

Overview

HP mt32 Mobile Thin Client



Left

- | | |
|---|--|
| 1. Webcam and IR Camera (Optional) | 7. Power Button |
| 2. Webcam LED (Optional) | 8. Security Lock Slot (Lock Sold Separately) |
| 3. HP Privacy Webcam Shutter (Optional) | 9. USB-A 3.1 G1 Charging Port |
| 4. Ambient Light Sensor (Optional) | 10. USB-A 3.1 G1 |
| 5. Internal Microphones | 11. Combo audio/mic jack |
| 6. Glass Clickpad | |

Overview



Right

1. Power Connector
2. HDMI 2.0
3. USB-C® 3.1
4. 1 SIM card slot
5. Fingerprint Reader (Optional)*

* Not available on HP ThinPro and Smart Zero OS

Overview

At a Glance

- An ultralight laptop all-metal design with recycled aluminum and magnesium alloys, that breaks the 1kg barrier* with affordability.
- The next gen AMD Ryzen™ 3 Processor
- Preinstalled with Windows 10 IoT Enterprise or ThinPro OS
- Choice of 33.8 cm (13.3") diagonal ultra wide viewing angle FHD and privacy panel option
- Supports wireless options for connectivity on the go including gigabit-speed Wi-Fi 6 and CAT9 4G/LTE WWAN
- Fast and upgradeable dual channel DDR4 SODIMM memory up to 8GB
- Choice of solid state drives up to 128 GB
- Features quiet and responsive HP Premium Keyboard with Backlit Option
- Multi-layered security with HP SureStart Gen6, HP Privacy Camera, HP Sure View Reflect¹ and Touch Fingerprint sensor^{2,5}
- Supports fast charging (50% in 30 minutes) with no impact on battery recharge cycles³
- Designed to support HP docking options including the HP Universal Dock G5
- Undergoes MIL-STD 810H tests⁴
- Battery Life up to 13 hours

*WWAN, 250 nit and 1000 nit panels, 53 Whr battery, Backlit Keyboard and 2 SODIMM memory options not available on configurations starting at 1kg.

1. HP Sure View integrated privacy screen is an optional feature that must be configured at purchase and is designed to function in landscape orientation.
2. Sold separately or as an optional feature
3. HP 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 810H testing 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. Not supported on ThinPro / Smart Zero OS

NOTE: See important legal disclosures for all listed specs in their respective feature sections.

NOTE: This product is available in the Americas and Japan only.

Features

PRODUCT NAMES

HP mt32 Mobile Thin Client

OPERATING SYSTEMS

Preinstalled Windows 10 IoT 64-bit Enterprise 2019 LTSC¹
HP ThinPro²
HP Smart Zero Core²
FreeDOS 3.0

1. Not all features are available in all editions or versions of Windows. Systems may require upgraded and/or separately purchased hardware, drivers, software or BIOS update to take full advantage of Windows functionality. 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 Core OS.

PROCESSORS

AMD Ryzen™ 3 4300U APU with Radeon™ Graphics (2.7 GHz base clock, up to 3.7 GHz max boost clock, 4 MB L3 cache, 4 cores)^{3,4,5}

Processors Family

AMD Ryzen™ 4000 Series Mobile Processors⁶

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. 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™ Graphics [6]

Features

AMD Radeon™ Graphics⁶

Supports

Support HD decode, DX12, HDMI2.0

6. HD content required to view HD images.

DISPLAYS

Non-Touch

- 33.8 cm (13.3") diagonal FHD UWVA eDP anti-glare WLED-backlit bent, 250 nits, 45% NTSC (1920 x 1080) ^{1,2,3}
- 33.8 cm (13.3") diagonal FHD UWVA eDP anti-glare WLED-backlit bent, 250 nits, 45% NTSC for HD camera (1920 x 1080) ^{1,2,3}
- 33.8 cm (13.3") diagonal FHD UWVA eDP anti-glare WLED-backlit bent, 250 nits, 45% NTSC for HD + IR camera (1920 x 1080) ^{1,2,3}
- 33.8 cm (13.3") diagonal FHD UWVA eDP+PSR anti-glare, low power bent with Ambient Light Sensor, 400 nits, 100% sRGB for HD + IR camera (1920 x 1080) ^{3,5}
- 33.8 cm (13.3") diagonal FHD UWVA eDP+PSR anti-glare, low power bent with Ambient Light Sensor, 400 nits, 100% sRGB for HD + IR camera for WWAN (1920 x 1080) ^{3,5}
- 33.8 cm (13.3") diagonal FHD UWVA eDP + PSR anti-glare WLED-backlit bent, 1000 nits with HP Sure View Reflect Integrated Privacy Screen, 72% NTSC with Ambient Light Sensor and HD + IR camera (1920 x 1080) ^{1,2,3,4}

HDMI 2.0

Support resolution up to 4k @ 60Hz

4K @ 60Hz requires dual channel memory (i.e. the 2 x 4GB memory config.) Only supports 4K @ 30Hz with single channel memory.

Display Size

13.3"

33.8 cm (13.3")

1. HD content required to view HD images.
2. Sold separately or as an optional feature.
3. Resolutions are dependent upon monitor capability, and resolution and color depth settings.
4. HP Sure View integrated privacy screen is an optional feature that must be configured at purchase and is designed to function in landscape orientation.
5. Actual brightness will be lower with touchscreen or Sure View.

STORAGE AND DRIVES

Primary M.2 Storage

128 GB M.2 SATA-3 TLC Solid State Drive ⁶

6. For storage drives, GB = 1 billion bytes. TB = 1 trillion bytes. Actual formatted capacity is less.

MEMORY



Features

Maximum Memory

8 GB DDR4-3200 SDRAM

Memory⁷

8 GB DDR4-3200 SDRAM (1 x 8 GB)

8 GB DDR4-3200 SDRAM (2 x 4 GB)

4 GB DDR4-3200 SDRAM (1 x 4 GB)*

Memory Slots

2 SODIMM

Both slots are accessible/upgradeable by IT or self-maintainers only

DDR4 SODIMMS, system runs at 3200

Supports Dual Channel Memory

*Not available on Windows 10 IoT Enterprise OS

7. 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

WLAN

Intel® AX200 Wi-Fi 6 (2x2) and Bluetooth® 5 Combo, non-vPro®¹

Realtek RTL8822CE 802.11ac (2x2) and Bluetooth® 5 Combo¹

WWAN

Intel® XMM™ 7360 LTE-Advanced Cat 9^{2,3}

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

AUDIO/MULTIMEDIA

Audio

Integrated microphone (Dual Array)

2 Integrated Stereo Speakers

Speaker Power

2W/4ohm Per speaker

Camera

720p HD camera^{4,5}

720p HD+IR camera^{4,5,6}



Features

Sensors

Ambient light sensor (select models only)

Hall Sensor

4. HD content required to view HD images.
5. Sold separately or as an optional feature.
6. Not supported on HP ThinPro / Smart Zero OS

KEYBOARDS/POINTING DEVICES/BUTTONS & FUNCTION KEYS

Keyboard

HP Premium Keyboard, spill resistant, Durakeys

Optional backlit and Sure View keyboard⁷

Pointing Device

Clickpad with multi-touch gestures enabled, taps enabled as default

Microsoft Precision Touchpad Default Gestures Support⁸

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

Print Screen

Power Button (with LED)

Hidden Functions

Fn+R - Break

Fn+S - Sys Rq

Fn+C - Scroll Lock

Fn+E - Insert

Fn+W - Pause

7. Backlit keyboard is an optional feature.
8. Not supported on HP ThinPro and Smart Zero

SOFTWARE AND SECURITY

BIOS

HP BIOSphere Gen5¹³

HP DriveLock & Automatic DriveLock

Features

BIOS Update via Network
Power On Authentication
HP Secure Erase¹⁴
Absolute Persistence Module¹⁵
HP LAN-Wireless Protection
Pre-boot Authentication

Software

HP Connection Optimizer^{25,30}
HP Native Miracast Support^{16,30}
HP Hotkey Support³⁰
HP USB Port Manager³⁰
HP Noise Cancellation Software³⁰

Manageability Features

HP BIOS Config Utility (BCU)
HP Device Manager
HP ThinUpdate³⁰
HP Write Manager³⁰
Microsoft System Center Configuration Manager^{20,30}

Client Security Software

Windows Defender^{24,30}

Security Management

USB enable/disable (via BIOS)
Power-on password (via BIOS)
Setup password (via BIOS)
HP Fingerprint Sensor^{28,30}
Support for chassis padlocks and cable lock devices
HP Sure Start Gen6²⁷
TPM 2.0

13. 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.
14. For the methods outlined in the National Institute of Standards and Technology Special Publication 800-88 "Clear" sanitation method.
15. 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

Features

Pre-Authorization Agreement and either obtain a PIN or purchase one or more RSA SecurID tokens from Absolute Software.

16. Miracast via Wireless Display adapter is a wireless technology your PC can use to project your screen to TVs, projectors, and streaming media players that also support Miracast. You can use Miracast to share what you're doing on your PC and present a slide show. For more information: <http://windows.microsoft.com/en-us/windows-8/project-wireless-screen-miracast>

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

25. HP Connection Optimizer requires Windows 10.

27. HP Sure Start Gen6 is available on select HP PCs and requires Windows 10.

28. HP Fingerprint sensor is an optional feature that must be configured at purchase.

30. Not supported on ThinPro / Smart Zero OS

POWER

Power Supply

HP Smart 45 W External AC power adapter ³⁰

HP Smart 45 W External AC power adapter, 2-prong (Japan only) ³⁰

HP Smart 45 W USB Type-C[®] adapter ³⁰

HP Smart 65 W External AC power adapter ³⁰

HP Smart 65 W EM External AC power adapter ³⁰

HP Smart 65 W USB Type-C[®] adapter ³⁰

Primary Battery

HP Long Life 3-cell, 42 Wh Li-ion ^{31,32}

HP Long Life 3-cell, 53 Wh Li-ion ^{31,32}

Support HP Fast Charge (Up to 50% in 30 minutes with 65W AC Adapter)^{31,32}

Power Cord

2-wire plug - 1.0m ³⁰

3-wire plug - 1.0m ³⁰

Battery life

Up to 13 hours (3-cell 53 WHr battery)³³

Battery Weight

42W battery: 0.168 kg (0.37 lb)

53W battery: 0.205g (0.45 lb)

30. Availability may vary by country.

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

32. Supports HP Fast Charge with 65W AC Adapter. 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.

33. Windows 10 MM14 battery life will vary depending on various factors including product model, configuration, loaded applications, features, use, wireless functionality, and power management settings. The maximum capacity of the battery will naturally decrease with time and usage. See www.bapco.com for additional details.

WEIGHTS & DIMENSIONS

Product Weight

Starting at 2.2 lb ³⁴

Starting at 0.99 kg ³⁴



Features

Product Dimensions (w x d x h)

12.11 x 8.05 x 0.71 in

30.76 x 20.45 x 1.79 cm

34. Weight may vary by configuration. WWAN, 250 nit and 1000 nit panels, 53 WHr battery, backlit keyboard, and 2 SODIMM memory options not available on configurations starting at less than .99kg.

PORTS/SLOTS

Ports

1 USB 3.1 Type-C® Gen1 (Power delivery, DisplayPort™ 1.4)

2 USB 3.1 Gen 1 (1 charging port)

1 HDMI 2.0³⁵

1 headphone/microphone combo

1 AC power

1 SIM card slot³⁶

35. HDMI cable sold separately.

36. SIM slot is not user accessible without WWAN configuration.

Features

SERVICE AND SUPPORT

Warranty

HP Services offers 3-year and 1-year limited warranties and 90-day software limited warranty options depending on country. Batteries have a default one year limited warranty except for Long Life batteries which will have same 1-year or 3-year limited warranty as the platform. 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 Look up Tool at <http://www.hp.com/go/cpc> ¹

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

CERTIFICATION AND COMPLIANCE

ENERGY STAR® certified
EPEAT® Gold in the U.S.²
Low halogen ³
TCO Certified

2. Based on US EPEAT® registration according to IEEE 1680.1-2018 EPEAT®. Status varies by country. Visit www.epeat.net for more information.
3. 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	19 V
	Average Operating Power	2.82W
	Integrated graphics	6.78W
	Discrete Graphics	N/A
Temperature	Max Operating Power	UMA < 45W
	Operating	41° to 95° F (5° 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®	Selected models ¹
	EPEAT	EPEAT 2019 Golden in United States ¹
	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	

1. Configurations of the HP mt32 Mobile Thin Client that are ENERGY STAR® qualified are identified as HP mt32 Mobile Thin Client ENERGY STAR on HP websites and on <http://www.energystar.gov>.

Technical Specifications

2. 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.

DISPLAYS

Panel LCD 13.3 inch FHD (1920x1080) Anti-Glare WLED UWVA 45percent cg 250nits eDP 1.2 w/o PSR bent NWBZ	Outline Dimensions (W x H)	300.56 x 177.77 mm (max) (FPC folding included)
	Active Area	293.76 x 165.24 mm (typ.)
	Weight	260 g (max)
	Diagonal Size	13.3 inch
	Thickness	3.0 mm/ 5.0 mm (PCB) (max)
	Interface	eDP 1.2 (2lane)
	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	
Viewing Angle	UWVA 85/85/85/85	

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

Panel LCD 13.3 inch FHD (1920x1080) Anti-Glare WLED UWVA sRGB 100percent cg 400nits eDP 1.4+PSR2 bent LP NB2Y	Outline Dimensions (W x H)	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/ PSR II (2 lane)
	Surface Treatment	Anti-Glare
	Touch Enabled	No
	Contrast Ratio	1500:1 (typ.)
	Refresh Rate	60 Hz
	Brightness	400 nits
	Pixel Resolution	1920 x 1080 (FHD)

Technical Specifications

Format	RGB Stripe
Backlight	LED
Color Gamut Coverage	sRGB 100%
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 vary either higher or lower.

Panel LCD 13.3-in FHD (1920x1080) Anti-Glare WLED UWVA 72percent cg 1000nits eDP 1.4+PSR PrivacyG4	Outline Dimensions (W x H)	299.06 x 176.54 mm (max)
	Active Area	293.76 x 165.24 mm (typ.)
	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 (AG)
	Touch Enabled	No
	Contrast Ratio	1500:1 (typ.)
	Refresh Rate	60 Hz
	Brightness	1000 nits
	Pixel Resolution	1920 x 1080 (FHD)
	Format	RGB
	Backlight	LED
Color Gamut Coverage	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 vary either higher or lower.

Technical Specifications

STORAGE AND DRIVES

SOLID STATE DRIVES

SSD 128GB 2280 M2 SATA-3 TLC	Form Factor	M.2 2280
	Capacity	128 GB
	NAND Type	TLC
	Height	0.09 in (2.3 mm)
	Width	0.87 in (22 mm)
	Weight	0.02 lb (10 g)
	Interface	ATA-8, SATA 3.0
	Maximum Sequential Read	550 ~ 560 MB/s
	Maximum Sequential Write	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

Technical Specifications

NETWORKING/COMMUNICATIONS

WLAN

Intel Wi-Fi 6 AX200 + BT5 (802.11ax 2x2, non-vPro, supporting gigabit file transfer speeds) non-vPro	Wireless LAN Standards	<ul style="list-style-type: none"> 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	<ul style="list-style-type: none"> 802.11b/g/n/ax <ul style="list-style-type: none"> • 2.402 – 2.482 GHz 802.11a/n/ac/ax <ul style="list-style-type: none"> • 4.9 – 4.95 GHz (Japan) • 5.15 – 5.25 GHz • 5.25 – 5.35 GHz • 5.47 – 5.725 GHz • 5.825 – 5.850 GHz
	Data Rates	<ul style="list-style-type: none"> • 802.11b: 1, 2, 5.5, 11 Mbps • 802.11g: 6, 9, 12, 18, 24, 36, 48, 54 Mbps • 802.11a: 6, 9, 12, 18, 24, 36, 48, 54 Mbps • 802.11n: MCS 0 ~ MCS 15, (20MHz, and 40MHz) • 802.11ac : MCS0 ~ MCS9, (1SS, and 2SS) (20MHz, 40MHz, ,80MHz & 160MHz) • 802.11ax : MCS0 ~ MCS11, (1SS and 2SS) (20MHz, 40MHz, ,80MHz & 160MHz)
	Modulation	<p>Direct Sequence Spread Spectrum</p> <p>OFDM, BPSK, QPSK, CCK, 16-QAM, 64-QAM, 256-QAM, 1024QAM</p>
	Security¹	<ul style="list-style-type: none"> • 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 • IEEE 802.11i • WAPI
	Network Architecture Models	<p>Ad-hoc (Peer to Peer)</p> <p>Infrastructure (Access Point Required)</p>

Technical Specifications

Roaming	IEEE 802.11 compliant roaming between access points				
Output Power^[2]	<ul style="list-style-type: none"> • 802.11b : +18.5dBm minimum • 802.11g : +17.5dBm minimum • 802.11a : +18.5dBm minimum • 802.11n HT20(2.4GHz) : +15.5dBm minimum • 802.11n HT40(2.4GHz) : +14.5dBm minimum • 802.11n HT20(5GHz) : +15.5dBm minimum • 802.11n HT40(5GHz) : +14.5dBm minimum • 802.11ac VHT80(5GHz) : +11.5dBm minimum • 802.11ac VHT160(5GHz) : +11.5dBm minimum • 802.11ax HT40(2.4GHz) : +10dBm minimum • 802.11ax VHT160(5GHz) : +10dBm minimum 				
Power Consumption	<ul style="list-style-type: none"> • Transmit mode 2.0 W • Receive mode 1.6 W • Idle mode (PSP) 180 mW (WLAN Associated) • Idle mode 50 mW (WLAN unassociated) • Connected Standby 10mW • Radio disabled 8 mW 				
Power Management	ACPI and PCI Express compliant power management 802.11 compliant power saving mode				
Receiver Sensitivity^[3]	<ul style="list-style-type: none"> • 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				
Form Factor	Two embedded dual band 2.4/5 GHz antennas are provided to the card to support WLAN MIMO communications and Bluetooth communications				
Dimensions	PCI-Express M.2 MiniCard				
Weight	<ol style="list-style-type: none"> 1. Type 2230: 2.3 x 22.0 x 30.0 mm 2. Type 1216: 1.67 x 12.0 x 16.0 mm 				
Operating Voltage	<ol style="list-style-type: none"> 1. Type 2230: 2.8g 2. Type 126: 1.3g 				
Temperature	3.3v +/- 9%				
Humidity	<table border="0"> <tr> <td style="padding-right: 20px;">Operating</td> <td>14° to 158° F (-10° to 70° C)</td> </tr> <tr> <td>Non-operating</td> <td>-40° to 176° F (-40° to 80° C)</td> </tr> </table>	Operating	14° to 158° F (-10° to 70° C)	Non-operating	-40° to 176° F (-40° to 80° C)
Operating	14° to 158° F (-10° to 70° C)				
Non-operating	-40° to 176° F (-40° to 80° C)				
Altitude	<table border="0"> <tr> <td style="padding-right: 20px;">Operating</td> <td>10% to 90% (non-condensing)</td> </tr> <tr> <td>Non-operating</td> <td>5% to 95% (non-condensing)</td> </tr> </table>	Operating	10% to 90% (non-condensing)	Non-operating	5% to 95% (non-condensing)
Operating	10% to 90% (non-condensing)				
Non-operating	5% to 95% (non-condensing)				
LED Activity	<table border="0"> <tr> <td style="padding-right: 20px;">Operating</td> <td>0 to 10,000 ft (3,048 m)</td> </tr> <tr> <td>Non-operating</td> <td>0 to 50,000 ft (15,240 m)</td> </tr> </table> <p>LED Amber – Radio OFF; LED White – Radio ON</p>	Operating	0 to 10,000 ft (3,048 m)	Non-operating	0 to 50,000 ft (15,240 m)
Operating	0 to 10,000 ft (3,048 m)				
Non-operating	0 to 50,000 ft (15,240 m)				

Technical Specifications

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 + 4 dBm for BR and EDR.

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/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)
Modulation	Direct Sequence Spread Spectrum
Security¹	BPSK, QPSK, CCK, 16-QAM, 64-QAM, 256-QAM • IEEE and Wi-Fi certified 64 / 128 bit WEP encryption for a/b/g mode only

Technical Specifications

	<ul style="list-style-type: none"> • AES-CCMP: 128 bit in hardware • 802.1x authentication • WPA, WPA2: 802.1x. WPA-PSK, WPA2-PSK, TKIP, and AES. • WPA2 certification • IEEE 802.11i • 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]	<ul style="list-style-type: none"> • 802.11b : +18.5dBm minimum • 802.11g : +17.5dBm minimum • 802.11a : +18.5dBm minimum • 802.11n HT20(2.4GHz) : +15.5dBm minimum • 802.11n HT40(2.4GHz) : +14.5dBm minimum • 802.11n HT20(5GHz) : +15.5dBm minimum • 802.11n HT40(5GHz) : +14.5dBm minimum • 802.11ac VHT80(5GHz) : +11.5dBm minimum
Power Consumption	<ul style="list-style-type: none"> • Transmit mode :2.0 W • Receive mode :1.6 W • Idle mode (PSP) 180 mW (WLAN Associated) • Idle mode :50 mW (WLAN unassociated) • Connected Standby/Modern Standby: 10mW • Radio disabled: 8 mW
Power Management	ACPI and PCI Express compliant power management 802.11 compliant power saving mode
Receiver Sensitivity^[3]	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)

Technical Specifications

Altitude	Non-operating	5% to 95% (non-condensing)
	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 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 + 4 dBm for BR and EDR.

Intel® XMM™ 7360 LTE-Advanced*

Technology/Operating bands	FDD LTE: LTE: 2100 (Band 1), 1900 (Band 2), 1800 (Band 3), 1700 (Band 4), 850 (Band 5), 2600 (Band 7), 900 (Band 8), 1400 (Band 11), 700 (Band 12), 700 (Band 13), 700 (Band 17), 850 (Band 18), 850 (Band 19), 800 (Band 20), 1450 (Band 21), 850 (Band 26), 700 (Band 28) MHz, 700 (Band 29), 2300 (Band 30), 2100 (Band 66) MHz TDD LTE: 2600 (Band 38), 1900 (Band 39), 2300 (Band 40), 2500 (Band 41) MHz HSPA+: 2100 (Band 1), 1900 (Band 2), 1700 (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-B and LTO)
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 g
Dimensions (Length x Width x Thickness)	42 x 30 x 2.3 mm

Technical Specifications

* Mobile Broadband is an optional feature and requires configuration at purchase. 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.

Fingerprint Reader

Model	Synaptics Validity VFS7604 touch sensor
Mobile Voltage Operation	3.0V to 3.6V
Operating Temperature	0~60°C
Current Consumption	100mA Max
Image	
Low Latency Wait For Finger	260 uA
Capture Rate	Image transmitter output frequency 9.6MHz
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

POWER

AC Adapter 45 Watt Smart nPFC Standard Barrel 4.5mm Right Angle 1.8m (Cupid)	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 ~ 63 Hz
	Output	Input AC current	Max. 1.4 A at 90 Vac
		Output power	45W
		DC output	19.5V
		Hold-up time	5 msec at 115 VAC input
		Output current limit	<8.0A
	Connector	4.5mm Barrel Type	
	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 4.5mm Right Angle 1.8m 2prong (Cupid)	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 ~ 63 Hz
	Output	Input AC current	Max. 1.4 A at 90 Vac
		Output power	45W
		DC output	19.5V
		Hold-up time	5 msec at 115 VAC input
		Output current limit	<8.0A
	Connector	4.5mm Barrel Type	
	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

EMI and Safety Certifications	Altitude	0 to 16,400 ft (0 to 5,000 m)
	Humidity	20% to 95%
	Storage Humidity	10% to 95%
	<p>*CE Mark - full compliance with LVD and EMC directives</p> <p>* 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.</p> <p>* MTBF - over 200,000 hours at 25°C ambient condition.</p>	

AC Adapter 65 Watt Smart nPFC Standard Barrel 4.5mm Right Angle 1.8m (Hera)	Dimensions (H x W x D)	90x51x28.5mm	
	Weight	unit: 230g +/- 10g	
	Input	Input Efficiency	88.0 % at 115 Vac and 89.0 % at 230Vac
		Input frequency range	47 ~ 63 Hz
	Output	Input AC current	Max. 1.7 A at 90 Vac
		Output power	65W
		DC output	19.5V
		Hold-up time	5ms at 115 Vac input
		Output current limit	<11.0A
	Connector	4.5mm Barrel Type	
	Environmental Design	Operating temperature	32° 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	<p>*CE Mark - full compliance with LVD and EMC directives</p> <p>* 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.</p> <p>* MTBF - over 200,000 hours at 25°C ambient condition.</p>		

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
	Output	Input AC current	Max. 1.7 A at 90 Vac
Output power		65W	

Technical Specifications

Connector	DC output	19.5V	
	Hold-up time	5ms at 115 Vac input	
	Output current limit	<11.0A	
	Connector	4.5mm Barrel Type	
	Environmental Design	Operating temperature	32° 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 nPFC Standard USB type C® Straight 1.8m (DALI+)	Dimensions (H x W x D)	94.0mm*40.0mm*26.5mm		
	Weight	192.5g +/-10%		
	Input	Input Efficiency	Average Efficiency of 25%, 50%, 75%, 100% load condition with 115Vac/230Vac Spec: 5V : 81.5% 9V : 86.7% 12V : 87.41% 15V : 87.8%	
		Input frequency range	47 ~ 63Hz	
		Input AC current	Max. 1.4 A at 90 Vac	
		Output	Output power	5V/15W 9V/27W 12V/36W 15V/45W
			DC output	5V/9V/12V/15V
	Hold-up time		5ms at 115 Vac input	
	Output current limit		<5.0A	
	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%		

Technical Specifications

	Storage Humidity	10% to 95%
EMI and Safety Certifications	<p>*CE Mark - full compliance with LVD and EMC directives</p> <p>* 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.</p> <p>* MTBF - over 200,000 hours at 25°C ambient condition.</p>	

AC Adapter 65 Watt nPFC Standard USB type C® Straight 1.8m (Ceto)	Dimensions (H x W x D)	90.0x51x28.5mm
	Weight	unit: 250g +/- 10g
	Input	<p>Input Efficiency</p> <p>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</p> <p>Input frequency range</p> <p>47 ~ 63 Hz</p> <p>Input AC current</p> <p>1.6 A at 90 VAC and maximum load</p>
	Output	<p>Output power</p> <p>65W</p> <p>DC output</p> <p>5V/9V/12V/15V/20V</p> <p>Hold-up time</p> <p>5ms at 115 Vac input</p> <p>Output current limit</p> <p>8.0A Max.</p>
	Connector	USB Type-C®
	Environmental Design	<p>Operating temperature</p> <p>32° to 95° F (0° to 35° C)</p> <p>Non-operating (storage) temperature</p> <p>-4° to 185° F (-20° to 85° C)</p> <p>Altitude</p> <p>0 to 16,400 ft (0 to 5,000 m)</p> <p>Humidity</p> <p>20% to 95%</p> <p>Storage Humidity</p> <p>10% to 95%</p>
	EMI and Safety Certifications	<p>*CE Mark - full compliance with LVD and EMC directives</p> <p>* 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.</p> <p>* MTBF - over 200,000 hours at 25°C ambient condition.</p>

Battery CC 3 Cell WHr 53 Long Life -PL Fast Charge	Dimensions (H x W x L)	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

Technical Specifications

Energy	Voltage	11.55V
	Amp-hour capacity	4.59Ah
	Watt-hour capacity	53Wh
Temperature	Temperature	32° to 113° F (0° to 45° C)
	Operating (Charging)	32° to 122° F (0° to 50° C)
	Operating (Discharging)	14° to 140° F (-10° to 60° C)
Fuel Gauge LED	N/A	
Warranty	Depends on system offering	
Optional Travel Battery Available	No	

Battery GR 3 Cell WHr 42 Long Life -PL Fast Charge

Dimensions (H x W x L)	5.8 x 61.5 x 274.4 mm (0.228 x 2.42 x 10.80 inch)	
Weight	0.168 kg (0.37 lb)	
Cells/Type	3cell Lithium-Ion Polymer cell / 485083	
Energy	Voltage	11.4V
	Amp-hour capacity	3.64Ah
	Watt-hour capacity	42Wh
Temperature	Operating (Charging)	32° to 113° F (0° to 45° C)
	Operating (Discharging)	14° to 122° F (-10° to 60° C)
Fuel Gauge LED	N/A	
Warranty	Depends on system offering	
Optional Travel Battery Available	No	

ENVIRONMENTAL & INDUSTRY

Environmental Data	Eco-Label Certifications & declarations	<p>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:</p> <ul style="list-style-type: none"> • IT ECO declaration • US ENERGY STAR® • EPEAT® Gold registered in the United States. See http://www.epeat.net for registration status in your country. Search keyword <i>generator</i> on HP's 3rd party option store for solar energy accessory at http://www.hp.com/go/options
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Technical Specifications

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, 60Hz
Normal Operation (Short idle)	TBD	TBD	TBD
Normal Operation (Long idle)	TBD	TBD	TBD
Sleep	TBD	TBD	TBD
Off	TBD	TBD	TBD
	<p>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 for a typically configured PC featuring a hard disk drive, a high efficiency power supply, and a Microsoft Windows® operating system.</p>		
Heat Dissipation*	115VAC, 60Hz	230VAC, 50Hz	100VAC, 60Hz
Normal Operation (Short idle)	TBD	TBD	TBD
Normal Operation (Long idle)	TBD	TBD	TBD
Sleep	TBD	TBD	TBD
Off	TBD	TBD	TBD
	<p>*Note: Heat dissipation is calculated based on the measured watts, assuming the service level is attained for one hour.</p>		
Declared Noise Emissions (in accordance with ISO 7779 and ISO 9296)	Sound Power (L _{WAd} , bels)		Sound Pressure (L _{pAm} , decibels)
Typically Configured – Idle	TBD		TBD
Fixed Disk – Random writes	TBD		TBD
Longevity and Upgrading	This product can be upgraded, possibly extending its useful life by several years. Upgradeable features and/or components contained in the product may include: <ul style="list-style-type: none"> • 3 USB ports 		
Batteries	This battery(s) in this product comply with EU Directive 2006/66/EC Batteries used in the product do not contain: Mercury greater the1ppm by weight Cadmium greater than 20ppm by weight		

Technical Specifications

		<p>Battery size: CR2032 (coin cell) Battery type: Lithium</p>		
	Additional Information	<ul style="list-style-type: none"> 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 contains 0% post-consumer recycled plastic (by wt.) This product is 94.4% recycle-able when properly disposed of at end of life. 		
	Packaging Materials	External:	PAPER/Corrugated	TBD
		Internal:	PLASTIC/EPE (Expanded Polyethylene)	TBD
			PLASTIC/Polyethylene low density	TBD
		The plastic packaging material contains at least 50% recycled content.		
		The corrugated paper packaging materials contains at least 75% recycled content.		
	Material Usage	<p>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/pdf/gse.pdf):</p> <ul style="list-style-type: none"> Asbestos Certain Azo Colorants Certain Brominated Flame Retardants – may not be used as flame retardants in plastics Cadmium Chlorinated Hydrocarbons Chlorinated Paraffins 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, has been voluntarily removed from most applications. Radioactive Substances Tributyl Tin (TBT), Triphenyl Tin (TPT), Tributyl Tin Oxide (TBTO) 		

Technical Specifications

	Packaging Usage	<p>HP follows these guidelines to decrease the environmental impact of product packaging:</p> <ul style="list-style-type: none"> • 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.
	End-of-life Management and Recycling	<p>HP Inc. 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.</p> <p>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 HP Inc. 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.</p>
	HP, Inc. Corporate Environmental Information	<p>For more information about HP's commitment to the environment:</p> <p>Global Citizenship Report http://www.hp.com/hpinfo/globalcitizenship/gcreport/index.html</p> <p>Eco-label certifications http://www8.hp.com/us/en/hp-information/environment/ecolabels.html</p> <p>ISO 14001 certificates: http://h20195.www2.hp.com/V2/GetDocument.aspx?docname=c04755842 http://www.hp.com/hpinfo/globalcitizenship/environment/pdf/cert.pdf</p>

Country of Origin

China

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

Type	Description	Part Number
Cases	HP Prelude Pro Top Load	1X645AA
	HP Prelude Pro Backpack	1X644AA
	HP Business Backpack (17.3")	2SC67AA
	HP Business Case (15.6")	2SC66AA
	HP Business Slim Top Load (14.1")	2SC65AA
	HP 14.1 Business Sleeve	2UW01AA
	HP 13.3 Business Sleeve	2UW00AA
Docking	HP USB-C Mini Dock*	1PM64AA
	HP Thunderbolt Dock 120W G2*	2UK37AA
	HP TB Dock G2 w/ Combo Cable*	3TR87AA
	HP TB Dock 120W G2 w/Audio*	3YE87AA
	HP TB Dock 120W G2 Cable *	3XB94AA
	HP TB Dock G2 Combo Cable*	3XB96AA
	HP TB Dock G2 Audio Module*	3AQ21AA
	HP USB-C/A Universal Dock G2*	5TW13AA
HP USB-C Dock G5*	5TW10AA	
Input/Output	HP USB Essential Keyboard and Mouse	H6L29AA
	HP Ultra Mobile Wireless Mouse	H6F25AA
	HP Bluetooth Travel Mouse	6SP30AA
	HP Comfort Grip Wireless Mouse	H2L63AA
	HP Wired Desktop 320M Mouse	9VA80AA
	HP USB Travel Mouse	G1K28AA
	HP HDMI to DVI Adapter	F5A28AA
	HP Elite USB-C Hub	4WX89AA
	HP USB-C Travel Hub G2	7PJ38AA
HP Type-C to RJ45 adapter	V7W66AA	
Power	HP 45W Smart AC Adapter 4.5mm	H6Y88AA
	HP 45W Smart Power Adapter 2 prong -4.5mm (Japan only)	L6F60AA#ABJ
	HP 65W Smart Power Adapter (w/ 4.5mm to 7.5mm DC dongle)	H6Y89AA
	HP 65W Slim AC Adapter	H6Y82AA
	HP 65W USB-C Slim Power Adapter	3PN48AA
	HP 65W USB-C Power Adapter	1HE08AA
	HP 45W USB-C Power Adapter	1HE07AA
	HP Power Bank	N9F71AA
Storage	HP External USB Optical Drive	F2B56AA
Security	HP Sure Key Cable Lock	6UW42AA



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

HP Nano Keyed Cable Lock

1AJ39AA

[*Not supported on ThinPro / Smart Zero OS](#)

Summary of Changes

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

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