QuickSpecs

Overview

HP mt46 Mobile Thin Client

Left

1. Ambient Light Sensor (Optional)
2. IR Camera LEDs (optional)
3. HD and IR Camera (Optional)
4. Webcam LED (Optional)
5. HP Privacy Webcam Shutter (Optional)
6. Glass clickpad
7. Smart Card Reader (Optional)
8. Audio combo jack
9. USB 3.1 Gen 1 Port
10. USB 3.1 Gen 1 Port (Charging)
11. Security lock slot (Lock sold separately.)

Overview

Right

1. Internal microphones (2)
2. Power Button Key
3. WWAN SIM with plug[1,2]
4. USB-C® 3.1 Gen 2 Alt Mode
5. USB-C® 3.1 Gen 2 Alt Mode

6. HDMI port (Cable not included.)
7. Power Connector
8. HP Fingerprint Sensor (Select Models)[1]
9. Pointstick

[1]Not available with HP ThinPro and HP Smart Zero
[2]All units have a SIM card tray but units that do not support WWAN are shipped with a non-removable SIM slot plug.

AT A GLANCE

Overview

- Choice of Windows 10 IoT Enterprise 2019, HP ThinPro OS, HP Smart Zero OS
- AMD® Ryzen Pro 3 PRO 4450U
- Display includes your choice of 33.8cm (14") diagonal FHD IPS Wide viewing Angle, Touch or Non-Touch
- AMD Radeon™ Vega UMA Graphics
- Enhanced security features including Smart Card, NFC option, TPM 2.0, lock slot, HP BIOSphere, HP Sure Start, HP Privacy Camera* (non-touch and touch), BIOS-level microphone enable/disable, HP Sure View, SecureBIO
- Passed 12 MIL-STD 810H testing, plus an additional 120,000 hours of reliability testing through HP's Total Test Process [1]
- Weight starting at 2.97lb (1.347kg)
- Battery life up to 14 hours[5]
- Supports wireless LAN and Wireless WAN[2] options for connectivity on the go
- Up to 8GB System Memory
- 720p HD webcam, IR camera for face authentication with Windows Hello[3]
- Full size, backlit, Keyboard and Clickpad with image sensor and glass surface, multi-touch gestures enabled, taps enabled as default[4]
- Enables AMD Memory Guard to help defend against cold boot attacks with real-time encryption and decryption of system's memory
- Support optional HP Sure View Reflect with 1000 nit[6] Anti-Glare Privacy Screen which prevents visual hacking

*Not supported on ThinPro and Smart Zero
[1]MIL-STD-810H testing is not intended to demonstrate fitness of U.S. Department of Defense (DoD) contract requirements or for military use. Test results are not a guarantee of future performance under these test conditions. Accidental damage requires an optional HP Accidental Damage Protection Care Pack.
[2]Wireless WAN not supported with Thin Pro / Smart Zero
[3]Not available with HP ThinPro and HP Smart Zero
[4]Touch functionality is limited on ThinPro
[5]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 http://www.bapco.com for additional details.
[6]Touch-enabled display and Sure View privacy panel will lower actual brightness

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

Features

PRODUCT NAME

HP mt46 Mobile Thin Client

OPERATING SYSTEM

Windows 10 IoT Enterprise LTSC for Thin Clients 2019 RS5[1]

HP ThinPro [2]

HP Smart Zero

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

[2] Not all features or options are available with HP ThinPro and HP Smart Zero OS.

PROCESSOR

AMD Ryzen[TM] 3-PRO 4450U APU with Radeon[TM] Graphics (2.5 GHz base clock, up to 3.8 GHz max boost clock, 4 MB L3 cache, 4 cores) [3,4,5]
Processor Family
2nd Gen AMD® Ryzen[TM] PRO processor

[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. AMD's numbering is not a measurement of clock speed.

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

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

CHIPSET

Chipset is integrated with processor

GRAPHICS

Features

Integrated

AMD Radeon™ Vega Graphics[6]

Supports

Support HD decode, DX12, and HDMI 2.0
[6]HD content required to view HD images.

DISPLAY

Non-Touch

35.56 cm (14") diagonal FHD IPS eDP anti-glare WLED-backlit bent, 250 nits, 45% NTSC (1920 x 1080) [6,7,8,11]

35.56 cm (14") diagonal FHD IPS eDP anti-glare WLED-backlit bent, 250 nits, 45% NTSC for HD camera (1920 x 1080) [6,7,8,11]

35.56 cm (14") diagonal FHD IPS eDP anti-glare WLED-backlit bent, 250 nits, 45% NTSC for HD camera for WWAN (1920 x 1080) [6,7,8,11]

35.56 cm (14") diagonal FHD IPS eDP anti-glare WLED-backlit bent, 250 nits, 45% NTSC for HD + IR camera for WWAN (1920 x 108[6,7,8,11]

35.56 cm (14") diagonal FHD IPS eDP + PSR anti-glare WLED-backlit bent, 1000 nits with HP Sure View Integrated Privacy Screen, 72% NTSC with Ambient Light Sensor and HD + IR camera (1920 x 1080) [6,7,8,9,11]

Touch

35.56 cm (14") diagonal FHD IPS eDP anti-glare On-Cell WLED-backlit bent touch screen, 250 nits, 45% NTSC, for HD+IR camera fo[WWAN (1920 x 1080) [6,7,8,10,11]

HDMI 2.0

Supports resolution up to 4k @ 60Hz

[6] HD content required to view HD images.
[7] Sold separately or as an optional feature.
[8] Resolutions are dependent upon monitor capability, and resolution and color depth settings.
[9] HP Sure View integrated privacy screen is an optional feature that must be configured at purchase and is designed to function in landscape orientation.
[10] Touch capabilities are limited on HP ThinPro and HP Smart Zero OS.
[11] Touch-enabled display and Sure View privacy panel will lower actual brightness.

Displays support

Features

Docking Station Model	Total number of supported displays (incl. the notebook display)	Max resolutions supported	Dock Connectors	Technical limitations
HP Thunderbolt Dock 120W G2 (2UK37AA)	4	Dual 2560 x 1600 @ 60Hz Single 3840 x 2160 @ 60Hz	2xDP, 1xVGA, 1xTB, 1xUSB-C alt-mode	Not compatible on HP ThinPro or HP Smart Zero OS.
HP USB-C Dock G5 (5TW10AA)	3	Dual 2.5K @ 60Hz or 4K @ 60Hz + FHD @ 60Hz	1xHDMI. 2xDP	Final testing on HP ThinPro Pending
HP USB-C/A Universal Dock G2 (5TW13AA)	3	Dual 2.5K @ 60Hz	1xHDMI. 2xDP	Not compatible on HP ThinPro or HP Smart Zero OS.
HP USB-C Mini Dock (1PM64AA)	2	Single 4K @ 30Hz	1xHDMI, 1xVGA	Single external display. Cannot use HDMI and VGA simultaneously. Not compatible on HP ThinPro or HP Smart Zero OS.

STORAGE AND DRIVES

Primary M.2 Storage

128 GB SATA-3 SS TLC[11]

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

MEMORY

Memory

8 GB DDR4-3200 SDRAM (1 x 8 GB) [12]
8 GB DDR4-3200 SDRAM (2 x 4 GB) [12]
4 GB DDR4-3200 SDRAM (1 x 4 GB) [12]

Memory Slots

2 SODIMM
Both slots are customer accessible/upgradeable
DDR4 SODIMMS, system runs at 2400
Supports Dual Channel Memory

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

NETWORKING/COMMUNICATIONS

Features

WLAN

Intel® AX200 Wi-Fi® 6 (2x2) and Bluetooth® 5 Combo 802.11ax 2x2 Wi-Fi®, non-vPro® (supporting gigabit file transfer speeds) [13]
Realtek RTL8822BE 802.11ac (2x2) and Bluetooth® 5 Combo [13]

WWAN*

Intel® XMM™ 7360 LTE-Advanced Cat 9 [14,17,18]

NFC**

NXP NPC300 Near Field Communication Module[18]

Miracast**

Native Miracast Support[16]

Ethernet

Realtek PCIe GbE Family Controller 10/100/1000[15,19]

* Option not available on HP ThinPro
** Not supported on ThinPro / Smart Zero

[13] 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. 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, environmen network conditions, and other factors. 4G LTE not available on all products, in all regions.
[15] The term "10/100/1000" or "Gigabit" Ethernet indicates compatibility with IEEE standard 802.3ab for Gigabit Ethernet, and does not connote actual operating speed of 1 Gb/s. For high-speed transmission, connection to a Gigabit Ethernet server and network infrastructure is required.
[16] Miracast is a wireless technology your PC can use to project your screen to TVs, projectors, and streaming.
[17] Gigabit class Category 16 4G LTE module is optional and must be configured at the factory. Module designed for up to 1 Gb download speeds as carriers deploy 5 carrier aggregation and 100Mhz channel bandwidth, requires activation and separately purchased service contract. Backwards compatible to HSPA 3G technologies. Check with service provider for coverage and availability in your area. Connection, upload and download speeds will vary due to network, location, environment, network conditions, and other factors. 4G LTE not available on all products, in all regions.
[18] Standalone GPS is an optional feature and requires factory configuration. GPS and WWAN are mutually exclusive.
[19] Wake from LAN from S5 (power off) is not supported with the dongle.

AUDIO/MULTIMEDIA

Features

Audio

Audio by Bang & Olufsen
2 Integrated Stereo Speakers
Integrated 3 Multi Array Microphone
Camera
720p HD camera [6,7]
720p HD+IR camera [6,7,8,20]
Sensors

Ambient light sensor (Select models only)
Hall Sensor

[6] HD content required to view HD images.
[7] Sold separately or as an optional feature.
[8] Not supported on ThinPro / Smart Zero.
[20] Internet access required.

KEYBOARDS/POINTING DEVICES/BUTTONS & FUNCTION KEYS

Keyboard

HP Premium Collaboration Keyboard, spill resistant with drain
Backlit keyboard and DuraKeys available as an option
Pointing Devices

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

*Not supported on ThinPro / Smart Zero

Function Keys

F1 - Display Switching

F2 - Blank or Privacy (with LED)

F3 - Brightness Down

F4 - Brightness Up

F5 - Audio Mute

F6 - Volume Down

F7 - Volume Up

F8 - Mic Mute

F9 - Blank or Backlit Toggle

F10 - Insert

F11 - Airplane Mode

F12 - HP Command Center

Print Screen

Power Button (with LED)

Hidden Function Keys

Fn+R - Break
Fn+S - Sys Rq
Fn+C - Scroll Lock

SOFTWARE AND SECURITY

Preinstalled Software

BIOS

HP BIOSphere Gen5 [20]

BIOS Update via Network

Power On Authentication

HP Secure Erase [21]

Absolute Persistence Module [22]

Pre-boot Authentication

Software

HP Connection Optimizer
HP Native Miracast Support
HP Hotkey Support
HP Noise Cancellation Software
"Supported Protocols: Microsoft RDP; HP ZCentral Remote Boost, VMWare Horizon RDP/PCoIP/Blast Extreme, Citrix ICA/HDX

*protocols dependent on operating system installed."

Manageability Features

HP ThinUpdate
HP Device Manager
HP BIOS Config Utility (BCU)

Client Security Software

HP Fingerprint Sensor [27]*

Windows Defender [28]*

Security Management

Pre-boot Authentication
TPM 2.0 Embedded Security Chip shipped with Windows 10 (Common Criteria EAL4+ Certified) [29]
USB enable/disable (via BIOS)
Power-on password (via BIOS)

Features

Setup password (via BIOS)
Support for chassis padlocks and cable lock devices

HP Sure Start Gen6 [31]

*Not supported on ThinPro/SmartZero

[20] HP BIOSphere Gen5 is available on select HP Pro and Elite PCs. Features may vary depending on the platform and configurations.
[21] 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™.
[22] 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.
[27] HP Fingerprint sensor is an optional feature that must be configured at purchase.
[28] Windows Defender Opt in and internet connection required for updates.
[29] 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).
[31] HP Sure Start Gen6 is available on select HP PCs.

POWER

Power Supply

HP Smart 45 W External AC power adapter [35]
HP Smart 45 W External AC power adapter, 2-prong (Japan only) [35]
HP Smart 65 W External AC power adapter [35]
HP Smart 65 W EM External AC power adapter [35]
65 W USB Type-C® adapter [35]

Primary Battery

HP Long Life 3-cell, 53 Wh Li-ion [36,37]
Support HP Fast Charge (Up to 50% in 30 minutes with 65W AC Adapter)[36,37]

Power Cord

2-wire plug - 1.0m
3-wire plug - 1.0m

Battery life

Up to 14 hours (2nd Gen AMD® Ryzen™ PRO APU processor, 14" 400nits panel and 3-cell 53WHr battery) [38]

[35] Availability may vary by country.
[36] Battery is internal and not replaceable by customer. Serviceable by warranty.
[37] Supports HP Fast Charge with 65W AC Adapter. Recharges the battery up to 50% within 30 minutes when the system is off or standby mode. Power adapter with a minimum capacity of 65 watts is required. After charging has reached 50% capacity, charging return to normal. Charging time may vary +/-10% due to System tolerance.
[38] Windows 10 MM14 battery life will vary depending on various factors including product model, configuration, loaded applicati features, use, wireless functionality, and power management settings. The maximum capacity of the battery will naturally decrease with time and usage. See www.bapco.com for additional details.

WEIGHTS & DIMENSIONS

Weight

Non-touch
Starting at 2.97 lb
Starting at 1.347 kg
Touch[39]
Starting at 3.26 lb
Starting at 1.477 kg

Product Dimensions (w x d x h)

Non-touch
12.73 x 8.45 x 0.71 in
32.33 x 21.45 x 1.79 cm
Touch
12.73 x 8.45 x 0.75 in
32.33 x 21.45 x 1.75 cm

[39]Weight will vary by configuration.

PORTS/SLOTS

Ports

2 USB Type-C® 3.1 Gen2 (Alt mode)
1 USB 3.1 Gen 1 port
1 USB 3.1 Gen 1 (1 charging)
1 HDMI 2.0 [6]
1 headphone/microphone combo
1 AC power
1 SIM card slot [40]
1 Smartcard reader

[6] HD content required to view HD images.

[40] SIM slot is not user accessible without WWAN configuration.

SERVICE AND SUPPORT

Features

HP Services offers 1-year or 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 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. [41]

[41] HP Care Packs are sold separately. Service levels and response times for HP Care Packs may vary depending on your geographic location. Service starts on date of hardware purchase. Restrictions and limitations apply. For details, visit www.hp.com/go/cpc. HP services are governed by the applicable HP terms and conditions of service provided or indicated to Customer at the time of purchase. Customer may have additional statutory rights according to applicable local laws, and such rights are not in any way affected by the HP terms and conditions of service or the HP Limited Warranty provided with your HP Product.

Technical Specifications

SYSTEM UNIT

Stand-Alone Power Requirements (AC Power)	**Nominal Operating Voltage**	19 V
	Average Operating Power	2.65W
	Integrated graphics	6.78W
	Max Operating Power	Discrete < 65W UMA < 45W
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**	0.75 grms
	Non-operating	1.50 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, Select models 11
	EPEAT® 2019	EPEAT 2019 Golden in United States [8]
	ICES	Yes
	Australia / NZ RCM 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

DISPLAYS

65650 - Panel LCD 14 inch FHD (1920x1080) Anti-Glare WLED UWVA 45percent cg 250nits eDP 1.2 w/o PSR bent NWBZ

Outline Dimensions (W x H)	316.17 x 186.4 mm (max) (w/ PCB)
Active Area	309.37 x 174.02 mm (typ.)
Weight	300 g (max)
Diagonal Size	14.0 inch
Thickness	3.0 mm/ 5.0 mm (PCB) (max)
Interface	eDP 1.2
Surface Treatment	Anti-Glare
Touch Enabled	No
Contrast Ratio	600:1 (typ.)
Refresh Rate	60 Hz
Brightness	250 nits
Pixel Resolution	1920 x 1080 (FHD)
Format	RGB Stripe
Backlight	LED
Color Gamut Coverage	NTSC 45%
Color Depth	6 bits (Hi FRC supportive w/ condition to enable)
Viewing Angle	UWVA 85/85/85/85

Panel LCD 14 inch FHD (1920x1080) Anti-Glare WLED UWVA 45percent cg 250nits eDP 1.2 w/o PSR bent Touch on Panel NWBZ

Outline Dimensions (W x H)	316.17 x 186.4 mm (max) (w/ PCB)
Active Area	309.37 x 174.02 mm (typ.)
Weight	305 g (max)
Diagonal Size	14.0 inch
Thickness	3.0 mm/ 5.0 mm (PCB) (max)
Interface	eDP 1.2
Surface Treatment	Anti-Glare On-cell
Touch Enabled	Yes
Contrast Ratio	600:1 (typ.)
Refresh Rate	60 Hz
Brightness	250 nits
Pixel Resolution	1920 x 1080 (FHD)
Format	RGB Stripe
Backlight	LED
Color Gamut Coverage	NTSC 45%
Color Depth	6 bits (Hi FRC supportive w/ condition to enable)
Viewing Angle	UWVA 85/85/85/85

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

QuickSpecs

Technical Specifications

Panel LCD 14 inch FHD (1920x1080) Anti-Glare WLED UWVA sRGB 100percent cg 400nits eDP 1.4+PSR2 bent LP NB2X

Outline Dimensions (W x H)	315.07 x 186.6 mm (max)
Active Area	309.37 X 174.02 mm (typ.)
Weight	200 g (max)
Diagonal Size	14.0 inch
Thickness	2.0 mm/4.0 mm (w/PCB) (max)
Interface	eDP 1.4
Surface Treatment	Anti-Glare
Touch Enabled	No
Contrast Ratio	1200:1 (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

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

STORAGE

Technical Specifications

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		
Performance	**Maximum Sequential Read**		**Performance**
	550 ~ 560 MB/s		380 ~ 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. Actual formatted capacity is less. Up to 30GB is reserved for system recovery software.

NETWORKING/COMMUNICATIONS

Intel Wi-Fi® 6 AX200 + BT5 (802.11ax 2x2, non-vPro®, supporting gigabit file transfer speeds) non-vPro® [1,2]

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 [1]
Frequency Band	802.11b/g/n

- 2.402 - 2.482 GHz

802.11a/n/ac

- 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: MCS 0 ~ MCS 15, (20MHz, and 40MHz)
- 802.11ac : MCS0 ~ MCS9, (1SS, and 2SS) (20MHz, 40MHz, ,80MHz & 160MHz)

Technical Specifications

	- 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, 1024QAM
Security[3]	- IEEE and WiFi® compliant 64 / 128-bit WEP encryption for a/b/g mode only - AES-CCMP: 128 bits in hardware - 802.1x authentication - WPA, WPA2: 802.1x. WPA-PSK, WPA2-PSK, TKIP, and AES. - WPA2 certification - IEEE 802.11i - 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 : +18.5dBm minimum - 802.11g : +17.5dBm minimum - 802.11a : +18.5dBm minimum - 802.11n HT20(2.4GHz) : +15.5dBm minimum - 802.11n HT40(2.4GHz) : +14.5dBm minimum - 802.11n HT20(5GHz) : +15.5dBm minimum - 802.11n HT40(5GHz) : +14.5dBm minimum - 802.11ac VHT80(5GHz) : +11.5dBm minimum - 802.11ac VHT160(5GHz) : +11.5dBm minimum - 802.11ax HT40(2.4GHz) : +10dBm minimum - 802.11ax VHT160(5GHz) : +10dBm minimum
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 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 : -84dBm maximum - 802.11ac, MCS9 : -59dBm maximum - 802.11ax, MCS11(HT40): -59dBm maximum - 802.11ax, 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

Technical Specifications

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 Non-operating	14° to 158° F (-10° to 70° C) -40° to 176° F (-40° to 80° C)
Humidity	Operating Non-operating	10% to 90% (non-condensing) 5% to 95% (non-condensing)
Altitude	Operating Non-operating	0 to 10,000 ft (3,048 m) 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)
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

Technical Specifications

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)

[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.

[2] Wi-Fi® supporting gigabit speeds is achievable with Wi-Fi 6 (802.11ax) when transferring files between two devices connected to the same router. Requires a wireless router, sold separately, that supports 160MHz channels.

Realtek RTL8822CE 802.11ac 2x2 Wi-Fi® + BT5	**Wireless LAN Standards**	IEEE 802.11a
		IEEE 802.11b
		IEEE 802.11g
		IEEE 802.11n
		IEEE 802.11ac
		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 modules
	Frequency Band	802.11b/g/n
		• 2.402 - 2.482 GHz
		802.11a/n
		• 4.9 - 4.95 GHz (Japan)
		• 5.15 - 5.25 GHz
		• 5.25 - 5.35 GHz
		• 5.47 - 5.725 GHz
		• 5.825 - 5.850 GHz
	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: MCS 0 ~ MCS 15, (20MHz, and 40MHz)
		• 802.11ac: MCS0 ~ MCS9, (1SS, and 2SS) (20MHz, 40MHz, and 80MHz)
	Modulation	Direct Sequence Spread Spectrum BPSK, QPSK, CCK, 16-QAM, 64-QAM, 256-QAM
	Security[3]	• IEEE and WiFi® compliant 64 / 128-bit WEP encryption for a/b/g mode only
		• AES-CCMP: 128 bits in hardware
		• 802.1x authentication
		• WPA, WPA2: 802.1x. WPA-PSK, WPA2-PSK, TKIP, and AES.
		• WPA2 certification
		• IEEE 802.11i
		• WAPI

Technical Specifications

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 : +18.5dBm minimum

- 802.11g : +17.5dBm minimum
- 802.11a : +18.5dBm minimum
- 802.11n HT20(2.4GHz) : +15.5dBm minimum
- 802.11n HT40(2.4GHz) : +14.5dBm minimum
- 802.11n HT20(5GHz) : +15.5dBm minimum
- 802.11n HT40(5GHz) : +14.5dBm minimum
- 802.11ac VHT80(5GHz) : +11.5dBm minimum
- 802.11ac VHT160(5GHz) : +11.5dBm minimum

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 : -84dBm maximum 802.11ac, MCS9 : -59dBm maximum
Antenna Type	High efficiency antenna with spatial diversity, mounted in the display enclosure Two embedded dual band 2.4/5 GHz antennas are provided to the card to support WLAN MIMO communications and Bluetooth communications
Form Factor	PCI-Express M.2 MiniCard
Dimensions	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 Non-operating 0 to 10,000 ft (3,048 m) 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 Wireless Technology

Technical Specifications

Bluetooth Specification	4.0/4.1/4.2/5.0 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 + 4 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)

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), 2100 (Band 66). TDD LTE: 2600 (Band 38), 1900 (Band 39), 2400 (Band 40), 2500 (Band 41). HSPA+: 2100 (Band 1), 1900 (Band 2), 1700/2100 (Band 4), 850 (Band 5), 900 (Band 8) MHz
Wireless protocol standards	3GPP Release 11 LTE Specification CAT.9, DL 60MHz BW throughput up to 450Mbps; UL 20MHz throughput up to 50Mbps WCDMA R99, 3GPP Release 5, 6, 7 and 8 UMTS Specification
GPS	Standalone, A-GPS (MS-A, MS-B)
GPS bands	1575.42 MHz ± 1.023 MHz, GLONASS 1596-1607MHz, Beidou 1561.098 MHz
Maximum data rates	LTE: 450 Mbps (Download), 50 Mbps (Upload) DC-HSPA+: 42 Mbps (Download), 5.76 Mbps (Upload) HSPA+: 21Mbps (Download), 5.76 Mbps (Upload)
Maximum output power	LTE: 23 dBm HSPA+: 23.5 dBm
Maximum power consumption	LTE: 1,200 mA (peak); 900 mA (average) HSPA+: 1,100 mA (peak); 800 mA (average)
Form Factor	M.2, 3042-S3 Key B
Weight	5.8 g
Dimensions (Length x Width x Thickness)	42 x 30 x 2.3 mm

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

[2] WWAN is an optional feature, requires factory configuration and separately purchased service contract. Check with service provider for coverage and availability in your area. 4G LTE not available on all products, in all regions.

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

Technical Specifications

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	4.35 to 5.25 Volts
I/O Voltage	1.8V or 3.3V

Power Consumption (Booster enable, VBAT= 3.3V, VCC_BOOST = 5V)	**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
	Detected Test Tag Type 4	Total 282.3 mA Net Module 235.3 mA
	Antenna	Antenna connector, 0.5mm pitch, 7 connector FPC. Antenna matching is external to module.

POWER

AC Adapter 45 Watt Smart nPFC Standard Barrel 4.5mm Right Angle 1.8m	**Dimensions** (H x W x D)		95x45x26.8mm
	Weight		unit: 200g +/- 10g
	Input	**Input Efficiency**	87.74 % at 115 Vac and 88.4 % at 230Vac
		Input frequency range	47 to 63 Hz
		Input AC current	Max. 1.4 A at 90 Vac
	Output	**Output power**	Average Efficiency of 25%, 50%, 75%, 100% load condition with 115Vac/230Vac Spec:
		DC output	45W
		Hold-up time	19.5V
		Output current limit	5ms at 115 Vac input
		Output current limit	<8.0A
	Connector		4.5mm Barrel Type
	Environmental Design	**Operating temperature**	32° to 95° F (0° to 35° C)

Technical Specifications

	Non-operating (storage) temperature	-4° to 185° F (-20° to 85° C)
	Altitude	0 to 16,400 ft (0 to 5,000 m)
	Humidity	20% to 95%
	Storage Humidity	10% to 95%
EMI and Safety Certifications	*CE Mark - full compliance with LVD and EMC directives * Worldwide safety standards - IEC60950, EN60950, UL60950, Class1, SELV; Agency approvals - C-UL-US, NORDICS, DENAN, EN55022 Class B, FCC Class B, CISPR22 Class B, CCC, NOM-1 NYCE. * MTBF - over 200,000 hours at 25°C ambient condition.	

AC Adapter 65 Watt nPFC Slim USB type C® Straight 1.8m	**Dimensions** (H x W x D)	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 to 63 Hz
		Input AC current	Max. 1.4 A at 90 Vac
	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**	32° to 95° F (0° to 35° C)
		Non-operating (storage) temperature	-4° to 185° F (-20° to 85° C)
		Altitude	0 to 16,400 ft (0 to 5,000 m)
		Humidity	20% to 95%
		Storage Humidity	10% to 95%
	EMI and Safety Certifications	*CE Mark - full compliance with LVD and EMC directives * Worldwide safety standards - IEC60950, EN60950, UL60950, Class1, SELV; Agency approvals - C-UL-US, NORDICS, DENAN, EN55022 Class B, FCC Class B, CISPR22 Class B, CCC, NOM-1 NYCE. * MTBF - over 200,000 hours at 25°C ambient condition.	

QuickSpecs

Technical Specifications

AC Adapter 65 Watt nPFC Standard USB type C® Straight 1.8m			
	Dimensions (H x W x D)	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 to 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
		Output current limit	8.0A Max.
	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 5,000 m)
		Humidity	20% to 95%
		Storage Humidity	10% to 95%
	EMI and Safety Certifications	*CE Mark - full compliance with LVD and EMC directives * Worldwide safety standards - IEC60950, EN60950, UL60950, Class1, SELV; Agency approvals - C-UL-US, NORDICS, DENAN, EN55022 Class B, FCC Class B, CISPR22 Class B, CCC, NOM-1 NYCE. * MTBF - over 200,000 hours at 25°C ambient condition.	

AC Adapter 65 Watt Smart nPFC EM Barrel 4.5mm New EM			
	Dimensions (H x W x D)	102x55x30mm	
	Weight	unit: 250g +/- 10g	
	Input	**Input Efficiency**	88.0 % at 115 Vac and 89.0 % at 230Vac
		Input frequency range	47 ~ 63 Hz
		Input AC current	Max. 1.7 A at 90 Vac
	Output	**Output power**	65W
		DC output	19.5V
		Hold-up time	5 ms at 115 Vac input
		Output current limit	<11.0A
	Connector	4.5mm Barrel Type	
	Environmental Design	**Operating temperature**	32° to 95° F (0° to 35° C)
		Non-operating (storage) temperature	-4° to 185° F (-20° to 85° C)

Technical Specifications

	Altitude	0 to 16,400 ft (0 to 5,000 m)
	Humidity	20% to 95%
	Storage Humidity	10% to 95%
EMI and Safety Certifications		*CE Mark - full compliance with LVD and EMC directives * Worldwide safety standards - IEC60950, EN60950, UL60950, Class1, SELV; Agency approvals - C-UL-US, NORDICS, DENAN, EN55022 Class B, FCC Class B, CISPR22 Class B, CCC, NOM-1 NYCE. * MTBF - over 200,000 hours at 25°C ambient condition.

AC Adapter 65 Watt Smart nPFC Standard Barrel 4.5mm Right Angle 1.8m	**Dimensions**		90x51x28.5mm
	Weight		unit: 230g +/- 10g
		Input Efficiency	88.0 % at 115 Vac and 89.0 % at 230 Vac
	Input	**Input frequency range**	47 to 63 Hz
		Input AC current	Max 1.7 A at 90 Vac
	Output	**Output power**	65W
		DC output	19.5V
		Hold-up time	5 ms at 115 Vac input
		Output current limit	<11.0A
	Connector		4.5mm Barrel Type
	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, 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.

Technical Specifications

Battery CC 3 Cell WHr 53 Long Life -PL Fast Charge			
Dimensions (L x W x H)	7.3 x 52.9 x 267.11mm (0.287 x 2.082 x 10.516 inch)		
Weight	0.205g (0.45 lb)		
Cells/Type	3cell Lithium-Ion Polymer cell / 645180		
Energy	**Voltage**	11.55V	
	Amp-hour capacity	4.59Ah	
	Watt-hour capacity	53Wh	
Temperature	**Operating (Charging)**	32° to 113° F (0° to 45° C)	
	Operating (Discharging)	32° to 122° F (0° to 50° C)	
Warranty	Depends on system offering		
Optional Travel Battery Available	No		

COUNTRY OF ORIGIN

China

Options and Accessories (Sold separately and availability may vary by country.)

Type	Description	Part Number
Cases	HP Recycled Series 15.6-inch Backpack	5KN28AA
	HP Recycled Series 15.6-inch Top Load	5KN29AA
	HP 15.6 Business Top Load	2SC66AA
	HP 14.1 Business Sleeve	2UW01AA
Docking	HP Thunderbolt 120W G2 w/ Audio[1]	3YE87AA
	HP Thunderbolt 230W G2 w/Combo Cable aka Hp TB Dock G2 w/combo cable	3TR87AA
	HP TB Dock 120W G2 w/ Audio	3YE87AA
	HP USB-C Mini Dock[3]	1PM64AA
	HP USB-C Dock G5[2]	5TW10AA
	HP USB-C/A Universal Dock G2[1]	5TW13AA
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 HDMI to DVI Adapter	F5A28AA
	HP HDMI to VGA Adapter	H4F02AA
	HP USB-C to USB 3.0	N2Z63AA
	HP USB-C to RJ-45 Adapter	V7W66AA
	HP USB-C to DisplayPort Adapter	N9K78AA
	HP USB-C to HDMI 2.0 Adapter	1WC36AA
	HP USB-C to VGA Adapter	H4F02AA
	HP USB-C to USB-A Hub	Z6A00AA
Power	HP 45W Smart AC Adapter	H6Y88AA
	HP 65W Smart AC Adapter	H6Y89AA
	HP 45W 2-prong 4.5 mm DC jack AC Adapter	L6F60AA

Options and Accessories (Sold separately and availability may vary by country.)

	HP 45W USB-C Power Adapter	1HE07AA
	HP 65W USB-C Power Adapter	1HE08AA
Storage	HP USB External DVDRW Drive	F2B56AA
Security	HP Sure Key Cable Lock	6UW42AA
	HP Nano Keyed Cable Lock	1AJ39AA
	HP Nano Keyed Dual Head Cable Locks	1AJ41AA

[1]Not compatible on HP ThinPro or HP Smart Zero OS.
[2]Final testing on HP ThinPro Pending
[3]Single external display. Cannot use HDMI and VGA simultaneously. Not compatible on HP ThinPro or HP Smart Zero OS.

Summary of Changes

Date of change:	Version History:	Type of change	Description of change:
October 22, 2020	From v1 to v2	Changed	Battery Life and changed format page 3

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