Overview

HP mt45 Mobile Thin Client



Left

1. HD and IR Camera (Optional)
2. Ambient Light Sensor (Optional)
3. IR Camera LEDs (Optional)
4. Internal Microphones
5. HP Privacy Camera Shutter
6. HD Camera LED
7. Clickpad
8. Smartcard Reader (Optional)
9. USB 3.1 Gen 1 Charging Port
10. Vents
11. Security Lock Slot (Lock sold separately)
12. Power Button

Overview



Left

1. Power Connector
2. USB Type-C™
3. Docking Connector
4. Ethernet Port
5. HDMI Port (Cable not included)
6. USB 3.1 Gen 1 Port
7. Audio Combo Jack
8. SIM Card Slot[1]
9. Touch Fingerprint Sensor (Optional)[2]
10. Pointstick

[1]All units have a SIM card slot and icon but units that do not support WWAN are shipped with a non-removable SIM slot plug
[2]To verify you have a fingerprint reader and not a plug, press the Windows key on your keyboard, select Settings, select Accounts, and then select Sign-in options and follow the on-screen instructions.

Overview

AT A GLANCE

- Eye-catching Ultraslim design, premium precision-crafted machined aluminum (CNC), seamless formed aluminum chassis for clean, crisp, premium look and feel
- Preinstalled with Windows 10 IoT Enterprise 2019 or HP ThinPro/Smart Zero Core
- 2nd Generation AMD Ryzen™ 3 PRO 3300U Mobile processor with Radeon™ Vega Graphics
- 128 GB Flash storage and optional 4GB (HP ThinPro OS only) or 8 GB memory
- Choice of 35.6cm (14") diagonal FHD IPS anti-glare LED-backlit, slim narrow border or ultra-slim display:
  - (1920 x 1080) UWVA, 250-nit, 45% CG, eDP, narrow border, slim
  - (1920 x 1080) UWVA, 250-nit, 45% CG, eDP, narrow border, slim, Touch-enabled
  - (1920 x 1080) UWVA, 1000-nit, 72% CG, eDP+PSR, ultra-slim, HP Sure View
- Designed to support multiple HP docking options including HP's traditional Ultraslim mechanical dock and all-new Thunderbolt™ dock[1]
- Featuring HP Collaboration Keyboard with Clickpad to manage most commonly used conferencing functions with a single keystroke
- Innovative world-facing third mic improves inbound ambient noise cancellation while 360-degree mic pick-up allows everyone to clearly hear and be heard
- Optional anti-glare touch displays with ambient light sensor
- Enterprise grade security with HP SureStart, HP Privacy Camera[1], HP Sure View[5], HP Write Manager, SmartCard Reader[1] and Touch Fingerprint reader[1]
- Optional HD camera or Infra-Red camera with multi-array microphone
- Supports fast charging (50% in 30 minutes) with no impact on battery recharge cycles[3]
- Flexible wireless connectivity options
- Pending MIL-STD 810G tests[4]

1. Sold separately or as an optional feature.
2. Not all options compatible with HP ThinPro OS.
3. HP Elite notebooks up to 50% within 30 minutes when the system is off or in standby mode. Power adapter with a minimum capacity of 65 watts is required. After charging has reached 50% capacity, charging will return to normal. Charging time may vary +/-10% due to System tolerance.
4. MIL STD 810G testing is pending and is not intended to demonstrate fitness for 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.
5. HP Sure View G3 integrated privacy screen is an optional feature that must be configured at purchase and is designed to function in landscape. Available in Q3' 19.

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

Features

PRODUCT NAME

HP mt45 Mobile Thin Client

OPERATING SYSTEM

Preinstalled Windows 10 IoT Enterprise 2019 for Thin Clients[1]
HP ThinPro/HP Smart Zero[2]

[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 IoT Enterprise automatic updates are always disabled. ISP fees may apply, and additional requirements may apply over time for updates. See http://www.windows.com/.
[2]Some features are not supported on HP ThinPro. See the respective Features sections for details.

PROCESSOR

AMD Ryzen™ 3 PRO 3300U APU with Radeon™ Vega 6 Graphics (2.1 GHz base clock, up to 3.5 GHz max boost clock, 4 MB L3 cache, 4 cores)[2,3,4,5]

Processor Family

2nd Generation AMD® Ryzen™ PRO APU processor[6]

[3]Processor speed denotes maximum performance mode; processors will run at lower speeds in battery optimization mode.
[4]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.
[5]Max Boost clock frequency performance varies depending on hardware, software and overall system configuration.
[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.

CHIPSET

Chipset is integrated with processor

GRAPHICS

Integrated

AMD Radeon™ Vega Graphics[7]

Supports

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

DISPLAY

Features

Non-Touch

35.6 cm (14") diagonal FHD IPS eDP anti-glare WLED-backlit slim, 250 nits, 45% NTSC (1920 x 1080)[7, 9,10]
35.6 cm (14") diagonal FHD IPS eDP anti-glare WLED-backlit slim, 250 nits, 45% NTSC with HD camera (1920 x 1080)[7, 9,10]
35.6 cm (14") diagonal FHD IPS eDP anti-glare WLED-backlit slim, 250 nits, 45% NTSC with HD + IR[19] camera (1920 x 1080)[7, 9,10]
35.6 cm (14") diagonal FHD IPS eDP anti-glare WLED-backlit slim, 250 nits, 45% NTSC for WWAN (1920 x 1080)[7, 9,10]
35.6 cm (14") diagonal FHD IPS eDP anti-glare WLED-backlit slim, 250 nits, 45% NTSC with HD camera for WWAN (1920 x 1080)[7, 9,10]
35.6 cm (14") diagonal FHD IPS eDP anti-glare WLED-backlit slim, 250 nits, 45% NTSC with HD + IR[19] camera for WWAN (1920 x 1080)[7, 9,10,11]
35.6 cm (14") diagonal FHD IPS eDP + PSR anti-glare WLED-backlit ultraslim, 1000 nits with HP Sure View G3 Integrated Privacy Screen, 72% NTSC, with Ambient Light Sensor and HD+IR[19] camera for WWAN (1920 x 1080)[7, 8, 9,10]

Touch

35.56 cm (14") diagonal FHD IPS eDP anti-glare On-Cell WLED-backlit slim touch screen, 250 nits, 45% NTSC with HD+IR camera for WWAN (1920 x 1080)[7, 9,10,11]

HDMI 2.0

Supports resolution up to 4k @ 60Hz

[7]HD content required to view HD images.
[8]HP Sure View G3 integrated privacy screen is an optional feature that must be configured at purchase and is designed to function in landscape orientation. Available in Q3' 19.
[9]Resolutions are dependent upon monitor capability, and resolution and color depth settings.
[10]Sold separately or as an optional feature.
[11]Touch display gesture support is limited on HP ThinPro/HP Smart Zero.

Features

Displays support

Docking Station Model	Total number of supported displays (incl. the notebook display)	Max resolutions supported	Dock Connectors	Technical limitations
HP UltraSlim Docking Station	4	Dual 2.5K @ 60Hz	2xDP, 1xVGA	Dual 2.5k only with both displays into DP. HP ThinPro/HP Smart Zero support is pending.
HP Thunderbolt Dock G2	4	Dual 2560 x 1600 @ 60Hz Single 3840 x 2160 @ 60Hz	2xDP, 1xVGA, 1xTB, 1xUSB-C alt-mode	HP ThinPro/HP Smart Zero support is pending.
HP Elite USB-C Dock G4	4	Dual 2K @ 60Hz Single 4K @ 60Hz (3840 x 1440)	1xHDMI, 2xDP	HP ThinPro/HP Smart Zero support is pending.
HP USB-C Universal Dock	3	Dual 4K @ 60Hz Single 5K @ 60Hz	2xDP	HP ThinPro/HP Smart Zero support is pending.
HP USB Travel Dock	2	Single 2K @ 60Hz	1xHDMI, 1xVGA	Single external display. Cannot use HDMI and VGA simultaneously. HP ThinPro/HP Smart Zero support is pending.
HP USB-C Mini Dock	2	Single 4K @ 30Hz	1xHDMI, 1xVGA	Single external display. Cannot use HDMI and VGA simultaneously. HP ThinPro/HP Smart Zero support is pending.

Features

STORAGE AND DRIVES

Primary M.2 Storage

128 GB SATA-3 SS TLC[12]

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

MEMORY

Memory

8 GB DDR4-2400 SDRAM (2 x 4 GB)[13]
4 GB DDR4-2400 SDRAM (1 x 4 GB)[13,14]

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.
[14]4GB option only available on HP ThinPro/HP Smart Zero.

NETWORKING/COMMUNICATIONS

WLAN

Intel® Dual Band Wireless-AC 9260 802.11a/b/g/n/ac (2x2) Wi-Fi® and Bluetooth® 5 Combo, non-vPro™[15]

WWAN

Intel® XMM™ 7360 LTE-Advanced Cat 9[16,19]

NFC

NXP NPC300 Near Field Communication Module[19]

Miracast

Native Miracast Support[17,19]

Ethernet

Realtek PCIe GbE Family Controller 10/100/1000[18]

[15]Wireless access point and Internet service required and sold separately. Availability of public wireless access points limited.
[16]WWAN module requires separately purchased service contract. Check with service provider for coverage and availability in your area. Connection speeds will vary due to location, environment, network conditions, and other factors. 4G LTE not available on all products, in all regions. eSIM is not supported.
[17]Miracast is a wireless technology your PC can use to project your screen to TVs, projectors, and streaming.

Features

[18]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.
[19]Feature is not compatible with HP ThinPro/HP Smart Zero.

AUDIO/MULTIMEDIA

Audio

Audio by Bang & Olufsen
Integrated 3 Multi-Array Microphone
2 Integrated Stereo Speakers

Camera

720p HD camera[7,10]
720p HD+IR camera[7, 10, 18]

Sensors

Ambient light sensor (Select models only)
Hall Sensor

[7]HD content required to view HD images.
[10]Sold separately or as an optional feature.
[18]Internet access required.

KEYBOARDS/POINTING DEVICES/BUTTONS & FUNCTION KEYS

Keyboard

HP Premium Collaboration Keyboard spill resistant with drain[19]
Backlit keyboard available as an option

Pointing Devices

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

Function Keys

F1 - Display Switching
F2 - Blank or Privacy
F3 - Brightness Down
F4 - Brightness Up
F5 - Audio Mute
F6 - Volume Down
F7 - Volume Up
F8 - Mic Mute
F9 - Blank or Backlit Toggle
F10 - Numlk
F11 - Wireless
F12 – Calendar[19]

Features

Share/Present[19]
Call Answer[19]
Call End[19]

Hidden Function Keys

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

[19]Feature is not compatible with HP ThinPro/HP Smart Zero.

Features

SOFTWARE AND SECURITY

Preinstalled Software
BIOS
HP BIOSphere Gen5[20]
BIOS Update via Network
Master Boot Record Security
Power On Authentication
Secure Erase[21]
Absolute Persistence Module[22]
Pre-boot Authentication

Software
HP Native Miracast Support[23,19] HP Connection Optimizer
HP Hotkey Support
HP Noise Cancellation Software[19]
Supported protocols: Microsoft RDP; HP RGS; VMware® Horizon RDP/PCoIP, Blast Extreme; Citrix® ICA/HDX*
*Protocols are dependent on operating system installed

Manageability Features
HP Thin Update
HP Device Manager
HP BIOS Config Utility (BCU)

Client Security Software
HP Fingerprint Sensor[24,19]
HP Power On Authentication
Windows Defender[25,19]

Security Management
Pre-boot Authentication
TPM 2.0 Embedded Security Chip shipped with Windows 10 (Common Criteria EAL4+ Certified)[26,19]
SATA 0,1 port disablement (via BIOS)
USB enable/disable (via BIOS)
Power-on password (via BIOS)
Setup password (via BIOS)
Support for chassis padlocks and cable lock devices
HP Sure Start For AMD[27]

[19]Feature is not compatible with HP ThinPro/HP Smart Zero.
[20] HP BIOSphere Gen5 is available on select HP Pro and Elite PCs. See product specifications for details. Features may vary depending on the platform and configurations.
[21] 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.
[23]Miracast is a wireless technology your PC can use to project your screen to TVs, projectors, and streaming.
[24]HP Fingerprint Sensor sold separately or as an optional feature.
[25]Windows Defender Opt in and internet connection required for updates.

Features

[26]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).

[27]HP Sure Start for AMD is available on select HP PCs with AMD processors. See product specifications for availability.

Features

POWER

Power Supply

HP Smart 45 W External AC power adapter[28]
HP Smart 45 W External AC power adapter, 2-prong (Japan only)[28]
HP Smart 65 W External AC power adapter[28]
HP Smart 65 W EM External AC power adapter[28]
45 W USB Type-C™ adapter[28]
65 W USB Type-C™ adapter[28]

Primary Battery

HP Long Life 3-cell, 50 Wh Li-ion[29,30]
Support HP Fast Charge (Up to 50% in 30 minutes with 65W AC Adapter)[29,30]

Power Cord

2-wire plug - 1.0m[28]
3-wire plug - 1.0m[28]
3-wire plug - 1.8m[28]
Duckhead power cord - 1.0m[28]
Duckhead power cord - 1.8m[28]

[28]Availability may vary by country.
[29]Battery is internal and not replaceable by customer. Serviceable by warranty.
[30]Recharges the battery up to 50% within 30 minutes when the system is off or in standby mode. Power adapter with a minimum capacity of 65 watts is required. After charging has reached 50% capacity, charging will return to normal. Charging time may vary +/-10% due to System tolerance.

WEIGHTS & DIMENSIONS

Weight

Starting at 3.37 lbs (non-touch); Starting at 3.48 lbs (touch)[31]
Starting at 1.53 kg (non-touch); Starting at 1.58 kg (touch)[31]

Product Dimensions (w x d x h)

Non- Touch

12.84 x 9.22 x 0.7 in
32.6 x 23.43 x 1.79 cm

Touch
12.84 x 9.22 x 0.71 in
32.6 x 23.43 x 1.81 cm

[31]Weight will vary by configuration.

Features

PORTS/SLOTS

Ports

1 USB Type-C™ (Alt Mode)
1 USB 3.1 Gen 1 (Charging)
1 HDMI 2.0[32]
1 RJ-45 / Ethernet
1 Docking connector
1 Headphone/microphone Combo
1 AC power
1 SIM card slot[16]
1 Smartcard reader[16]

[16]Sold as an optional feature.
[32]HDMI cable sold separately.

SERVICE AND SUPPORT

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.[33]

[33] HP Care Services are optional. 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.

Technical Specifications

SYSTEM UNIT

Stand-Alone Power Requirements (AC Power)	**Nominal Operating Voltage**	19 V
	Average Operating Power	**Windows 10**
	Integrated graphics	15W
	Max Operating Power	UMA < 45W
Temperature	**Operating**	32° to 95° F (0° to 35° C)
	Non-operating	-4° to 140° F (-20° to 60° C)
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 [42]
	EPEAT® 2019	Yes, Registered Silver in United States[43]
	Australia / NZ RCM Compliance	Yes
	CCC	Yes
	Japan VCCI Compliance	Yes
	KC	Yes
	BSMI	Yes
	CE Marking Compliance	Yes
	GOST	Yes
	Saudi Arabian Compliance (ICCP)	Yes
	UKRSERTCOMPUTER	Yes

[34]Configurations of the HP mt45 Mobile Thin Client that are ENERGY STAR® certified are identified as HP mt45 Mobile Thin Client ENERGY STAR on HP websites and on http://www.energystar.gov.
[35]EPEAT® 2019 registered where applicable. EPEAT® registration varies by country. See http://www.epeat.net for registration status by country. According to IEEE 1680.1-2018.

Technical Specifications

DISPLAYS

Panel LCD 14 inch diagonal FHD (1920 x 1080) Anti-Glare WLED UWVA 45 percent cg 250 nits eDP slim NB	**Outline Dimensions** (W x H)	316.17 x 197.98mm (max.)
	Active Area	309.37 x 174.02mm (typ.)
	Weight	280 g max
	Diagonal Size	14”
	Thickness	3.0mm max.
	Interface	eDP 1.2 (2 lane)
	Surface Treatment	Anti-Glare
	Touch Enabled	No
	Contrast Ratio	600:1 (typical)
	Refresh Rate	60Hz
	Brightness	250 nits
	Pixel Resolution	1920 x 1080 (FHD)
	Format	RGB
	Backlight	LED
	Color Gamut Coverage	45%
	Color Depth	6 bits
	Viewing Angle	UWVA 85/85/85/85

Panel LCD 14 inch diagonal FHD (1920 x 1080) Anti-Glare WLED UWVA 45 percent cg 250 nits eDP slim Touch on Panel Narrow Bezel	**Outline Dimensions** (W x H)	316.112 x 197.98 mm (max)
	Active Area	309.37 x 174.02 mm (typ.)
	Weight	290 g max
	Diagonal Size	14”
	Thickness	3.0 mm (panel side) / 3.2 mm (PCBA Side) (max)
	Interface	eDP 1.2
	Surface Treatment	Anti-Glare On-cell
	Touch Enabled	Yes
	Contrast Ratio	600:1 (typ.)
	Refresh Rate	60Hz
	Brightness	250 nits
	Pixel Resolution	1920 x 1080 (FHD)
	Format	RGB
	Backlight	LED
	Color Gamut Coverage	45%
	Color Depth	6 bits
	Viewing Angle	UWVA 85/85/85/85

Privacy mode, CR>2, L/R/U/D, 50/50/85/85 (typical)

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

STORAGE

SSD 128 GB 2280 M2 SATA-3 TLC	**Form Factor**	M.2 2280	
	Capacity	128 GB	
	NAND Type	TLC	
	Height	0.09 in (2.3 mm)	
	Width	0.87 in (22 mm)	
	Weight	0.02 lb (10 g)	
	Interface	ATA-8, SATA 3.0	
	Performance	**Maximum Sequential Read**	**Performance**
		Around 540 ~ 560 MB/s	Around 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® 9260 802.11a/b/g/n/ac (2 x 2) Wi-Fi® and Bluetooth® 5.1 Combo[1] Non-vPro™	**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
	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

Technical Specifications

	•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)
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
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: +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/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
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

Technical Specifications

	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 Wireless Technology		
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)	
Signaling Data Rate	Legacy: 3 Mbps signaling data rate[1] 2.17 Mbps BLE: 1 Mbps signaling data rate[1] 0.2 Mbps 1. Actual throughput may vary. 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	
Electrical Interface	USB 2.0 compliant	
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)

[1]Wireless access point and Internet service is required. Availability of public wireless access point is limited.
[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).

802.11a/b/g/n/ac (2 x 2) Wi-Fi® and Bluetooth® 4.2 Combo[1]	**Wireless LAN Standards**	IEEE 802.11a IEEE 802.11b IEEE 802.11g IEEE 802.11n IEEE 802.11ac
	Interoperability	Wi-Fi® certified
	Frequency Band	802.11b/g/n • 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
	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: +14dBm minimum • 802.11g: +12dBm minimum • 802.11a: +12dBm minimum

Technical Specifications

	• 802.11n HT20(2.4GHz): +12dBm minimum • 802.11n HT40(2.4GHz): +12dBm minimum • 802.11n HT20(5GHz): +10dBm minimum • 802.11n HT40(5GHz): +10dBm minimum • 802.11ac VHT80(5GHz): +10dBm minimum
Power Consumption	• 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	Type 2230 : 2.3 x 22.0 x 30.0 mm
Weight	Type 2230: 2.8 g
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 Wireless Technology	
Bluetooth Specification	4.0/4.1/4.2 Compliant
Frequency Band	2402 to 2480 MHz
Number of Available Channels	Legacy : 0~79 (1 MHz/CH) BLE : 0~39 (2 MHz/CH)
Signaling Data Rate	Legacy: 3 Mbps signaling data rate[1] 2.17 Mbps BLE: 1 Mbps signaling data rate[1] 0.2 Mbps 1. Actual throughput may vary. Legacy: Synchronous Connection Oriented links up to 3, 64 kbps, voice channels

Technical Specifications

	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
Electrical Interface	USB 2.0 compliant
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)

[1]Wireless access point and Internet service is required. Availability of public wireless access point is limited.
[2]The FCC has declared as of September 1, 2014 products that utilize passive scanning on channel 12/13 and are capable of transmitting must fully comply with requirements of 15.247 or otherwise disable those channels.
[3]Check latest software/driver release for updates on supported security features.
[4]Receiver sensitivity is measured at a packet error rate of 8% for 802.11b (CKK modulation) and a packet error rate of 10% for 802.11a/g (OFDM modulation).

Intel® XMM™ 7360 LTE-Advanced (CAT9)[1]

Technology/Operating bands	FDD LTE: 2100 (Band 1), 1900 (Band 2), 1800 (Band 3), 1700/2100 (Band 4), 850 (Band 5), 2600 (Band 7), 900 (Band 8), 1400 (Band 11), 700 (Band 12 lower), 700 (Band 13 upper), 700 (Band 17 lower), 850 (Band 18 lower), 850 (Band 19 upper), 800 (Band 20), 1400 (Band 21), 850 (Band 26), 700 (Band 28), 700 (Band 29 RX only), 2300 (Band 30), 2100 (Band 66).

Technical Specifications

	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 and XTRA)
GPS bands	1575.42 MHz ± 1.023 MHz, GLONASS 1596-1607MHz, Beidou 1561.098 MHz
Maximum data rates	LTE: 450 Mbps (Download), 50 Mbps (Upload) DC-HSPA+: 42 Mbps (Download), 5.76 Mbps (Upload) HSPA+: 21Mbps (Download), 5.76 Mbps (Upload)
Maximum output power	LTE: 23 dBm HSPA+: 23.5 dBm
Maximum power consumption	LTE: 1,200 mA (peak); 900 mA (average) HSPA+: 1,100 mA (peak); 800 mA (average)
Form Factor	M.2, 3042-S3 Key B
Weight	5.8 g
Dimensions (Length x Width x Thickness)	42 x 30 x 2.3 mm

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

Technical Specifications

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	710.93 mW
	Detected Test Tag Type 1	152.09 mW
	Detected Test Tag Type 2	341.26 mW
	Detected Test Tag Type 3	383.76 mW
	Detected Test Tag Type 4	312.26 mW
	Antenna	Antenna connector, 0.5mm pitch, 7 connector FPC. Antenna matching is external to module.

Technical Specifications

POWER

AC Adapter 45 Watt nPFC Wall Mount USB type C Straight 1.8m C6NS	**Dimensions** (H x W x D)	62.0x62.0x28.5mm	
	Weight	unit: 220g +/- 10g	
	Input	**Input Efficiency**	Average Efficiency of 25%, 50%, 75%, 100% load condition with 115Vac/230Vac Spec: 5V : 81.5% 9V : 86.7% 10V : 87.5% 12V : 87.8% 15V :87.8% 20V : 87.8%
		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	5V: 81.5%
		Hold-up time	9V: 86.7%
		Output current limit	10V: 87.5%
	Connector	Non-Standard C6	
	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 45 Watt Smart nPFC Standard Barrel 4.5 mm Right Angle 1.8 m	**Dimensions** (H x W x D)	95.0x40.0x26.5mm	
	Weight	unit: 200g +/- 10g	
	Input	**Input Efficiency**	87.74% at 115Vac 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**	45W
		DC output	19.5V
		Hold-up time	5 ms at 115Vac input
		Output current limit	<8.0A
	Connector	C6	

Technical Specifications

	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 45 Watt Smart nPFC Standard Barrel 4.5 mm Right Angle 1.8 m 2prong	**Dimensions** (H x W x D)	95.0x40.0x26.5mm	
	Weight	unit: 200g +/- 10g	
	Input	**Input Efficiency**	87.74% at 115Vac 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**	45W
		DC output	19.5V
		Hold-up time	5 ms at 115Vac input
		Output current limit	<8.0A
	Connector	C6	
	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 nPFC USB type C™ Straight 1.8 m C6NS	**Dimensions** (H x W x D)	74x74x28.5mm	
	Weight	unit: 245g +/- 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 @ 10V/5A 88% min at 115 Vac/ 230Vac @ 12V/5A

Technical Specifications

		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/10V/12V/15V/20V
	Hold-up time	5 ms at 115 Vac input
	Output current limit	<8.0A
Connector	Non-Standard C6	
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	5% to 95%
	Storage Humidity	5% 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

AC Adapter 65 Watt Smart nPFC EM Barrel 4.5 mm New EM	**Dimensions**	102x55x30mm	
	Weight	unit: 250g +/- 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	C6	
	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 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 4.5 mm Right Angle 1.8 m	**Dimensions**	90.0 x 51 x 28.5 mm	
	Weight	unit: 230 g +/- 10 g	
		Input Efficiency	88.0 % at 115 Vac and 89.0 % at 230Vac
	Input	**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 msec at 115 VAC input
		Output current limit	<11.0A
	Connector	C6	
	Environmental Design	4.5mm Barrel Type	
		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%

Technical Specifications

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 SS 3 Cell 50 WHr Long Life -PL	**Dimensions** (L x W x H)	L 278.7 mm x W 76.3 mm x H 7.1 mm	
	Weight	193 +/- 10g	
	Cells/Type	3cell Lithium-Ion Polymer cell / P604883A1	
	Energy	**Voltage**	11.55V
		Amp-hour capacity	4.113Ah/ 4.330Ah
		Watt-hour capacity	50wh
	Temperature	**Operating (Charging)**	0˚ to 50˚ C
		Operating (Discharging)	-10˚ to 60˚ C
	Warranty	Based on system offering, refer to http://www.hp.com/support/batterywarranty/ for battery information	
	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 Essential Top Load Case	H2W17AA
	HP Essential Backpack	H1D24AA
	HP 17.3 Business Backpack	2SC67AA
	HP 15.6 Business Top Load	2SC66AA
Docking	HP UltraSlim Docking Station	D9Y32AA
	HP UltraSlim Docking Station TAA US	E5C22AV
	HP Thunderbolt Dock 120W G2	2UK37AA
	HP Thunderbolt Dock 120W G2 TAA	2UK37AA
	HP TB Dock Audio Module	3AQ21AA
	HP TB Dock 120W G2 cable	3XB94AA
	HP TB Dock G2 combo cable	3XB96AA
	HP USB-C™ Universal Dock	1MK33AA
	HP USB-C™ Dock G4	3FF69AA
	HP USB-C™ Mini Dock	1PM64AA
	HP USB Travel Dock	T0K30AA
	HP USB-C™ Universal Dock	1MK33AA
	HP USB-C™ Universal Dock w/4.5mm Adapter	2UF95AA
	HP USB-C™ Universal Dock w/4.5mm Adapter - non-flash version	3DV65AA
	HP USB-C™ Dock G5	5TW10AA
	HP USB-C™/A Universal Dock G2	5TW13AA
Input/Output	HP Slim Wireless Keyboard and Mouse	T6L04AA
	HP Slim USB Keyboard and Mouse	T6T83AA
	HP Wireless (Link-5) Keyboard	T6U20AA
	HP USB Essential Keyboard and Mouse	H6L29AA
	HP Conferencing Keyboard	K8P74AA
	HP USB Collaboration Keyboard	Z9N38AA
	HP Wireless Collaboration Keyboard	Z9N39AA
	HP Comfort Grip Wireless Mouse	H2L63AA
	HP X4000b Bluetooth Mouse	H3T50AA
	HP 3-Button USB Laser Mouse	H4B81AA
	HP USB Travel Mouse	G1K28AA
	HP Ultra Mobile Wireless Mouse	H6F25AA
	HP Slim Bluetooth Mouse to AMO	F3J92AA
	HP Wireless Premium Mouse	1JR31AA
	HP USB Premium Mouse	1JR32AA

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

	HP Essential USB Mouse	2TX37AA
	HP Elite Presenter Mouse	2CE30AA
	HP Stereo 3.5mm Headset	T1A66AA
	HP Stereo USB Headset	T1A67AA
	HP UC Wireless Mono Headset	W3K08AA
	HP UC Wireless Duo Headset	W3K09AA
	HP USB-C™ to USB-A Hub	Z6A00AA
	HP USB-C™ to DP	N9K78AA
	HP USB-C™ to VGA	N9K76AA
	HP HDMI to DVI	F5A28AA
	HP HDMI to VGA	H4F02AA
Power	HP 65W Slim AC Adapter	H6Y82AA
	HP 45W Smart AC Adapter	H6Y88AA
	HP 65W Smart AC Adapter	H6Y89AA
	HP 45W 2-prong 4.5 mm DC jack AC Adapter	L6F60AA
	HP 45W USB-C Power Adapter	1HE07AA
	HP 65W USB-C Power Adapter	1HE08AA
	65W USB-C Slim Power Adapter	3PN48AA
	HP Notebook Power Bank	N9F71AA
Storage	HP USB External DVDRW Drive	F2B56AA
Security	HP Docking Station Cable Lock	AU656AA
	HP Keyed Cable Lock	T0Y14AA
	HP Combination Lock	T0Y15AA
	HP Essential Combination Lock	T0Y16AA
	HP Keyed Cable Lock 10mm	T1A62AA
	HP Dual Head Keyed Cable Lock	T1A64AA

Summary of Changes

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

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