. Sold separately or as an optional feature.
10. Resolutions are dependent upon monitor capability, and resolution and color depth settings.
11. HP Sure View integrated privacy screen is an optional feature that must be configured at purchase and is designed to function in landscape orientation.

STORAGE AND DRIVES

Technical Specifications

Primary M.2 Storage

- 128 GB M.2 SATA-3 SS TLC¹²
- 256 GB PCIe® NVMe™ M.2 SS Value¹²
- 256 GB PCIe® Gen3x4 NVMe™ M.2 SS TLC¹²
- 256 GB PCIe® TLC Opal 2¹²
- 256 GB PCIe® Gen3x2x2 SS QLC + 16 GB Intel Optane Memory
- 512 GB PCIe® Gen3x4 NVMe™ M.2 SS TLC¹²
- 512 GB PCIe® Gen3x4 NVMe™ M.2 SED SS TLC (OPAL 2) ¹²
- 512 GB PCIe® NVMe™ M.2 SS Value¹²
- 512 GB PCIe® Gen3x2x2 QLC + 32GB Intel Optane Memory¹²
- 1 TB PCIe® Gen3x4 NVMe™ M.2 SS TLC¹²
- 2 TB PCIe® Gen3x4 NVMe™ M.2 SS TLC¹²

12. 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.

MEMORY

Maximum Memory

32 GB LPDDR4-2933 SDRAM

Memory

- 32 GB LPDDR4-2933
- 16 GB LPDDR4-2933 SDRAM
- 8 GB LPDDR4-2933 SDRAM

Memory Slots

Memory soldered down
LPDDR4, System runs at: 2933
Supports Dual Channel Memory

NETWORKING/COMMUNICATIONS

WLAN

Intel® Dual Band Wireless-AX201 (2x2) Wi-Fi 6 and Bluetooth® 5 Combo, vPro™¹³
Intel® Dual Band Wireless-AX201 (2x2) Wi-Fi 6 and Bluetooth® 5 Combo, non-vPro™¹³

WWAN

Intel® XMM™ 7360 LTE-Advanced Cat 9¹⁴
Qualcomm® Snapdragon™ X55 5G Modem (5G + LTE CAT 20)

PC Locator
Built-in Tile® Module (select models)³⁷

NFC

NPC300 Near Field Communication module⁹

Miracast

Native Miracast Support¹⁵

9. Sold separately or as an optional feature.
13. Wireless access point and internet service required and sold separately. Availability of public wireless access points limited.

Technical Specifications

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.

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

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

37. Tile is an optional feature that must be configured at the factory and requires Windows 10. Some features require optional subscription to Tile Premium. Not available on models with WWAN M.2 module. Tile application for Windows 10 available for download from the Windows Store. Mobile phone app available for download from App Store and Google Play. Requires iOS 11 and greater or Android 6.0 and greater see <https://support.thetileapp.com/hc/en-us/articles/200424778> for more information. HP Tile will function as long as the PC has battery power.

AUDIO/MULTIMEDIA

Audio

Audio by Bang & Olufsen
4 Premium Stereo Speakers
Microphones (Multi Array including two user facing and two world-facing microphones)

Camera

Hybrid 720p HD/IR camera with integrated privacy shutter⁷

Sensors

Accelerometer
Magnetometer
Gyroscope
Ambient light
Hall
Time of Flight

7. HD content required to view HD images.

KEYBOARDS/POINTING DEVICES/BUTTONS & FUNCTION KEYS

Keyboard

HP Quiet Keyboard, spill resistant, Backlit keyboard and Durakeys
HP Quiet Keyboard, spill resistant, Backlit keyboard and Durakeys, privacy

Pointing Device

Glass ClickPad with multi-touch gesture support

Function Keys

F1 - Display Switching
F2 - Blank or Sure View
F3 - Brightness Down
F4 - Brightness up
F5 - Audio Mute
F6 - Volume Down
F7 - Volume Up
F8 - Mic Mute
F9 - Keyboard Backlight
F10 - Insert
F11 - Airplane Mode
F12 - Programmable Key

Technical Specifications

Hidden Function Keys

- Fn+R = Break
- Fn+S = Sys Rq
- Fn+C = Scroll Lock
- Fn+E - Insert
- Fn+W - Pause

SOFTWARE AND SECURITY

Preinstalled Software

BIOS

- HP BIOSphere Gen5¹⁶
- HP Drive Lock & Automatic Drive Lock¹⁷
- BIOS Update via Network
- Master Boot Record Security
- Power On Authentication
- HP Secure Erase¹⁸
- Absolute Persistence Module¹⁹
- Pre-boot Authentication

Software

- HP Connection Optimizer
- HP Image Assistant
- HP Hotkey Support
- HP JumpStarts
- HP Support Assistant²⁰
- HP Noise Cancellation Software
- Buy Office (Sold separately)
- HP WorkWell
- HP Presence Aware

Manageability Features

- HP Driver Packs²¹
- HP System Software Manager (SSM)
- HP BIOS Config Utility (BCU)
- HP Client Catalog
- HP Manageability Integration Kit Gen4²²
- Sure Recover Gen3 with embedded reimaging

Client Security Software

- HP Client Security Manager Gen6²³
- HP Fingerprint Sensor
- HP Power On Authentication
- Windows Defender²⁴

Security Management

- Pre-boot Authentication
- TPM 2.0 Embedded Security Chip shipped with Windows 10 (Common Criteria EAL4+ Certified)²⁵
- SATA 0,1 port disablement (via BIOS)

Technical Specifications

Serial, USB enable/disable (via BIOS)
Power-on password (via BIOS)
Setup password (via BIOS)
Support for chassis padlocks and cable lock devices
HP Sure Click²⁶
HP Sure Start Gen6²⁷
HP Sure Run Gen3²⁸
HP Sure Recover Gen3²⁹
HP Sure Sense³⁰

16. HP BIOSphere Gen5 is available on select HP Pro and Elite PCs. See product specifications for details. Features may vary depending on the platform and configurations.

17. HP Automatic Drive Lock is not supported on NVMe drives.

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

19. Absolute 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.

20. HP Support Assistant requires Windows and Internet access.

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

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

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

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

25. Firmware TPM is version 2.0. Hardware TPM is v1.2, which is a subset of the TPM 2.0 specification version v0.89 as implemented by Intel Platform Trust Technology (PTT).re TPM is version 2.0. Hardware TPM is v1.2, which is a subset of the TPM 2.0 specification version v0.89 as implemented by Intel Platform Trust Technology (PTT).

26. 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, when Microsoft Office or Adobe Acrobat are installed.

27. HP Sure Start Gen6 is available on select HP PCs with Intel processors.

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

29. HP Sure Recover Gen3 is available on select HP PCs and requires an open 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.

30. HP Sure Sense requires Windows 10.

POWER

Technical Specifications

Power Supply

HP Smart 65 W USB Type-C® adapter³¹

Primary Battery

HP Long Life 4-cell, 54.5 Wh Li-ion polymer³²

HP Long Life 4-cell, 78.6 Wh Li-ion polymer³²

Power Cord

Premium 1m C5 power cord

Conventional 1m C5 power cord

Battery Life

Up to TBD hours with 54 Whr battery³³

Up to TBD hours with 78.5 Whr battery

31. Availability may vary by country.
32. Battery is internal and not replaceable by customer. Serviceable by warranty.
33. Windows 10 MM14 battery life will vary depending on various factors including product model, configuration, loaded application features, use, wireless functionality, and power management settings. The maximum capacity of the battery will naturally decrease with time and usage. See <http://www.bapco.com> for additional details.

WEIGHTS & DIMENSIONS

Weight

Product Weight

Starting at 2.9 lbs³⁴

Starting at 1.32 kg³⁴

Product Dimensions (w x d x h)

12.57 x 7.98 x 0.65 in

31.93 x 20.26 x 1.66 cm

34. Weight will vary by configuration. Starting weight configuration: FHD, 54Whr battery, 8GB of memory, 128GB SSD, WLAN + BT, No WWAN, No NFC, No Pen

PORTS/SLOTS

Ports

2 USB-C® (Thunderbolt, Supports Power Deliver 3.0, DisplayPort TM 1.2)

2 USB 3.1 Gen 1 (5Gbps signaling rate) Charging Ports

1 HDMI 1.4B⁸

1 External Nano SIM slot for WWAN

1 Headphone/Microphone combo

8. HDMI cable sold separately.

SERVICE AND SUPPORT

Technical Specifications

HP Care Services offers up to 3-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. Refer to <http://www.hp.com/support/batterywarranty/> for additional battery information. On-site service and extended coverage is also available. HP Care 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>.³⁵

35. HP Care Services 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 <http://www.hp.com/go/cpc>. HP services are governed by the applicable HP terms and conditions of service provided or indicated to Customer at the time of purchase. Customer may have additional statutory rights according to applicable local laws, and such rights are not in any way affected by the HP terms and conditions of service or the HP Limited Warranty provided with your HP Product.

SYSTEM UNIT

Stand-Alone Power Requirements (AC Power)	Nominal Operating Voltage	AC 15V
	Average Operating Power	Win 10
	Integrated Graphics	Yes
Temperature	Max Operating Power	UMA < 65W
	Operating	32° to 95° F (0° to 35° C) (not writing optical)
	Non-operating	41° to 95° F (5° to 35° C) (writing optical)
Relative Humidity	Operating	32° to 95° F (0° to 35° C) (not writing optical)
	Non-operating	5% to 95%, 101.6° F (38.7° C) maximum wet bulb temperature
Shock	Operating	40 G, 2 ms, half-sine
	Non-operating	200 G, 2 ms, half-sine
Random Vibration	Operating	1.043 grms
	Non-operating	3.5 grms
Altitude (unpressurized)	Operating	-50 to 10,000 ft (-15.24 to 3,048 m)
	Non-operating	-50 to 40,000 ft (-15.24 to 12,192 m)
Planned Industry Standard Certifications	UL	Yes
	CSA	Yes
	FCC Compliance	Yes
	ENERGY STAR®	Yes ³⁷
	EPEAT 2020	TBD ³⁸
	ICES	Yes
	Australia	Yes
	NZ A-Tick Compliance	Yes
	CCC	Yes
	Japan VCCI Compliance	Yes
	KC	Yes
	BSMI	Yes

Technical Specifications

CE Marking Compliance	Yes
BNCI or BELUS	Yes
CIT	Yes
GOST	Yes
Saudi Arabian Compliance (ICCP)	Yes
SABS	Yes
UKRSERTCOMPUTER	Yes

37. Configurations of the HP EliteBook x360 1040 G7 Notebook PC that are ENERGY STAR® certified are identified as HP EliteBook x360 1040 G7 Notebook PC ENERGY STAR® on HP websites and on <http://www.energystar.gov>.
38. Based on US EPEAT® registration according to IEEE 1680.1-2018 EPEAT®. Status varies by country. Visit <http://www.epeat.net> for more information.

DISPLAYS

Panel LCD 14 inch diagonal FHD (1920x1080) Anti-Glare WLED UWVA sRGB 100% NTSC 400nits eDP 1.4+PSR2 bent LP	Outline Dimensions (W x H x D)	313.67 X 184.17 mm (max)
	Active Area	309.37 X 174.02 mm (typ.)
	Weight	200 g max.
	Diagonal Size	14.0 inch
	Thickness	2.0mm / 3.8mm (PCB) max.
	Interface	eDP 1.4
	Surface Treatment	Anti - Glare
	Touch Enabled	Yes
	Contrast Ratio	1200:1 (typ.)
	Refresh Rate	60 Hz
	Brightness	400 nits
	Pixel Resolution	1920 x 1080 (FHD)
	Format of LCD Pixel Arrangement	RGB Stripe
	Backlight	LED
	Color Gamut Coverage	sRGB 100% (NTSC 72%)
	Color Depth	8 bits
	Viewing Angle	UWVA 85/85/85/85

Technical Specifications

Panel LCD 14 inch diagonal UHD (3840x2160) BrightView WLED UWVA HDR-400 sRGB 95% NTSC 550nits eDP 1.4+PSR2 bent	Outline Dimensions (W x H x D)	313.61 X 184.74 mm (max)
	Active Area	309.31 X 173.98 mm (typ.)
	Weight	220 g (max)
	Diagonal Size	14.0 inch
	Thickness	2.0 mm/3.8 mm (w/PCB) (max)
	Interface	eDP 1.4
	Surface Treatment	BrightView
	Touch Enabled	Yes
	Contrast Ratio	1400:1 (typ.)
	Refresh Rate	60 Hz
	Brightness	500 nits
	Pixel Resolution	3840 x 2160 (UHD)
	Format of LCD Pixel Arrangement	RGB Stripe
	Backlight	LED
	Color Gamut Coverage	sRGB 95%

Panel LCD 14-in diagonal FHD (1920x1080) Anti-Glare WLED UWVA 72% NTSC 1000nits eDP 1.4+PSR PrivacyG4 NB2Y	Outline Dimensions (W x H x D)	314.612 x 185.33 mm (max.)
	Active Area	309.312 x 173.99 mm
	Weight	230 g (max)
	Diagonal Size	14.0"?
	Thickness	3.9 mm (max.)
	Interface	eDP
	Surface Treatment	Anti - glare (AG)
	Touch Enabled	Yes
	Contrast Ratio	1500:1 (typ.)
	Refresh Rate	60 Hz
	Brightness	1000 nits
	Pixel Resolution	1920 x 1080 (FHD)
	Format of LCD Pixel Arrangement	RGB
	Backlight	LED
	Color Gamut Coverage	72%

Color Depth		8 bits + 2FRC
	Viewing Angle	UWVA 85/85/85/85

Technical Specifications

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

STORAGE

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

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

SSD 1 TB 2280 PCIe-3x4 NVMe Three Layer Cell single-sided	Form Factor	M.2 2280
	Capacity	1 TB
	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	3100 ~ 3500 MB/s
	Maximum Sequential Write	2770 ~ 3037 MB/s
	Logical Blocks	2,000,409,264
	Operating Temperature	32° to 158°F (0° to 70°C) [ambient temp]
	Features	ATA Security (Option); TRIM; L1.2

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

SSD 256 GB 2280 M2 PCIe-3x4 SS NVMe TLC	Form Factor	M.2 2280
	Capacity	256 GB
	NAND Type	TLC
	Height	0.09 in (2.3 mm)

Technical Specifications

Width	0.87 in (22 mm)
Weight	0.02 lb (10 g)
Interface	PCIe NVMe Gen3X4
Maximum Sequential Read	2800 MB/s~ 3500 MB/s
Maximum Sequential Write	1400 MB/s~ 2200 MB/s
Logical Blocks	500,118,192
Operating Temperature	32° to 158°F (0° to 70°C) [ambient temp]
Features	ATA Security; TRIM; L1.2

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

SSD 256 GB 2280 PCIe NVMe Value

Form Factor	M.2 2280
Capacity	256 GB
NAND Type	Value
Height	0.09 in (2.3 mm)
Width	0.87 in (22 mm)
Weight	0.02 lb (10 g)
Interface	PCIe NVMe Gen3
Maximum Sequential Read	2100 MB/s ~ 2200 MB/s
Maximum Sequential Write	900 MB/s ~ 1400 MB/s
Logical Blocks	500,118,192
Operating Temperature	32° to 158°F (0° to 70°C) [ambient temp]
Features	ATA Security (optional); TRIM; L1.2

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

SSD 256 GB 2280 PCIe-3x2x2 NVMe+SSD 16 GB 3D Xpoint

Form Factor	M.2 2280
Capacity	256 GB
NAND Type	QLC + 3D XPoint
Height	0.09 in (2.3 mm)
Width	0.87 in (22 mm)
Weight	0.02 lb (10 g)
Interface	PCIe NVMe Gen3X2X2
Maximum Sequential Read	Up To 1450 MB/s
Maximum Sequential Write	Up To 500 MB/s
Logical Blocks	500, 118, 192
Operating Temperature	32° to 158°F (0° to 70°C) [ambient temp]
Features	ATA Security; TRIM; L1.2

Technical Specifications

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

SSD 256 GB 2280 PCIe-3x4 NVMe Self Encrypted OPAL2 Three Layer Cell	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	2800 MB/s ~ 3500 MB/s
	Maximum Sequential Write	1663 MB/s ~ 2200 MB/s
	Logical Blocks	500, 118, 192
	Operating Temperature	32° to 158°F (0° to 70°C) [ambient temp]
	Features	ATA Security (Option); TCG Opal 2.0; TRIM; L1.2

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

SSD 512 GB 2280 M2 PCIe-3x4 SS NVMe TLC	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	3100 MB/s ~ 3500 MB/s
	Maximum Sequential Write	2400 MB/s ~ 2956 MB/s
	Logical Blocks	1,000, 215, 215
	Operating Temperature	32° to 158°F (0° to 70°C) [ambient temp]
	Features	ATA Security; TRIM; L1.2

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

Technical Specifications

SSD 512 GB 2280 PCIe NVMe Value	Form Factor	M.2 2280
	Capacity	512 GB
	NAND Type	Value
	Height	0.09 in (2.3 mm)
	Width	0.87 in (22 mm)
	Weight	0.02 lb (10 g)
	Interface	PCIe NVMe Gen3
	Maximum Sequential Read	2200 MB/s ~ 2300 MB/s
	Maximum Sequential Write	1000 MB/s ~ 1600 MB/s
	Logical Blocks	1,000, 215, 215
	Operating Temperature	32° to 158°F (0° to 70°C) [ambient temp]
	Features	ATA Security (optional); TRIM; L1.2

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

SSD 512 GB 2280 PCIe-3x2x2 NVMe+SSD 32 GB 3D Xpoint	Form Factor	M.2 2280
	Capacity	512 GB
	NAND Type	QLC + 3D XPoint
	Height	0.09 in (2.3 mm)
	Width	0.87 in (22 mm)
	Weight	0.02 lb (10 g)
	Interface	PCIe NVMe Gen3X2X2
	Maximum Sequential Read	Up To 2400 MB/s
	Maximum Sequential Write	Up to 1300 MB/s
	Logical Blocks	1,000, 215, 215
	Operating Temperature	32° to 158°F (0° to 70°C) [ambient temp]
	Features	ATA Security, TRIM; L1.2

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

Technical Specifications

SSD 512 GB 2280 PCIe-3x4 NVMe Self Encrypted OPAL2 Three Layer	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	3100 ~ 3500 MB/s
	Maximum Sequential Write	2400 ~ 2956 MB/s
	Logical Blocks	1,000, 215, 215
	Operating Temperature	32° to 158°F (0° to 70°C) [ambient temp]
	Features	ATA Security (Option); TCG Opal 2.0; TRIM; L1.2

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

NETWORKING/COMMUNICATIONS

Intel® Wi-Fi 6 ¹ AX201 and Bluetooth® 5.0 802.11ax (2 x 2), non-vPro, supporting gigabit file transfer speeds non-vPro	Wireless LAN Standards	IEEE 802.11a IEEE 802.11b IEEE 802.11g IEEE 802.11n IEEE 802.11ac IEEE 802.11ax IEEE 802.11d IEEE 802.11e IEEE 802.11h IEEE 802.11i IEEE 802.11k IEEE 802.11r IEEE 802.11v
	Interoperability	Wi-Fi CERTIFIED™
	Frequency Band	• 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

Technical Specifications

Data Rates	<ul style="list-style-type: none">802.11b: 1, 2, 5.5, 11 Mbps802.11g: 6, 9, 12, 18, 24, 36, 48, 54 Mbps802.11a: 6, 9, 12, 18, 24, 36, 48, 54 Mbps802.11n: MCS 0 ~ MCS 15, (20MHz, and 40MHz)802.11ac: MCS0 ~ MCS9, (1SS, and 2SS) (20MHz, 40MHz, 80MHz & 160MHz)802.11ax: MCS0 ~ MCS11, (1SS and 2SS) (20MHz, 40MHz, 80MHz & 160MHz)
Modulation	Direct Sequence Spread Spectrum OFDM, BPSK, QPSK, CCK, 16-QAM, 64-QAM, 256-QAM, 1024-QAM
Security ³	<ul style="list-style-type: none">IEEE compliant 64 / 128 bit WEP encryption for a/b/g mode onlyAES-CCMP: 128 bit in hardware802.1x authenticationWPA, WPA2: 802.1x. WPA-PSK, WPA2-PSK, TKIP, and AES.WPA2 certificationIEEE 802.11iWAPI
Network Architecture Models	Ad-hoc (Peer to Peer) Infrastructure (Access Point Required)
Roaming	IEEE 802.11 compliant roaming between access points
Output Power ²	<ul style="list-style-type: none">802.11b: +18.5dBm minimum802.11g: +17.5dBm minimum802.11a: +18.5dBm minimum802.11n HT20(2.4GHz): +15.5dBm minimum802.11n HT40(2.4GHz): +14.5dBm minimum802.11n HT20(5GHz): +15.5dBm minimum802.11n HT40(5GHz): +14.5dBm minimum802.11ac VHT80(5GHz): +11.5dBm minimum802.11ac VHT160(5GHz): +11.5dBm minimum802.11ax HT40(2.4GHz): +10dBm minimum802.11ax VHT160(5GHz): +10dBm minimum
Power Consumption	<ul style="list-style-type: none">Transmit mode 2.0 WReceive mode 1.6 WIdle mode (PSP) 180 mW (WLAN Associated)Idle mode: 50 mW (WLAN unassociated)Connected Standby: 10 mWRadio disabled: 8 mW
Power Management	ACPI and PCI Express compliant power management 802.11 compliant power saving mode
Receiver Sensitivity ³	<ul style="list-style-type: none">802.11b, 1Mbps: -93.5dBm maximum802.11b, 11Mbps: -84dBm maximum802.11a/g, 6Mbps: -86dBm maximum802.11a/g, 54Mbps: -72dBm maximum802.11n, MCS07: -67dBm maximum802.11n, MCS15: -64dBm maximum802.11ac, MCS0: -84dBm maximum802.11ac, MCS9: -59dBm maximum802.11ax, MCS11(HT40): -59dBm maximum802.11ax, MCS11(VHT160): -58.5dBm maximum
Antenna type	High efficiency antenna with spatial diversity, mounted in the display enclosure Two embedded dual band 2.4/5 GHz antennas are provided to the card to support WLAN MIMO communications and Bluetooth communications

Technical Specifications

Form Factor	PCI-Express M.2 MiniCard with CNVi Interface
Dimensions	Type 2230: 2.3 x 22.0 x 30.0 mm Type 1216: 1.67 x 12.0 x 16.0 mm
Weight	Type 2230: 2.8 g Type 126: 1.3 g
Operating Voltage	3.3 v +/- 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 OFF - Radio ON

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

Bluetooth® Specification	4.0/4.1/4.2/5.0/5.1 Compliant
Frequency Band	2402 to 2480 MHz
Number of Available Channels	Legacy: 0~79 (1 MHz/CH) BLE: 0~39 (2 MHz/CH)
Signaling Data Rate	Legacy: 3 Mbps signaling data rate 2.17 Mbps BLE: 1 Mbps signaling data rate 0.2 Mbps 1. Actual throughput may vary.
Transmit Power	Legacy: Synchronous Connection Oriented links, 3, 64 kbps, voice channels Legacy: Asynchronous Connection Less links 2178.1 kbps/177.1 kbps asymmetric (3-DH5) or 864 kbps symmetric (3-EV5) The Bluetooth component shall operate as a Class II Bluetooth device with a maximum transmit power of + 9.5 dBm for BR and EDR.

1. 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.
2. The FCC has declared as of September 1, 2014 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.
3. Check latest software/driver release for updates on supported security features.
4. 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/n/ax (OFDM modulation).

Intel® Wi-Fi 6 AX201 and Bluetooth® 5.0 802.11ax (2 x 2) vPro, supporting gigabit file transfer speeds vPro	Wireless LAN Standards	IEEE 802.11a IEEE 802.11b IEEE 802.11g IEEE 802.11n IEEE 802.11ac IEEE 802.11ax IEEE 802.11d IEEE 802.11e IEEE 802.11h IEEE 802.11i IEEE 802.11k IEEE 802.11r IEEE 802.11v
	Interoperability	Wi-Fi CERTIFIED™
	Frequency Band	• 802.11b/g/n/ax

Technical Specifications

	2.402 - 2.482 GHz
	<ul style="list-style-type: none">802.11a/n/ac/ax
	4.9 - 4.95 GHz (Japan)
	5.15 - 5.25 GHz
	5.25 - 5.35 GHz
	5.47 - 5.725 GHz
	5.825 - 5.850 GHz
Data Rates	<ul style="list-style-type: none">802.11b: 1, 2, 5.5, 11 Mbps802.11g: 6, 9, 12, 18, 24, 36, 48, 54 Mbps802.11a: 6, 9, 12, 18, 24, 36, 48, 54 Mbps802.11n: 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)
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Security ³	<ul style="list-style-type: none">IEEE compliant 64 / 128 bit WEP encryption for a/b/g mode onlyAES-CCMP: 128 bit in hardware802.1x authenticationWPA, WPA2: 802.1x. WPA-PSK, WPA2-PSK, TKIP, and AES.WPA2 certificationIEEE 802.11iWAPI
Network Architecture Models	Ad-hoc (Peer to Peer) Infrastructure (Access Point Required)
Roaming	IEEE 802.11 compliant roaming between access points
Output Power ²	<ul style="list-style-type: none">802.11b: +18.5dBm minimum802.11g: +17.5dBm minimum802.11a: +18.5dBm minimum802.11n HT20(2.4GHz): +15.5dBm minimum802.11n HT40(2.4GHz): +14.5dBm minimum802.11n HT20(5GHz): +15.5dBm minimum802.11n HT40(5GHz): +14.5dBm minimum802.11ac VHT80(5GHz): +11.5dBm minimum802.11ac VHT160(5GHz): +11.5dBm minimum802.11ax HT40(2.4GHz): +10dBm minimum802.11ax VHT160(5GHz): +10dBm minimum
Power Consumption	<ul style="list-style-type: none">Transmit mode: 2.0 WReceive mode: 1.6 WIdle mode (PSP) 180 mW (WLAN Associated)Idle mode: 50 mW (WLAN unassociated)Connected Standby: 10 mWRadio disabled: 8 mW
Power Management	ACPI and PCI Express compliant power management 802.11 compliant power saving mode
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Technical Specifications

	<ul style="list-style-type: none">802.11ac, MCS0: -84dBm maximum802.11ac, MCS9: -59dBm maximum802.11ax, MCS11(HT40): -59dBm maximum802.11ax, MCS11(VHT160): -58.5dBm maximum
Antenna type	High efficiency antenna with spatial diversity, mounted in the display enclosure Two embedded dual band 2.4/5 GHz antennas are provided to the card to support WLAN MIMO communications and Bluetooth communications
Form Factor	PCI-Express M.2 MiniCard with CNVi Interface
Dimensions	Type 2230: 2.3 x 22.0 x 30.0 mm Type 1216: 1.67 x 12.0 x 16.0 mm
Weight	Type 2230: 2.8 g Type 126: 1.3 g
Operating Voltage	3.3 v +/- 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)
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HP Integrated Module with Bluetooth 4.0/4.1/4.2/5.0/5.1 Wireless Technology

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2. The FCC has declared as of September 1, 2014 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.

3. Check latest software/driver release for updates on supported security features.

4. 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).

Intel® XMM™ 7360 LTE-Advanced CAT9 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),
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Technical Specifications

Wireless protocol standards	850 (Band 5), 900 (Band 8) MHz 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

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.

Qualcomm® Snapdragon™ X55 5G Modem Technology/Operating bands

WCDMA/HSDPA/HSUPA/HSPA+ operating bands: Band 1: 1920 to 1980 MHz (UL), 2110 to 2170 MHz (DL) Band 2: 1850 to 1910 MHz (UL), 1930 to 1990 MHz (DL) Band 4: 1710 to 1755 MHz (UL), 2110 to 2155 MHz (DL) Band 5: 824 to 849 MHz (UL), 869 to 894 MHz (DL) Band 6: 830 to 840 MHz (UL), 875 to 885 MHz (DL) Band 8: 880 to 915 MHz (UL), 925 to 960 MHz (DL) Band 9: 1750 to 1785 MHz (UL), 1845to 1880 MHz (DL) Band 19: 830 to 845 MHz (UL), 875 to 890 MHz (DL)
LTE FDD/TDD operating bands: Band 1: 1920 to 1980 MHz (UL), 2110 to 2170 MHz (DL) Band 2: 1850 to 1910 MHz (UL), 1930 to 1990 MHz (DL) Band 3: 1710 to 1785 MHz (UL), 1805 to 1880 MHz (DL) Band 4: 1710 to 1755 MHz (UL), 2110 to 2155 MHz (DL) Band 5: 824 to 849 MHz (UL), 869 to 894 MHz (DL) Band 7: 2500 to 2570 MHz (UL), 2620 to 2690 MHz (DL) Band 8: 880 to 915 MHz (UL), 925 to 960 MHz (DL) Band 12: 699 to 716 MHz (UL), 729 to 746 MHz (DL) Band 13: 777 to 787 MHz (UL), 746 to 756 MHz (DL) Band 14: 788 to 798 MHz (UL), 758 to 768 MHz (DL) Band 17: 704 to 716 MHz (UL), 734 to 746 MHz (DL) Band 18: 815 to 830 MHz (UL), 860 to 875 MHz (DL) Band 19: 830 to 845 MHz (UL), 875 to 890 MHz (DL) Band 20: 832 to 862 MHz (UL), 791 to 821 MHz (DL) Band 25: 1850 to 1915 MHz (UL), 1930 to 1995 MHz (DL) Band 26: 814 to 849 MHz (UL), 859 to 894 MHz (DL) Band 28: 703 to 748 MHz (UL), 758 to 803 MHz (DL) Band 29: 717 to 728 MHz (DL)

Technical Specifications

	Band 30: 2305 to 2315 MHz (UL) 2350 to 2360 MHz (DL) Band 32: 1452 to 1496 MHz (DL) Band 34: 2010 to 2025 MHz (UL/DL) Band 38: 2570 to 2620 MHz (UL/DL) Band 39: 1880 to 1920 MHz (UL/DL) Band 40: 2300 to 2400 MHz (UL/DL) Band 41: 2496 to 2690 MHz (UL/DL) Band 42: 3400 to 3600 MHz (UL/DL) Band 46: 5150 to 5925 MHz (DL) Band 48: 3550 to 3700 MHz (UL/DL) Band 66: 1710 to 1800 MHz (UL), 2110 to 2200 MHz (DL) Band 71: 663 to 698 MHz (UL), 617 to 652 MHz (DL)
	5G NR Sub 6GHz n1: 1920 to 1980 MHz (UL), 2110 to 2170 MHz (DL) n2: 1850 to 1910 MHz (UL), 1930 to 1990 MHz (DL) n3: 1710 to 1785 MHz (UL), 1805 to 1880 MHz (DL) n5: 824 to 849 MHz (UL), 869 to 894 MHz (DL) n7: 2500 to 2570 MHz (UL), 2620 to 2690 MHz (DL) n8: 880 to 915 MHz (UL), 925 to 960 MHz (DL) n12: 699 to 716 MHz (UL), 729 to 746 MHz (DL) n20: 832 to 862 MHz (UL), 791 to 821 MHz (DL) n28: 703 to 748 MHz (UL), 758 to 803 MHz (DL) n41: 2496 to 2690 MHz (UL/DL) n66: 1710 to 1800 MHz (UL), 2110 to 2200 MHz (DL) n71: 663 to 698 MHz (UL), 617 to 652 MHz (DL) n77: 3300 to 4200 MHz (UL/DL) n78: 3300 to 3800 MHz (UL/DL) n79: 4400 to 5000 MHz (UL/DL)
Wireless protocol standards	5G NR Air Interface 3GPP Rel15 5G NR sub-6
	LTE Rel14 20 layers and 2 Gbps downlink (DL) throughput - 4 × 4 MIMO across 5x CA 200 Mbps uplink (UL) throughput - 40 MHz ULCA and 256 QAM
	WCDMA R99, 3GPP Release 5, 6, 7 and 8 UMTS Specification
GPS	Standalone, A-GPS (MS-A, MS-B)
GPS bands	GPS: L1 (1575.42MHz); L5 (1176MHz) GLONASS: L1 (1602MHz) BeidouB1(1561.098MHz) Galileo E1 (1575.42); E5a (1176MHz)
Maximum data rates	5G sub 6G: TBD LTE: ue-CategoryDL 20, (DL: 2 Gbps) ue-CategoryUL 13, (UL: 150Mbps) DC-HSPA+: 42 Mbps (Download), 5.76 Mbps (Upload) HSPA+: 21Mbps (Download), 5.76 Mbps (Upload)
Maximum output power	LTE: 23 dBm in all band except B41 LTE B41 HPUE = 26dBm HSPA+: 23.5 dBm
Maximum power consumption	5G Sub 6: TBD LTE: 1,300 mA (peak); 1100 mA (average) LTE HPUE: TBD HSPA+: 1,100 mA (peak); 800 mA (average)
Form Factor	M.2, 3042-S3 Key B
Weight	8 g

Technical Specifications

	Dimensions (Length x Width x Thickness)	42 mm x 30 mm x 2.6 mm
Built-in Tile module	Bluetooth Specification	Bluetooth Core Specification v5.0 Bluetooth® 5, IEEE 802.15.4-2006
	Frequency Band	2400 to 2483.5 MHz
	Number of Available Channels	TBD
	Data Rate	BLE: 1 Mbps data rate
	Transmit Power	Max TX power: 8dBm
	Power Consumption	<0.1mW at idle mode (ready to be found)
	Bluetooth Profiles Supported	TBD
	Form Factor	PCI-Express M.2 MiniCard
	Dimensions	Type 3042: 30 x 42 x 2.3 mm
	Weight	4.0 g
	Operating Voltage	DC 3.135V~3.6V, Typical 3.3V
	Temperature	Operating: -10°C ~ +55°C Non-operating: -40°C ~ +85°C
Near Field Communications Controller (optional)	Dimensions (L x W x H)	Module 25 mm by 10 mm by 2.0 mm
	Chipset	NPC100
	System interface	I2C
	NFC RF standards	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
	NFC Forum Support	Tag Type 1, Type 2, Type3 and Type 4, NFCIP-1 and NFCIP-2
	Reader (PCD-VCD) Mode (1)	ISO/IEC 14443 A ISO/IEC 14443 B ISO/IEC 15693 MIFARE 1K MIFARE 4K MIFARE DESFire FeliCa Jewel and Topaz cards
	Card Emulation (PICC-VICC) Mode (1)	ISO/IEC 14443 A ISO/IEC 14443 B and B' MIFARE FeliCa
	Frequency	13.56 MHz
	NFC Modes Supported	Reader/Writer, Peer-to-Peer
	Raw RF Data Rates	106, 212, 424, 848 kbps
	Operating temperature	0°C to 70°C
	Storage temperature	-20°C to 125°C
	Humidity	10-90% operating 5-95% non-operating

Technical Specifications

Supply Operating voltage	4.35 to 5.25 Volts
I/O Voltage	1.8V or 3.3V
Mode	Power Consumption, Typical
Polling	7.3 mA
Detected Test Tag Type 1	Total 283.8 mA Net Module 236.8 mA
Detected Test Tag Type 2	Total 288.8 mA Net Module 241.8 mA
Detected Test Tag Type 3	Total 287.7 mA Net Module 240.7 mA
Antenna	Antenna connector, 0.5mm pitch, 7 connector FPC. Antenna matching is external to module.

POWER

AC Adapter 65 Watt nPFC
Slim USB type C® Straight
1.8 m

Dimensions	88.0 x 53.5 x 21.0 mm
Weight	Unit: 220 g +/- 10 g Not including power cord. Power cord varies by country
Input	Input Efficiency 81.5% min at 115 Vac/ 230Vac @ 5V/3A 86.7% min at 115 Vac/ 230Vac @ 9V/3A 88% min at 115 Vac/ 230Vac @ 12V/5A 89% min at 115 Vac/ 230Vac @ 15V/4.33A 89% min at 115 Vac/ 230Vac @ 20V/3.25A Input frequency range 47 ~ 63 Hz Input AC current Max. 1.6 A at 90 VAC
Output	Output power 65 W DC output 5V / 9V / 12V / 15V / 20V Hold-up time 5ms at 115 Vac input Output current limit < 8.0 A
Connector	USB Type-C®
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 5000m) Humidity 5% to 95% Storage Humidity 5% to 95%
EMI and Safety Certifications	CE Mark- full compliance with LVD and EMC directives Worldwide safety standards- IEC950, EN60950, UL1950, 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.

Technical Specifications

AC Adapter 65 Watt nPFC Standard USB type C® Straight 1.8 m	Dimensions	90.0 x 51 x 28.5 mm	
	Weight	Unit: 250 g +/- 10 g Not including power cord. Power cord varies by country	
	Input	Input Efficiency	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
	Output	Input frequency range	47 ~ 63 Hz
		Input AC current	1.6 A at 90 VAC and maximum load
		Output power	65 W
		DC output	5V/9V/12V/15V/20V
		Hold-up time	5ms at 115 Vac input
	Connector	Output current limit	8.0 A Max.
		USB Type-C®	
		Environmental Design	
	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 5000m)
		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, UL62368, 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.	

Battery HK 4 Cell WHr 54 Long Life -PL Fast Charge	Dimensions (H x W x L)	5.85 x 89.7 x 268.2 mm	
	Weight	221g ± 10g	
	Cells/Type	4-cell; Polymer	
	Energy	Voltage	7.7V
		Amp-hour capacity	7.013Ah
		Watt-hour capacity	54Wh
		Operating (Charging)	0° to 45° C
	Temperature	Operating (Discharging)	-10° to 60° C
	Fuel Gauge LED		
		No	

Technical Specifications

Battery HK 4 Cell WHr 78.5 Long Life -PL Fast Charge	Dimensions (H x W x L)	6.49mm x 94.6mm x 281.6mm	
	Weight	295 g ± 10 g	
	Cells/Type	4-cell; Polymer	
	Energy	Voltage	7.72 V
		Amp-hour capacity	10.18 Ah
		Watt-hour capacity	78.5 Wh
	Temperature	Operating (Charging)	0° to 45° C
		Operating (Discharging)	-10° to 60° C
	Fuel Gauge LED	No	

COUNTRY OF ORIGIN

China

Summary of Changes

Type	Description	Part #
Cases	HP Executive 14.1 Slim Topload	6KD04AA
	HP Executive 15.6 Top Load	6KD06AA
	HP Executive 15.6 Backpack	6KD07AA
	HP Recycle Series Top Load	5KN29AA
Docking	HP Thunderbolt Dock 120W G2 (Hook)	2UK37AA
	HP Thunderbolt Dock w/Audio Module	3YE87AA
	HP Audio Module (Hook base dock required)	3AQ21AA
	HP Thunderbolt Dock 120W Cable	3XB94AA
	HP Thunderbolt Dock Combo Cable	3XB96AA
	HP USB-C® Mini Dock	1PM64AA
	HP USB-C® Dock G5	5TW10AA
	HP USB-C®/A Universal Dock G2	5TW13AA
	HP EliteDisplay E223d Docking monitor	5VT82AA
	HP EliteDisplay E273d Docking monitor	5WN63AA
Input/Output	HP Wireless (Link-5) Keyboard	T6U20AA
	HP USB Collaboration Keyboard	Z9N38AA
	HP Wireless Collaboration Keyboard	Z9N39AA
	HP USB Essential Keyboard and Mouse	H6L29AA
	HP Slim Wireless Keyboard and Mouse	T6L04AA
	HP Comfort Grip Wireless Mouse	H2L63AA
	HP X4000b Bluetooth Mouse	H3T50AA
	HP 3-button USB Laser Mouse	H4B81AA
	HP Ultra Mobile Wireless Mouse	H6F25AA
	HP USB Travel Mouse	G1K28AA
	HP Wireless Premium Mouse	1JR31AA
	HP USB Premium Mouse	1JR32AA
	HP Essential USB Mouse	2TX37AA
	HP Elite Presenter Mouse	2CE30AA
	HP Bluetooth Travel Mouse	6SP30AA
	HP UC Speaker Phone	4VW02AA
	HP Stereo USB Headset	T1A67AA
	HP UC Wireless Mono Headset	W3K08AA
	HP UC Wireless Duo Headset	W3K09AA
	HP Rechargeable Active Pen G3	6SG43AA
	HP USB-C® to USB-A Hub	Z6A00AA
	HP USB-C® to DP	N9K78AA
	HP USB-C® to VGA	N9K76AA
	HP USB-C® to RJ45 Adapter	V7W66AA
	HP HDMI to VGA	H4F02AA
	HP USB 3.0 to Gigabit Adapter	N7P47AA
	HP Elite USB-C® Hub	4WX89AA
	HP USB-C® Travel Hub G2	7PJ38AA

Summary of Changes

	HP USB-C® to 4.5mm Adapter	4ST73AA
Power	HP 65W USB-C® Power Adapter	1HE08AA
	HP 65W USB-C® Slim Power Adapter	3PN48AA
	HP 65W USB-C® Auto Adapter	5TQ76AA
Storage	HP External USB DVDRW Drive	F2B56AA
Security	HP Nano Keyed Cable Lock	1AJ39AA
	HP Nano Dual-Head Keyed Cable Lock	1AJ41AA
	HP Sure Key Cable Lock	6UW42AA

Date of change:	Version History:		Description of change:
	v1 to v2		

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