Overview

HP EliteBook x360 1030 G8 Notebook PC

Left

1. Internal Microphones
2. IR Camera LEDs
3. Webcam and IR Camera
4. Webcam LED
5. Glass Clickpad

6. Nano Security lock slot (Lock sold separately)
7. WWAN SIM (Nano)
8. Audio Combo Jack
9. SuperSpeed USB Type-A 5Gbps signaling rate (Charging port)

Overview

Right

1. Power button
2. SuperSpeed USB Type-A 5Gbps signaling rate (Charging port)
3. HDMI 2.0 (Cable not included)
4. Thunderbolt™ 4 with USB4™ Type-C® 40Gbps signaling rate (USB Power Delivery, DisplayPort™ 1.4)[1]
5. Thunderbolt™ 4 with USB4™ Type-C® 40Gbps signaling rate (USB Power Delivery, DisplayPort™ 1.4)[1]
6. Battery LED

1. SuperSpeed USB 20Gbps is not available with Thunderbolt™ 4.

Overview

AT A GLANCE

- An all metal CNC Aluminum chassis that is .6 inches (1.61 cm) thin (at front) and with a starting weight of 2.68 lbs. (1.21 Kg)
- A 360° convertible notebook with 4 usage modes: Laptop mode, Tablet mode, Tent mode, and Media mode
- Choice of 11th Generation Intel® Core™ i5, i7 Processors with integrated Intel® Iris® Xe Graphics
- **Intel® EVO configurations available**
- Dual channel LP DDR4X memory up to 32 GB and solid state storage up to 2 TB
- Touch display choices include 33.78 cm (13.3") diagonal IPS FHD displays or immersive UHD OLED display
- Brightness choices up to 1000 Nits. Optional Anti-glare screen available. Get added protection in open or public places with the optional HP Sure View Reflect integrated privacy screen
- Ultimate connectivity with dual Thunderbolt4 Type-C® with USB4 support ports, dual USB 3.1 Gen1 charging ports, and HDMI 2.0
- Stay connected where you need to with a choice of 5G or 4G/LTE WWAN, WLAN and optional Thunderbolt™ Docking (Sold separately)
- Featuring HP Quiet Keyboard with the HP Programmable key. The power button, HP Sure Shutter and the fingerprint sensor are also located on the keyboard
- An optional HP Rechargeable Active Pen 3 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 Sure Start, HP Sure Shutter, HP Sure View Reflect (optional), HP Sure Run, HP Sure Recover with Embedded Reimaging, HP Sure Click, HP Tamper Lock and Touch Fingerprint sensor
- HP Sure Shutter - industry's 1st camera with an electric shutter
  The on/off button for this shutter is located on the function row of the keyboard
- Battery Life Up to up to 16 hours 15 minutes (MobileMark2018)
- AI based HP Context Aware to maximize performance when working at a table, comfort when working from your lap, and responsiveness when working on the go
- HP Presence Aware automatically locks your system when you leave and seamlessly seamlessly authenticates with Window's Hello
- HP Dynamic Audio, a new AI-based audio experience, tunes output to speech, music, and movies all while suppressing background noise. (Planned to be available March 2021.)
- HP Sound Calibration to uniquely tune end user headphone audio (Planned to be available March 2021.)
- Passed 19 MIL-STD 810H tests[1]

1. 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 1030 G8 Notebook PC

OPERATING SYSTEM

Preinstalled

Windows 10 Pro 64 – HP recommends Windows 10 Pro for business [1]
Windows 10 Pro 64 (National Academic License)[1,2]
Windows 10 Home 64 [1]
Windows 10 Home Single Language 64 [1]
Windows 10 Pro (Windows 10 Enterprise available with a Volume Licensing Agreement) [1]
Windows 10 Enterprise 64 (Web Support) [1]
FreeDOS

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: HP tested Windows 10, version 1809 on this platform. For testing information on newer versions of Windows 10, please see https://support.hp.com/document/c05195282.

PROCESSORS

Intel® Core™ i7-1185G7 (3.0 GHz base frequency, up to 4.8 GHz frequency with Intel® Turbo Boost Technology, 12 MB L3 cache, 4 cores) supports Intel® vPro® Technology [3,4 5,6]
Intel® Core™ i7-1165G7 (Up to 4.7 GHz with Intel® Turbo Boost Technology, 12 MB L3 cache, 4 cores) [3,4 5,6]
Intel® Core™ i5-1145G7 (2.6 GHz base frequency, up to 4.4 GHz frequency with Intel® Turbo Boost Technology, 8 MB L3 cache, 4 cores) supports Intel® vPro® Technology [3,4 5,6]
Intel® Core™ i5-1135G7 (Up to 4.2 GHz with Intel® Turbo Boost Technology, 8 MB L3 cache, 4 cores) [3,4 5,6]

Processor Family
11th Generation Intel® Core™ i7 processor (i7-1185G7 and 1165G7) [6]
11th Generation Intel® Core™ i5 processor (i5-1145G7 and 1135G7) [6]

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 www.intel.com/technology/turboboost for more information.
6. In accordance with Microsoft's support policy, HP does not support the Windows 8 or Windows 7 operating system on products configured with Intel and AMD 7th generation and forward processors or provide any Windows 8 or Windows 7 drivers on http://www.support.hp.com.

Technical Specifications

CHIPSET

Chipset is integrated with processor

GRAPHICS

Integrated
Intel® Iris® Xᵉ Graphics

Supports
Support HD decode DX12 HDMI 2.0 [7]

7. HDMI cable sold separately.

DISPLAY

Touch
33.8 cm (13.3") diagonal FHD IPS Ultraslim 2.0mm eDP + PSR2 BrightView touch screen with 0.4mm Gorilla® Glass 5 , 400 nits, 72% NTSC (1920 x 1080) [9,10,11]

33.8 cm (13.3") 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) [9,10,11]

33.8 cm (13.3") diagonal UHD OLED IPS Ultraslim 1.21mm eDP + PSR2 BrightView touch screen with 0.4mm Gorilla® Glass 5, 400 nits, 72% NTSC (3840 x 2160) [9,10,11]

HP Sure View Reflect Integrated Privacy Screen 33.8 cm (13.3") diagonal FHD IPS Ultraslim 2.0mm eDP + PSR BrightView touch screen with 0.4mm Gorilla® Glass 5, 1000 nits, 72% NTSC (1920 x 1080) [9,10,11,12]

HP Sure View Reflect Integrated Privacy Screen 33.8 cm (13.3") 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) [9,10,11,12]

HDMI 2.0 [8]
Supports resolutions up to 4K@60Hz

8. HDMI cable sold separately.
9. FHD/HD content required to view FHD/HD images.
10. Resolutions are dependent upon monitor capability, and resolution and color depth settings.
11. Actual brightness will be lower with touchscreen or Sure View.
12. 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

Primary M.2 Storage
128 GB PCIe® Gen3x2 NVMe™ M.2 SSD TLC[13]
256 GB PCIe® Gen3x4 NVMe™ M.2 SSD TLC[13]
512 GB PCIe® Gen3x4 NVMe™ M.2 SSD TLC [13]
1 TB PCIe® Gen3x4 NVMe™ M.2 SSD TLC[13]
2 TB PCIe® Gen3x4 NVMe™ M.2 SSD TLC[13]

256 GB PCIe® NVMe™ Value M.2 SSD[13]
512 GB PCIe® NVMe™ Value M.2 SSD[13]

512 GB PCIe®Gen 3x4 NVMe™ M.2 SED TLC OPAL2[13]
256 GB PCIe® Gen3x4 NVMe™ M.2 SED TLC OPAL2[13]

512 Intel® PCIe® NVMe™ QLC M.2 SSD with 32 GB Intel® Optane™ memory H10[13,14]

13. 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.
14. Intel® Optane™ H10 memory system acceleration does not replace or increase the DRAM in your system. Requires 8th Gen or higher Intel® Core™ processor, BIOS version with Intel® Optane™ supported, Windows 10 64-bit, and an Intel® Rapid Storage Technology (Intel® RST) driver.

MEMORY

Maximum Memory
32 GB LPDDR4X-4266 SDRAM

Memory
32 GB LPDDR4X-4266 SDRAM [15]
16 GB LPDDR4X-4266 SDRAM [15]
8 GB LPDDR4X-4266 SDRAM [15]

Memory Slots
Memory soldered down
LPDDR4X, System runs at: 4266
Supports Dual Channel Memory

15. All slots are non-accessible / non-upgradeable.

NETWORKING/COMMUNICATIONS

WLAN
Intel® Dual Band Wireless-AX201 802.11a/b/g/n/ac/ax (2x2) Wi-Fi® 6 and Bluetooth® 5 Combo, vPro® [16]
Intel® Dual Band Wireless-AX201 802.11a/b/g/n/ac/ax (2x2) Wi-Fi® 6 and Bluetooth® 5 Combo, non-vPro® [16]

WWAN
Intel® XMM™ 7360 LTE-Advanced Cat 9 [18]
Qualcomm® Snapdragon™ X55 5G Modem (5G + LTE CAT 20) [19]

NFC
NPC300 Near Field Communication Module [20]

Miracast
Native Miracast Support [21]

16. 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
18. 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. LTE not available on all products, in all regions.
19. 5G module is an optional feature that must be configured at purchase. AT&T and T-Mobile networks supported in the U.S. Module designed for 5G networks as carriers deploy Evolved-Universal Terrestrial Radio Access New Radio Dual Connectivity (ENDC) with both 100Mhz of 5G NR and LTE channel bandwidth, using 256QAM 4x4 as defined by 3GPP, requires activation and separately purchased service contract. Check with service provider for coverage and availability in your area. Connection, upload and download speeds will vary due to network, location, environment, network conditions, and other factors. 5G not available on all products, in all regions. Backwards compatible to 4G LTE and 3G HSPA technologies. 5G module planned to be available in select countries, where carrier supported.
20. Sold separately or as an optional feature.
21. Miracast is a wireless technology your PC can use to project your screen to TVs, projectors, and streaming.

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 camera with integrated electronic privacy shutter, HP Sure Shutter [22]
Note: The on/off button for this shutter is located on the function row of the keyboard.

Sensors
Accelerometer
Magnetometer
Gyroscope
Ambient light sensor
Hall sensor

22. 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

Non-Function Keys
HP Sure Shutter
Power Button
Delete Button

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 Gen6 [23]
HP Drive Lock & Automatic Drive Lock
BIOS Update via Network
HP Secure Erase [24]
Absolute Persistence Module [25]
HP LAN-Wireless Protection
USB enable/disable (via BIOS)

Software

HP Connection Optimizer [26]
HP Hotkey Support
myHP
HP Support Assistant [27]
HP QuickDrop[17]
HP Noise Cancellation Software
Touchpoint Customizer for Commercial
HP Notifications
HP Privacy Settings
HP Wireless Button Driver
HP Power Manager
HP PC Hardware Diagnostics Windows
Buy Microsoft Office (sold separately)
Microsoft Defender [31]
Tile App [32]
HP Smart Support [53]

Manageability Features

HP Driver Packs (download) [28]
HP Manageability Integration Kit Gen4 (download) [29]
HP Client Catalog (download)
HP Client Management Script Library (download)
HP Image Assistant (download)

Security Management

HP Client Security Manager Gen7 [30]
HP Fingerprint Sensor
HP Wolf Pro Security Edition[33]
HP Sure Click [34]
HP Sure Sense [35]
HP Sure Start Gen6 [36]
HP Sure Admin [37]
HP Sure Recover Gen4 [38]
HP Sure Run Gen4 [39]
TPM 2.0 Embedded Security Chip (Common Criteria EAL4+ Certified) (FIPS 140-2 Level 2 Certified) [40]

17. HP Quick Drop requires Internet access and Windows 10 PC preinstalled with HP QuickDrop app and either an Android device (phone or tablet) running Android 7 or higher with the Android HP QuickDrop app, and /or an iOS device (phone or tablet) running iOS 12 or higher with the iOS HP QuickDrop app.
23. HP BIOSphere Gen6 is available on select HP Pro and Elite PCs. Features may vary depending on the platform and configurations.
24. HP Secure Erase for the methods outlined in the National Institute of Standards and Technology Special Publication 800-

Technical Specifications

88 "Clear" sanitation method. HP Secure Erase does not support platforms with Intel® Optane™.
25. Absolute firmware module is shipped turned off and can only be activated with the purchase a license subscription and full activation of the software agent. License subscriptions can be purchased for terms ranging multiple years. Service is limited, check with Absolute for availability outside the U.S. Certain conditions apply. For full details visit: https://www.absolute.com/about/legal/agreements/absolute/
26. HP Connection Optimizer requires Windows 10.
27. HP Support Assistant requires Windows and Internet access.
28. HP Driver Packs not preinstalled, however available for download at http://www.hp.com/go/clientmanagement.
29. HP Manageability Integration Kit can be downloaded from http://www8.hp.com/us/en/ads/clientmanagement/overview.html.
30. HP Client Security Manager Gen7 requires Windows and is available on the select HP Elite and Pro PCs.
31. Windows Defender Opt in and internet connection required for updates.
32. Some features require optional subscription to Tile Premium. 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.
33. HP Wolf Pro Security Edition (including HP Sure Click Pro and HP Sure Sense Pro) is available preloaded on select SKUs and, depending on the HP product purchased, includes a paid 1-year or 3-year license. The HP Wolf Pro Security Edition software is licensed under the license terms of the HP Wolf Security Software - End-User license Agreement (EULA) that can be found at: https://support.hp.com/us-en/document/ish_3875769-3873014-16 as that EULA is modified by the following: "7. Term. Unless otherwise terminated earlier pursuant to the terms contained in this EULA, the license for the HP Wolf Pro Security Edition (HP Sure Sense Pro and HP Sure Click Pro) is effective upon activation and will continue for either a twelve (12) month or thirty-six (36) month license term ("Initial Term"). At the end of the Initial Term you may either (a) purchase a renewal license for the HP Wolf Pro Security Edition from HP.com, HP Sales or an HP Channel Partner, or (b) continue using the standard versions of HP Sure Click and HP Sure Sense at no additional cost with no future software updates or HP Support.
34. HP Sure Click requires Windows 10 Pro or Enterprise. See https://bit.ly/2PrLT6A_SureClick for complete details.
35. HP Sure Sense is available on select HP PCs and is not available with Windows10 Home.
36. HP Sure Start Gen6 is available on select HP PCs.
37. HP Sure Admin requires Windows 10, HP BIOS, HP Manageability Integration Kit from http://www.hp.com/go/clientmanagement and HP Sure Admin Local Access Authenticator smartphone app from the Android or Apple store.
38. HP Sure Recover Gen4 is available on select HP PCs and requires an open network connection. You must back up important files, data, photos, videos, etc. before using HP Sure Recover to avoid loss of data.
39. HP Sure Run Gen4 is available on select Windows 10 based HP Pro, Elite and Workstation PCs with select Intel® or AMD processors.
40. Firmware TPM is version 2.0.
53. HP Smart Support is available to commercial customers through your HP Service Representative and HP Factory Configuration Services; or it can be downloaded at: http://www.hp.com/smart-support. HP Smart Support automatically collects the telemetry necessary upon initial boot of the product to deliver device-level configuration data and health insights.

Technical Specifications

POWER

Power Supply
HP Smart 65 W USB Type-C adapter [41]
HP 65 W USB Type-C slim adapter[41]

Primary Battery
HP Long Life 4-cell, 54.5 Wh Li-ion polymer [42,43]

Power Cord
Premium 1m C5 power cord
Conventional 1m C5 power cord

Battery life [44]
Up to 16 hours 15 minutes

41. Availability may vary by country.
42. Battery is internal and not replaceable by customer. Serviceable by warranty.
43. Actual battery Watt-hours (Wh) will vary from design capacity. Battery capacity will naturally decrease with shelf life, time, usage, environment, temperature, system configuration, loaded apps, features, power management settings and other factors.
44. Windows 10 MM18 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

Product Weight
Starting at 2.68 lb [45]
Starting at 1.21 kg [45]

Product Dimensions (w x d x h)
11.96 x 7.63 x 0.63 in
30.37 x 19.39 x 1.61 cm

45. Weight will vary by configuration.

Technical Specifications

PORTS/SLOTS

Ports

2 Thunderbolt™ 4 with USB4™ Type-C® 40Gbps signaling rate (USB Power Delivery, DisplayPort™ 1.4)[52]
2 SuperSpeed USB Type-A 5Gbps signaling rate (Two charging port)
1 HDMI 2.0b[46]
1 External Nano SIM Slot for WWAN [47]
1 Headphone/Microphone Combo

46. HDMI cable sold separately.
47. SIM slot is not user accessible without WWAN configuration.
52. SuperSpeed USB 20Gbps is not available with Thunderbolt™ 4.

SERVICE AND SUPPORT

1-year or 3-year limited warranty and 90-day software limited warranty options depending on country.
Batteries have a default one-year limited warranty except for HP Long Life batteries which will follow the one or three year warranty of 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 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. [48]

48. 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 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.

CERTIFICATION AND COMPLIANCE

Energy Efficiency Compliance	ENERGY STAR® certified[49]
Energy Efficiency Compliance	EPEAT® 2019 Gold in the U.S.[50]
Environmental Specifications	Low halogen[51]
Environmental Specifications	TCO 8.0 Certified

49. Configurations of the HP EliteBook x360 1030 G8 Notebook PC that are ENERGY STAR® qualified are identified as HP EliteBook x360 1030 G8 Notebook PC ENERGY STAR on HP websites and on http://www.energystar.gov.
50. 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.
51. 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**	AC 15V
	Average Operating Power	
	Integrated Graphics	Yes
	Discrete Graphics	N/A
	Max Operating Power	UMA<65W
Temperature	**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**	10% to 90%. (Non-Condensing)
	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
	EPEAT	Yes
	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

1. Actual brightness will be lower with touchscreen or Sure View.

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

Panel LCD 13.3 inch FHD (1920x1080) Anti-Glare WLED UWVA sRGB 100percent cg 400nits eDP 1.4+PSR2 bent LP	**Outline Dimensions (W x H x D)**	299.06 x 176.54 mm (max) (FPC folding included)
	Active Area	293.76 x 165.24 mm (typ.)
	Weight	175 g (max)
	Diagonal Size	13.3 inch
	Thickness	2.0 mm / 3.8 mm (PCB) (max)
	Interface	eDP 1.4 w/ PSRII (2 lane)
	Surface Treatment	Anti-Glare
	Touch Enabled	Yes
	Contrast Ratio	1500:1(typ.)
	Refresh Rate	60 Hz
	Brightness	400 nits
	Pixel Resolution	1920 x 1080 (FHD)
	Format	RGB Stripe
	Backlight	LED
	Color Gamut Coverage	sRGB 100% (NTSC 72%)
	Color Depth	8 bits
	Viewing Angle	UWVA 85/85/85/85

Panel LCD 13.3 inch FHD (1920x1080) BrightView WLED UWVA sRGB 100percent cg 400nits eDP 1.4+PSR2 bent LP	**Outline Dimensions (W x H x D)**	299.06 x 176.54 mm (max) (FPC folding included)
	Active Area	293.76 x 165.24 mm
	Weight	175 g (max)
	Diagonal Size	13.3 inch
	Thickness	2.0 mm / 3.8 mm (PCB) (max)
	Interface	eDP 1.4 w/ PSRII (2 lane)
	Surface Treatment	BrightView
	Touch Enabled	Yes
	Contrast Ratio	1500:1
	Refresh Rate	60 Hz
	Brightness	400 nits
	Pixel Resolution	1920 x 1080 (FHD)
	Format	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 13.3-in FHD (1920x1080) Anti-Glare WLED UWVA 72percent cg 1000nits eDP 1.4+PSR Privacy G4	**Outline Dimensions (W x H x D)**	299.06 x 176.54 mm (max)
	Active Area	293.76 x 165.24 mm
	Weight	220 g (max)
	Diagonal Size	13.3 inch
	Thickness	3.9 mm (max)
	Interface	eDP 1.4 + PSR (4 lane)
	Surface Treatment	Anti-glare
	Touch Enabled	Yes
	Contrast Ratio	1500:1
	Refresh Rate	60 Hz
	Brightness	1000 nits[1]
	Pixel Resolution	1920 x 1080 (FHD)
	Format	RGB
	Backlight	LED
	Color Depth	8 bits
	Viewing Angle	UWVA 85/85/85/85

Panel LCD 13.3-in FHD (1920x1080) BrightView WLED UWVA 72percent cg 1000nits eDP 1.4+PSR PrivacyG4	**Outline Dimensions (W x H x D)**	299.06 x 176.54 mm (max)
	Active Area	293.76 x 165.24 mm
	Weight	220 g (max)
	Diagonal Size	13.3 inch
	Thickness	3.9 mm (max)
	Interface	eDP 1.4 + PSR (4 lane)
	Surface Treatment	BrightView
	Touch Enabled	Yes
	Contrast Ratio	1500:1
	Refresh Rate	60 Hz

Technical Specifications

	Brightness	1000 nits[1]
	Pixel Resolution	1920 x 1080 (FHD)
	Format of LCD Pixel Arrangement	RGB
	Backlight	LED
	Color Gamut Coverage	72%
	Color Depth	8 bits
	Viewing Angle	UWVA 85/85/85/85
Panel OLED 13.3-in UHD (3840x2160) BrightView AMOLED UWVA DCI-P3 100percent cg 400nits eDP 1.4+PSR NWBZ bent	**Outline Dimensions (W x H x D)**	297.76 x 173.34 mm (max)
	Active Area	293.76 x 165.24 mm
	Weight	185 g (max)
	Diagonal Size	13.3 inch
	Thickness	3.24 mm (w/PCB) (max)
	Interface	eDP 1.4
	Surface Treatment	BrightView
	Touch Enabled	Yes
	Contrast Ratio	100000:1
	Refresh Rate	60 Hz
	Brightness	400 nits @ OPR100%[1]
	Pixel Resolution	3840 x 2160 (UHD)
	Format	RGB Stripe
	Backlight	OLED
	Color Gamut Coverage	DCI-P3 100%
	Color Depth	8 bits+2FRC
	Viewing Angle	UWVA 85/85/85/85

Technical Specifications

STORAGE

NOTE: For storage drives, GB = 1 billion bytes. TB = 1 trillion bytes. Actual formatted capacity is less. Up to 30 GB (for Windows 10) is reserved for system recovery software.

SSD 128GB 2280 PCIe-3x2 Three Layer Cell	**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	PCIe NVMe Gen3X2
	Maximum Sequential Read	1300 ~ 2047 MB/s
	Maximum Sequential Write	630 ~ 800 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

SSD 1TB 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	2700 ~ 3200 MB/s
	Logical Blocks	2,000,409,264
	Operating Temperature	32° to 158°F (0° to 70°C) [ambient temp]
	Features	ATA Security; TRIM; L1.2

Technical Specifications

SSD 256GB 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)
	Width	0.87 in (22 mm)
	Weight	0.02 lb (10 g)
	Interface	PCIe NVMe Gen3X4
	Maximum Sequential Read	2800 ~ 3500 MB/s
	Maximum Sequential Write	1400 ~ 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

SSD 256GB 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 ~ 2200 MB/s
	Maximum Sequential Write	900 ~ 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

Technical Specifications

SSD 256GB 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 ~ 3500 MB/s
	Maximum Sequential Write	1663 ~ 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

SSD 512GB 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 ~ 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; TRIM; L1.2

Technical Specifications

SSD 512GB 2280 PCIe NVMe Value	**Form Factor**	M.2 2280
	Capacity	512GB
	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	1500 ~ 3500 MB/s
	Maximum Sequential Write	1000 ~ 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

SSD 512GB 2280 PCIe-3x2x2 NVMe+SSD 32GB 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

SSD 512GB 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

Technical Specifications

	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
SSD 2TB 2280 PCIe-3x4 NVMe Three Layer Cell single-sided	**Form Factor**	M.2 2280
	Capacity	2 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	2900 ~ 3500 MB/s
	Maximum Sequential Write	2100 ~ 2000 MB/s
	Logical Blocks	3,907,029,168
	Operating Temperature	32° to 158°F (0° to 70°C) [ambient temp]
	Features	ATA Security. TRIM; L1.2

NETWORKING/COMMUNICATIONS

Intel® Wi-Fi® 6[1] AX201 + Bluetooth®5 (802.11ax 2x2, vPro®, supporting gigabit file transfer speeds)[5] 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	Features Wi-Fi 6 technology
	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
	Data Rates	• 802.11b: 1, 2, 5.5, 11 Mbps • 802.11g: 6, 9, 12, 18, 24, 36, 48, 54 Mbps • 802.11a: 6, 9, 12, 18, 24, 36, 48, 54 Mbps • 802.11n: max 300Mbps • 802.11ac : 1733Mbps • 802.11ax : max 2.4Gbps
	Modulation	Direct Sequence Spread Spectrum OFDM, BPSK, QPSK, CCK, 16-QAM, 64-QAM, 256-QAM, 1024QAM
	Security[3]	• 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 • WPA3 certification • IEEE 802.11i • WAPI
	Network Architecture	Ad-hoc (Peer to Peer)
	Models	Infrastructure (Access Point Required)
	Roaming	IEEE 802.11 compliant roaming between access points
	Output Power[2]	• 802.11b : +17dBm minimum • 802.11g : +16dBm minimum • 802.11a : +17dBm minimum • 802.11n HT20(2.4GHz) : +14dBm minimum • 802.11n HT40(2.4GHz) : +13dBm minimum

Technical Specifications

	• 802.11n HT20(5GHz) : +14dBm minimum • 802.11n HT40(5GHz) : +13dBm minimum • 802.11ac VHT80(5GHz) : +10dBm minimum • 802.11ac VHT160(5GHz) : +10dBm minimum • 802.11ax HE40(2.4GHz) : +12dBm minimum • 802.11ax HE80(5GHz) : +10dBm minimum • 802.11ax HE160(5GHz) : +10dBm minimum
Power Consumption	•Transmit mode:2.0 W •Receive mode:1.6 W •Idle mode (PSP)180 mW (WLAN Associated) •Idle mode:50 mW (WLAN unassociated) •Connected Standby/Modern Standby: 10mW •Radio disabled:8 mW
Power Management	ACPI and PCI Express compliant power management 802.11 compliant power saving mode
Receiver Sensitivity[4]	• 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(VHT80) : -84dBm maximum • 802.11ac, MCS9(VHT80) : -59dBm maximum • 802.11ac, MCS9(VHT160) : -58.5dBm maximum • 802.11ax, MCS11(HE40): -57dBm maximum • 802.11ax, MCS11(HE80): -54dBm maximum • 802.11ax, MCS11(HE160): -53.5dBm 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	1. Type 2230: 2.3 x 22.0 x 30.0 mm 2. Type 1216: 1.67 x 12.0 x 16.0 mm
Weight	1. Type 2230: 2.8g 2. Type 126: 1.3g
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 4.0/4.1/4.2/5.0/5.1/5.2 Wireless Technology

Bluetooth Specification	4.0/4.1/4.2/5.0/5.1/5.2 Compliant

Technical Specifications

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 a maximum transmit power of + 9.5 dBm for BR and EDR.
Power Consumption	Peak (Tx): 330 mW Peak (Rx): 230 mW Selective Suspend: 17 mW
Bluetooth Software Supported **Link Topology**	Microsoft Windows Bluetooth Software
Power Management	Microsoft Windows ACPI, and USB Bus Support
Certifications	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) BT5.2 ESR9/10 Compliance LE Advertisement Extensions Channel Selection Algo Limited High Duty Cycle Non-Connectable Advertising 2Mbps LE LE Long Range
Security & Manageability	Intel® vPro™ support with appropriate Intel® chipset components

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. 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 (OFDM modulation).
5. Wi-Fi 5 or 6 is designed to support gigabit data rate when transferring files between two devices connected to the same router. Requires a wireless router, sold separately, that supports 80MHz and higher channels.

Intel® Wi-Fi® 6[1] AX201 and Bluetooth® 5 (802.11ax 2x2, non-vPro®, supporting gigabit file transfer speeds)[5] 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	Features Wi-Fi 6 technology
	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
	Data Rates	• 802.11b: 1, 2, 5.5, 11 Mbps • 802.11g: 6, 9, 12, 18, 24, 36, 48, 54 Mbps • 802.11a: 6, 9, 12, 18, 24, 36, 48, 54 Mbps • 802.11n: max 300Mbps • 802.11ac : 1733Mbps • 802.11ax : max 2.4Gbps
	Modulation	Direct Sequence Spread Spectrum OFDM, BPSK, QPSK, CCK, 16-QAM, 64-QAM, 256-QAM , 1024QAM
	Security[3]	•IEEE 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 •WPA3 certification •IEEE 802.11i

Technical Specifications

	•WAPI
Network Architecture Models	Ad-hoc (Peer to Peer) Infrastructure (Access Point Required)
Roaming	IEEE 802.11 compliant roaming between access points
Output Power[2]	• 802.11b : +17dBm minimum • 802.11g : +16dBm minimum • 802.11a : +17dBm minimum • 802.11n HT20(2.4GHz) : +14dBm minimum • 802.11n HT40(2.4GHz) : +13dBm minimum • 802.11n HT20(5GHz) : +14dBm minimum • 802.11n HT40(5GHz) : +13dBm minimum • 802.11ac VHT80(5GHz) : +10dBm minimum • 802.11ac VHT160(5GHz) : +10dBm minimum • 802.11ax HE40(2.4GHz) : +12dBm minimum • 802.11ax HE80(5GHz) : +10dBm minimum • 802.11ax HE160(5GHz) : +10dBm minimum
Power Consumption	•Transmit mode 2.0 W •Receive mode 1.6 W •Idle mode (PSP) 180 mW (WLAN Associated) •Idle mode 50 mW (WLAN unassociated) •Connected Standby 10mW •Radio disabled 8 mW
Power Management	ACPI and PCI Express compliant power management 802.11 compliant power saving mode
Receiver Sensitivity[4]	•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(VHT80) : -84dBm maximum • 802.11ac, MCS9(VHT80) : -59dBm maximum • 802.11ac, MCS9(VHT160) : -58.5dBm maximum •802.11ax, MCS11(HE40): -57dBm maximum •802.11ax, MCS11(HE80): -54dBm maximum •802.11ax, MCS11(HE160): -53.5dBm 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 Mini Card with CNVi Interface
Dimensions	1. Type 2230: 2.3 x 22.0 x 30.0 mm 2. Type 1216: 1.67 x 12.0 x 16.0 mm
Weight	1. Type 2230: 2.8g 2. Type 126: 1.3g
Operating Voltage	3.3v +/- 9%
Temperature	Operating: 14° to 158° F (–10° to 70° C)

Technical Specifications

	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 4.0/4.1/4.2/5.0/5.1/5.2 Wireless Technology

Bluetooth Specification	4.0/4.1/4.2/5.0/5.1/5.2 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 a maximum transmit power of + 9.5 dBm for BR and EDR.
Power Consumption	Peak (Tx): 330 mW Peak (Rx): 230 mW Selective Suspend: 17 mW
Bluetooth Software Supported	Microsoft Windows Bluetooth Software
Link Topology	
Power Management	Microsoft Windows ACPI, and USB Bus Support
Certifications	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)
BT5.2
ESR9/10 Compliance
LE Advertisement Extensions
Channel Selection Algo
Limited High Duty Cycle Non-Connectable Advertising
2Mbps LE
LE Long Range

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. 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 apacket error rate of 10% for 802.11a/g (OFDM modulation).
5. Wi-Fi 5 or 6 is designed to support gigabit data rate when transferring files between two devices connected to the same router. Requires a wireless router, sold separately, that supports 80MHz and higher channels.

Qualcomm® Snapdragon™ X55 5G Modem [1]	**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) Band 30: 2305 to 2315 MHz (UL) 2350 to 2360 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)

Technical Specifications

	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) 5GNR 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) n77: 3300 to 4200 MHz (UL/DL) n78: 3300 to 3800 MHz (UL/DL) n79: 4400 to 5000 MHz (UL/DL)
Wireless protocol standards	5GNR Air Interface l 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) GLONASS: L1 (1602MHz) BeidouB1(1561.098MHz) Galileo E1 (1575.42)
Maximum data rates	5G sub 6G : 3.8 Gbps LTE: ue-CategoryDL 20, (DL : 2 Gbps) ue-CategoryUL 18 , (UL: 200Mbps) 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 : 2500 mA LTE: 1,300 mA (peak); 1100 mA (average) HSPA+: 1,100 mA (peak); 800 mA (average)
Form Factor	M.2, 3042-S3 Key B
Weight	8 g
Dimensions (Length x Width x Thickness)	42 mm × 30 mm × 2.6 mm

1. 5G module is an optional feature that must be configured at purchase. AT&T and T-Mobile networks supported in the U.S. Module designed for 5G networks as carriers deploy Evolved-Universal Terrestrial Radio Access New Radio Dual Connectivity (ENDC) with both 100Mhz of 5G NR and LTE channel bandwidth, using 256QAM 4x4 as defined by 3GPP, requires activation and separately purchased service contract. Check with service provider for coverage and availability in your area. Connection, upload and download speeds will vary due to network, location, environment, network conditions, and other factors. 5G not available on all products, in all regions. Backwards compatible to 4G LTE and 3G HSPA technologies. 5G module planned to be available in select countries, where carrier supported.

Technical Specifications

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), 850 (Band 5), 900 (Band 8) MHz
	Wireless protocol standards	3GPP Release 11 LTE Specification CAT.9, MAX 60MHz aggregation BW WCDMA R99, 3GPP Release 5, 6, 7 and 8 UMTS Specification
	GPS	Standalone, A-GPS (MS-A, MS-B)
	GPS bands	GPS 1575.42 MHz ± 1.023 MHz, GLONASS 1596-1607MHz, Beidou 1561.098 ± 2.046 MHz
	Maximum data rates	LTE: 450 Mbps (DL 3CA), 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	6.2 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 conuntries.

NXP NPC300 Near Field Communication Module	**Dimensions (L x W x H)**	Module 17 mm by 10 mm by 2.0 mm
	Chipset	NPC300
	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
	Supply Operating voltage	2.97 to 5.5 Volts
	I/O Voltage	1.8V or 3.3V
Power Consumption (Booster enable, VBAT= 3.3V, VCC_BOOST = 5V)		
	Mode	Power Consumption, Typical [2]
	Polling	7.3 mA
	Detected Test Tag Type 1	32.9 mA
	Detected Test Tag Type 2	70.7 mA
	Detected Test Tag Type 3	79.2 mA
	Detected Test Tag Type 4	64.9 mA
	Antenna	Antenna connector, 0.5mm pitch, 7 connector FPC. Antenna matching is external to module.

Technical Specifications

1. With application or UICC support
2. Actual Power Consumption is dependent on NFC antenna and matching circuit and on the particular polling sequence and period configured.

POWER

AC Adapter 65 Watt nPFC Slim USB type C Straight 1.0m	**Dimensions**	88x53.5x21mm	
	Weight	unit: 220g +/- 10g	
	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	1.7 A at 90 VAC and maximum load
	Output	**Output power**	65W
		DC output	5V/9V/12V/15V/20V
		Hold-up time	5ms at 115 Vac input
		Output current limit	< 8.0A
	Connector	USB Type C	
	Environmental Design	**Operating temperature**	32ºFto 95ºF (0ºto 35ºC)
		Non-operating (storage) temperature	-4ºFto 185ºF (-20ºto 85ºC)
		Altitude	0 to 16,400 ft (0 to 5000m)
		Humidity	5% to 95%
		Storage Humidity	5% to 95%
	EMI and Safety Certifications	Eg: - CE Mark - full compliance with LVD and EMC directives - Worldwide safety standards - IEC60950-1 and/or IEC62368-1, EN60950-1 and/or EN62368-1, UL60950-1 and/or UL62368-1 , Class1, SELV; Agency approvals - C-UL-US, NORDICS, DENAN, EN55032 Class B, FCC Class B, CISPR32 Class B, CCC, NOM-001 NYCE. - MTBF - over 200,000 hours at 25°C ambient condition	

AC Adapter 65 Watt nPFC Standard USB type C Straight 1.0m	**Dimensions**	90.0x51x28.5mm	
	Weight	unit: 250g +/- 10g	
	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	1.6 A at 90 VAC and maximum load
	Output	**Output power**	65W
		DC output	5V/9V/12V/15V/20V
		Hold-up time	5ms at 115 Vac input

Technical Specifications

		Output current limit	8.0A Max.
	Connector	USB TYPE C	
	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)
		Humidity	20% to 95%
		Storage Humidity	10% to 95%
	EMI and Safety Certifications	Eg: - CE Mark - full compliance with LVD and EMC directives - Worldwide safety standards - IEC60950-1 and/or IEC62368-1, EN60950-1 and/or EN62368-1, UL60950-1 and/or UL62368-1 , Class1, SELV; Agency approvals - C-UL-US, NORDICS, DENAN, EN55032 Class B, FCC Class B, CISPR32 Class B, CCC, NOM-001 NYCE. - MTBF - over 200,000 hours at 25°C ambient condition	

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

Technical Specifications

FINGERPRINT READER

Model: Synaptics
Validity VFS7604 touch sensor
Mobile Voltage Operation:
3.0V to 3.6V
Operating Temperature:
0~60°C
Current Consumption Image:
100mA Max
Low Latency Wait For Finger:
260 uA
Capture Rate:
<30msec per image
ESD Resistance:
IEC 61000-4-2 4B (+/-15KV)
Detection Matrix:
363 dpi / 7.4x6mm sensor area
FRR (False Reject Rate) / FAR (False Acceptance Rate):
FRR <1% @ 1:50K FAR

Technical Specifications

ENVIRONMENTAL DATA

Eco-Label Certifications & declarations	This product has received or is in the process of being certified to the following approvals and may be labeled with one or more of these marks: • IT ECO declaration • US ENERGY STAR® • US Federal Energy Management Program (FEMP) • EPEAT Gold registered in the United States. See http://www.epeat.net for registration status in your country. • TCO 8.0 • China Energy Conservation Program (CECP) • China State Environmental Protection Administration (SEPA) • Taiwan Green Mark • Korea Eco-label • Japan PC Green label*		
Sustainable Impact Specifications	• Ocean-bound plastic in (part(s))[1] • 24.71% post-consumer recycled plastic [2] • External Power Supply 90% Efficiency • Low halogen[3] • Outside Box and corrugated cushions are 100% sustainably sourced and recyclable[4] • Molded Paper Pulp Cushion inside box is 100% sustainably sourced and recyclable[5] • Recycled Plastic cushions [6] • Bulk packaging available 1. Percentage of ocean-bound plastic contained in each component varies by product 2. Recycled plastic content percentage is based on the definition set in the IEEE 1680.1-2018 standard. 3. External power supplies, WWAN modules, power cords, cables and peripherals excluded. 4. 100% outer box packaging and corrugated cushions made from sustainably sourced certified and recycled fibers. 5. Fiber cushions made from 100% recycled wood fiber and organic materials. 6. Plastic cushions are made from >90% recycled plastic.		
System Configuration	The configuration used for the Energy Consumption and Declared Noise Emissions data for the Notebook model is based on a “Typically Configured Notebook”.		
Energy Consumption (in accordance with US ENERGY STAR® test method)	**115VAC, 60Hz**	**230VAC, 50Hz**	**100VAC, 50Hz**
Normal Operation (Sort idle)	8.47 W	8.56 W	8.50 W
Normal Operation (Long idle)	0.82 W	0.81 W	0.78 W
Sleep	0.82 W	0.81 W	0.78 W
Off	0.30 W	0.32 W	0.29 W
	NOTE: Energy efficiency data listed is for an ENERGY STAR® compliant product if offered within the model family. HP computers marked with the ENERGY STAR® Logo are compliant with the applicable U.S. Environmental Protection Agency (EPA) ENERGY STAR® specifications for computers. If a model family does not offer ENERGY STAR® compliant configurations, then energy efficiency data listed is		

Technical Specifications

	for a typically configured PC featuring a hard disk drive, a high efficiency power supply, and a Microsoft Windows® operating system.		
Heat Dissipation*	**115VAC, 60Hz**	**230VAC, 50Hz**	**100VAC, 50Hz**
Normal Operation (Short idle)	27 BTU/hr	27 BTU/hr	27 BTU/hr
Normal Operation (Long idle)	3 BTU/hr	3 BTU/hr	2 BTU/hr
Sleep	3 BTU/hr	3 BTU/hr	2 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.		

Declared Noise Emissions (in accordance with ISO 7779 and ISO 9296)	Sound Power (L_{WAd}, bels)	Sound Pressure (L_{pAm}, decibels)
Typically Configured – Idle	2.6	14.4
Fixed Disk – Random writes	2.9	14.4
Optical Drive – Sequential reads	3.1	29.1

Longevity and Upgrading	This product can be upgraded, possibly extending its useful life by several years. Upgradeable features and/or components contained in the spare parts are available throughout the warranty period and or for up to "5" years after the end of production.
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 • Plastics parts weighing over 25 grams used in the product are marked per ISO11469 and ISO1043. • This product is 24.7% recycle-able when properly disposed of at end of life.

Packaging Materials	**External:**	PAPER/Corrugated	222 g
	Internal:	PLASTIC/polypropylene	3 g
		PLASTIC/Polyethylene low density	8 g
		PAPER/paperboard	51 g
		PAPER/Molded pulp	154 g
	The plastic packaging material contains at least 0% recycled content.		
	The corrugated paper packaging materials contains at least 59% recycled content.		

RoHS Compliance	HP Inc. complies fully with materials regulations. We were among the first companies to extend the restrictions in the European Union (EU) Restriction of Hazardous Substances (RoHS) Directive to our products worldwide through the HP GSE. HP has contributed to the development of related legislation in Europe, as well as China, India, and Vietnam. We believe the RoHS directive and similar laws play an important role in promoting industry-wide

Technical Specifications

	elimination of substances of concern. We have supported the inclusion of additional substances—including PVC, BFRs, and certain phthalates—in future RoHS legislation that pertains to electrical and electronics products. We met our voluntary objective to achieve worldwide compliance with the new EU RoHS requirements for virtually all relevant products by July 2013, and we will continue to extend the scope of the commitment to include further restricted substances as regulations continue to evolve. To obtain a copy of the HP RoHS Compliance Statement, see HP RoHS position statement.
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/supplychain/gen_specifications.html): • Asbestos • Certain Azo Colorants • Certain Brominated Flame Retardants – may not be used as flame retardants in plastics • Cadmium • Chlorinated Hydrocarbons • Chlorinated Paraffins • Bis(2-Ethylhexyl) phthalate (DEHP) • Benzyl butyl phthalate (BBP) • Dibutyl phthalate (DBP) • Diisobutyl phthalate (DIBP) • Formaldehyde • Halogenated Diphenyl Methanes • Lead carbonates and sulfates • Lead and Lead compounds • Mercuric Oxide Batteries • Nickel – finishes must not be used on the external surface designed to be frequently handled or carried by the user. • Ozone Depleting Substances • Polybrominated Biphenyls (PBBs) • Polybrominated Biphenyl Ethers (PBBEs) • Polybrominated Biphenyl Oxides (PBBOs) • Polychlorinated Biphenyl (PCB) • Polychlorinated Terphenyls (PCT) • Polyvinyl Chloride (PVC) – except for wires and cables, and certain retail packaging has been voluntarily removed from most applications. • Radioactive Substances • Tributyl Tin (TBT), Triphenyl Tin (TPT), Tributyl Tin Oxide (TBTO)
Packaging Usage	HP follows these guidelines to decrease the environmental impact of product packaging: • Eliminate the use of heavy metals such as lead, chromium, mercury and cadmium in packaging materials. • Eliminate the use of ozone-depleting substances (ODS) in packaging materials. • Design packaging materials for ease of disassembly. • Maximize the use of post-consumer recycled content materials in packaging materials. • Use readily recyclable packaging materials such as paper and corrugated materials. • Reduce size and weight of packages to improve transportation fuel efficiency. • Plastic packaging materials are marked according to ISO 11469 and DIN 6120 standards.

Technical Specifications

End-of-life Management and Recycling	HP offers end-of-life HP product return and recycling programs in many geographic areas. To recycle your product, please go to: http://www.hp.com/go/reuse-recycle or contact your nearest HP sales office. Products returned to HP will be recycled, recovered or disposed of in a responsible manner. The EU WEEE directive (2002/95/EC) requires manufacturers to provide treatment information for each product type for use by treatment facilities. This information (product disassembly instructions) is posted on the Hewlett Packard web site at: http://www.hp.com/go/recyclers. These instructions may be used by recyclers and other WEEE treatment facilities as well as HP OEM customers who integrate and re-sell HP equipment.
HP, Inc. Corporate Environmental Information	For more information about HP's commitment to the environment: Global Citizenship Report http://www.hp.com/hpinfo/globalcitizenship/gcreport/index.html Eco-label certifications http://www8.hp.com/us/en/hp-information/environment/ecolabels.html ISO 14001 certificates: http://h20195.www2.hp.com/V2/GetDocument.aspx?docname=c04755842 and http://www.hp.com/hpinfo/globalcitizenship/environment/pdf/cert.pdf

COUNTRY OF ORIGIN

China

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

Type	Description	Part #
Cases	HP Business Slim 14.1 Top Load	2SC65AA,2SC65UT,2SC65ET
	HP Executive 15.6 Backpack	6KD07AA,6KD07UT,6KD07ET
	HP Executive Slim 14.1 Top Load	6KD04AA,6KD04UT,6KD04ET
	HP Reversible 13.3 Sleeve	7ZE82AA
Docking	HP Thunderbolt 120W Dock G2	6HP48AA,2UK37AA,2UK37ET
	HP Thunderbolt 120W Dock w/Audio G2	3YE87AA,2UK37UT,3YE87ET
	HP Thunderbolt 230W Dock w/Combo Cable G2	3TR87AA,3TR87UT,3TR87ET
	HP USB-C 120W G5 Dock	26D32AA,5TW10AA,5TW10UT,5TW10ET
	HP USB-C Mini Dock	2SR85AA,1PM64AA,1PM64UT,1PM64ET
	HP USB-C/A 120W Universal Dock G2	5TW13AA,5TW13UT,5TW13ET
Input/Output	HP HDMI to VGA Adapter	H4F02AA,H4F02UT,H4F02ET
	HP TB Dock 120W G2 Cable	3XB94AA,3XB94UT,3XB94ET
	HP TB Dock 230W G2 Combo Cable	3XB96AA,3XB96UT,3XB96ET
	HP USB-C to DisplayPort Adapter	N9K78AA,N9K78UT
	HP USB-C to HDMI 2.0 Adapter	2PC54AA,1WC36UT,1WC36AA
	HP USB to Gig RJ45 Adapter	N7P47AA
	HP USB-C to RJ45 Adapter	V8Y76AA,V7W66AA,V7W66UT
	HP USB-C to USB-A Hub	Z8W90AA,Z6A00AA,Z6A00UT,Z6A00ET
	HP USB Collaboration Keyboard	Z9N38AA,Z9N38UT
	HP Wireless USB Premium Keyboard	Z9N41AA,Z9N41AT
	HP WL BT Collaboration Keyboard	Z9N39AA,Z9N39UT
	HP WL USB Keyboard	T6U20AA,T6U20UT
	HP Slim Wireless Keyboard and Mouse	T6L04AA,T6L04UT
	HP Wired Desktop 320MK Mouse and Keyboard	9SR36AA,9SR36UT,9SR36ET
	HP Wireless Rechargeable 950MK Mouse and Keyboard	3M165AA
	HP 235 WL Mouse and Keyboard Combo	1Y4D0AA
	HP 125 Wired Keyboard	266C9AA
	HP 320M Wired Mouse	9VA80AA,9VA80UT,9VA80ET
	HP Comfort Grip Wireless USB Mouse	H2L63AA,H2L63UT
	HP Presenter Bluetooth Mouse	2CE30AA,2CE30UT,2CE30ET
	HP Travel Bluetooth Mouse	6SP30AA,6SP30UT,6SP30ET
	HP Travel USB Mouse	G1K28AA,G1K28ET
	HP UltraMobile Wireless Mouse	H6F25AA,H6F25UT
	HP Active RECHBL Pen G3	6SG43AA,6SG43UT
Power	HP 65W USB-C AC Power Adapter	1HE08AA,1HE08UT
	HP 65W USB-C LC AC Power Adapter	1P3K6AA,1P3K6UT

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

	HP 65W USB-C Slim Travel AC Power Adapter	X7W50AA,3PN48AA,3PN48UT
	HP USB Power Bank	N9F71AA, N9F71UT
	HP USB-C Essential Power Bank	3TB55AA,3TB55UT
Storage	HP USB DVD-Writer EXT ODD	Y3T76AA,F2B56AA,F2B56UT,F2B56ET
Security	HP Dual Head Nano Cable Lock	1AJ41AA,1AJ41UT
	HP Nano Cable Lock	1AJ39AA,1AJ39UT
	HP SureKey Standard/Nano/Wedge Cable Lock	6UW42AA,6UW42UT
UCC	HP BT UC WL Duo Headset	W3K09AA#ABB, W3K09AA#UUF
	HP Wired Thunderbolt Audio Module	3AQ21AA,3AQ21UT,3AQ21ET
	HP Wired USB-A Stereo Headset	T1A67AA
	HP Wireless BT UC WL Mono Headset	W3K08AA#ABB, W3K08AA#UUF

Summary of Changes

Date of change:	Version History:		Description of change:
January 27, 2021	V1 to V2	Update	USB ports to new industry standards. WPA3 certification
February 10, 2021	V2 to V3	Added	Environmental Data
February 17, 2021	V3 to V4	Update	Environmental Data
March 2, 2021	V4 to V5	Update	Battery Life
April 19, 2021	V5 to V6	Updated	Input/ Output Section Updated
May 6, 2021	V6 to V7	Removed	Processors base frequency/Added HP Smart Support
May 27, 2021	V7 to V8	Updated	HP Pro Security Edition to HP Wolf Pro Security Edition
June 11, 2021	V8 to V9	Removed	HP WorkWell from Software and Security section
September 7, 2021	V9 to V10	Update	Techspecs in Networking and Power section