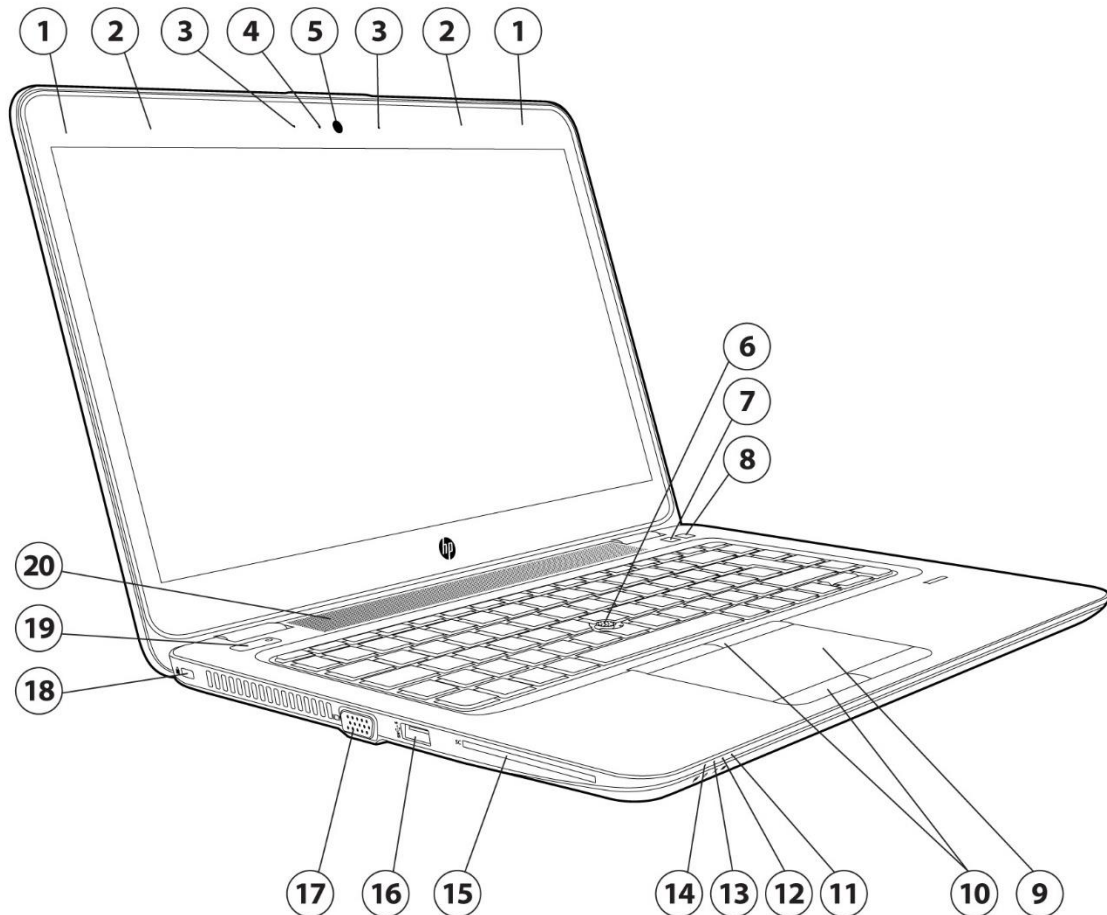


Overview

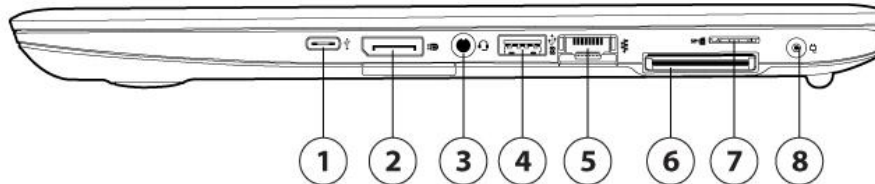
HP mt42 Mobile Thin Client



Front/Left

- | | |
|--------------------------------------|------------------------------------|
| 1. WLAN antennas (2) | 11. Storage Usage light indicator |
| 2. WWAN antennas (2) (select models) | 12. Battery charge light indicator |
| 3. Internal microphones (2) | 13. Power light indicator |
| 4. Webcam LED | 14. Wireless light indicator |
| 5. Webcam | 15. Smart card reader |
| 6. Pointstick | 16. USB 3.0 charging port |
| 7. Wireless on/off button | 17. VGA port |
| 8. Speaker mute button | 18. Security lock slot |
| 9. Touchpad | 19. Power button |
| 10. Touchpad buttons (4) | 20. Audio Speakers |

Overview



1. USB-C™
2. Display Port
3. Microphone/headphones combo jack
4. USB 3.0

Right

5. RJ-45/ Ethernet port
6. Docking connector
7. Micro SIM card slot
8. Power connector

Overview

AT A GLANCE

- Windows Embedded Standard 7E (32-bit), Windows 10 IoT Enterprise for Thin Clients
- Accelerated Processing Unit and graphics from AMD
- Memory up to 8 GB
- 14.0-inch diagonal LED-backlit display
- DisplayPort for high resolution support
- Supports dual-display ports through optional docking station and up to 3 independent displays when on the HP 2013 UltraSlim Docking Station
- Wireless LAN and WAN connectivity options
- HD webcam with dual-microphone array for video conferencing
- Audio by Bang & Olufsen optimized for high fidelity audio
- Security features including Security lock slot, TPM 1.2/2.0 & TPM Enhanced Drive Lock, Integrated Smart Card Reader, and Pre-boot Authentication (Password, Smart Card)

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

Features

OPERATING SYSTEM

Preinstalled Windows Embedded Standard 7E (32-bit)¹
Windows 10 IoT Enterprise for Thin Clients²

1. Not all features are available in all editions of Windows Embedded 8.1 Industry Pro (64-bit). Systems may require upgraded and/or separately purchased hardware, drivers and/or software to take full advantage of Windows Embedded 8.1 Industry Pro (64-bit) functionality. See <http://www.microsoft.com> for details.
2. 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.microsoft.com>.

ACCELERATED PROCESSING UNIT

AMD A8-Pro-8600B APU with Radeon™ R6 Graphics (1.66 up to 3 GHz, 2 MB cache, 4 cores)

GRAPHICS

Integrated Graphics

AMD Radeon™ R6 Graphics - with shared video memory

Supports dual-display ports through optional docking station¹
Supports 3 independent displays when on the HP 2013 UltraSlim Docking Station¹

1. Sold separately or as an optional feature.

DISPLAY

Internal

14.0" diagonal LED backlit FHD Slim eDP SVA anti-glare (1920 x 1080) with camera¹

1. HD content required to view HD images.

External

Up to 32-bit per pixel color depth

VGA

Port supports resolutions up to 1920 x 1200 external resolution @75 Hz

DisplayPort

Supports resolutions up to 3200 x 2000 @ 60Hz
Resolutions are dependent upon monitor capability, and resolution and color depth settings.

Number of Displays supported with Docking

Supports dual-display ports through optional docking station¹
Supports 3 independent displays when on the HP 2013 UltraSlim Docking Station¹

1. Sold separately or as an optional feature.

NOTE: Resolutions are dependent upon monitor capability, and resolution and color depth settings.



Features

STORAGE AND DRIVES

Mini Card Solid State Drive

32GB M.2 (NGFF) 2242 Solid State Drive (SSD)

NOTE: For hard drives and solid state drives, GB = 1 billion bytes. TB = 1 trillion bytes. Actual formatted capacity is less.

MEMORY

Standard

DDR3L PC3L-12800 (Transfer rates up to 1600 MT/s)

Two SODIMM slots supporting dual-channel memory

Supports the following configurations

4096 MB Total System Memory (4096 MB x 1)

8192 MB Total System Memory (4096 MB x 2)

Maximum

Up to 8 GB¹

Dual-channel

Maximized dual-channel performance requires SODIMMs of the same size and speed in both memory slots.

1. With Windows 32-bit operating systems, memory above 3 GB may not all be available due to system resource requirements.

NOTE: Memory speed is dependent on processor. 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

Wireless WAN (WWAN)¹

HP lt4120 LTE/HSPA+ 4G Mobile Broadband

HP hs3110 HSPA+ Mobile Broadband

Wireless LAN (WLAN) Via MiniCard

Broadcom 943228 a/b/g/n (2x2) dual band 802.11 with Bluetooth® 4.0 LE ²

Intel® 7265 802.11ac(2x2) + Bluetooth® 4.2 Combo

Wireless Personal Area Network (WPAN)

Bluetooth 4.0 supported via combo card

1. WWAN use requires separately purchased service contract and factory configuration. 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, and in all regions.
2. All wireless options are sold separately or as optional features. For all 802.11 wireless, wireless access point and Internet service is required and is not included. Availability of public wireless access points limited.

Features

Communications

Broadcom 5762 10/100/1000 Ethernet NIC with DASH Support

NOTE: 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.

AUDIO/MULTIMEDIA

Audio

Bang & Olufsen

HP Clear Sound Amp

HP Noise Reduction Software

Digital Microphones (Dual Array)

2 Premium Stereo Speakers

Webcam¹

720p HD² webcam

1. Internet access required.
2. HD content required to view HD images.

KEYBOARDS/POINTING DEVICES/BUTTONS & FUNCTION KEYS

HP Premium Keyboard

The HP spill-resistant keyboard is designed using a thin layer of Mylar film under the keyboard and includes an all-metal keyboard deck for greater rigidity. The 101/102-key compatible keyboard features a full-pitch key layout with desktop keyboard features, such as editing keys, both left and right control and alt keys, and function keys. U.S. and International key layouts are available.

Pointing Devices On/Off button

Taps enabled as default

Gestures enabled by default - 2 Finger Scrolling, 2 Finger Zoom (Pinch)

Buttons and Function Keys

F1 - Sleep

F2 - Blank

F3 - Blank

F4 - Display Switching

F5 - Brightness Down

F6 - Brightness Up

F7 - Blank

F8 - Volume Down

F9 - Volume Up

F10 - Mic Mute

F11 - Blank

F12 - Num lock

Features

SOFTWARE AND SECURITY

HP Software

HP Velocity
HP Easy Shell
HP Device Manager

Security

Security lock slot
TPM 1.2/2.0 & TPM Enhanced Drive Lock
Integrated Smart Card Reader
Preboot Authentication (Password, Smart Card)

Note: 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).

POWER

Power Supply

HP 45W Smart AC Adapter
HP 45W 2-prong DC jack AC Adapter (Japan and England only)
HP 65W Smart AC Adapter EM (Asia, China and India only)

Power cord is localized:

2-wire cord (only available with 45W 2-prong AC Adapter)
3-wire cord(with ground pin)(not available with 2-prong adapter)

Available in 2 lengths:

3.2 feet or 6 feet (1.0 or 1.8 meter)
Total length including external AC adapter is 9.2 feet or 12 feet (2.86 or 3.66 meter)

Primary Battery

HP 3-cell Long Life Li-Ion 46 WHr (4.08Ahr)

NOTE: 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.

Battery Life

Up to 8 hours 15 minutes¹

System Standby Time

Up to 204 hours

Power Conservation

Standby
ACPI compliance

1. Windows 8.1/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.

Features

WEIGHTS & DIMENSIONS

Weight¹

Starting at 3.41 lbs (1.54 kg)

(3-cell battery (46Whr), UMA, no FPR, 1 SODIMM, WLAN, M.2 SSD, no camera, no WWAN, FHD Panel)

Dimensions² (w x d x h)

13.3 x 9.3 x 0.74 in

338 x 237 x 18.9 mm

1. Weight varies by configuration and components.
2. Height varies depending upon where on the thin client the measurement is made.

PORTS/SLOTS

Ports**Left side:**

- (1) USB 3.0 Charging Port
- (1) VGA

Right side:

- (1) USB Basic Type-C™
- (1) DisplayPort
- (1) RJ-45 / Ethernet
- (1) Docking connector
- (1) Headphone/Microphone Combo
- (1) Power connector

NOTE: Cables are not included.

Expansion slots

- (1)SD media reader (Supports SD, SDHC, SDXC)
- (1)SC reader
- (1)Micro SIM Slot

SERVICE AND SUPPORT

HP Support offers 3-year, 1-year and 90 day 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. 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>.

1. Sold separately or as an optional feature.
2. 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. Consult the HP Customer Support Center for details. <http://h20000.www2.hp.com/bizsupport/TechSupport/ProductRoot.jsp>

Technical Specifications

SYSTEM UNIT

TBD

Technical Specifications

DISPLAYS

14.0" diagonal LED backlit FHD Slim eDP SVA anti-glare (1920 x 1080)	Outline Dimensions (W x H x D)	12.6 x 8.09 x 0.12 in (32.09 x 20.56 x 0.3 cm)
	Active Area	12.18 x 6.85 in (30.93 x 17.4 cm)
	Weight	0.75 lb. (340 g) (max)
	Diagonal Size	14.0 in (35.6cm)
	Surface Treatment	Anti-glare
	Contrast Ratio	300:1 (min)
	Refresh Rate	60 Hz
	Brightness	300 nit (typical)
	Pixel Resolution	Format 1920 x 1080 (FHD)
		Configuration RGB Stripe
	Interface	eDP 1.2+PSR (2 lane)
	LCD Mode	IPS/FFS/AHVA
	PPI	157 ppi
	Viewing Angle	SVA 40/40/15/30 (Left/Right/Down/Up)

STORAGE AND DRIVES

32GB M.2 SATA-3 Solid State Drive	Drive Weight	0.019 lb (8.5 g)-0.022 lb (10 g)
	Capacity	32 GB
	Height	0.09 in (2.23 mm)- 0.14 in (3.58 mm)
	Width	0.87 in (22 mm)
	Interface	ATA-8, SATA 3.0
	Performance	Maximum Sequential Read Up to 540 MB/s (Compressible Performance)
		Maximum Sequential Write
	Logical Blocks	
	Operating Temperature	32° to 158°F (0° to 70°C) [ambient temp]
	Features	ATA Security, DIPM; TRIM; DEVSLP

Technical Specifications

SECURITY

Smart Card Reader	<p>Smart card standard PC/SC 2.0 for Windows smart card standard</p> <p>Dimensions (L x W x H) 0.41x 0.08 x 0.32 in (10.5 x 2 x 8.2 mm)</p> <p>Smart Card support ISO 7816 Class A and AB smart cards</p> <p>Smart Card Interface Smart Card Interface with T = 0 and T = 1 support</p> <p>Support I2C memory card, SLE4418, SLE4428, SLE4432, SLE4442, SLE4436, SLE5536, SLE6636, AT88SC1608, AT45D041 card and AT45DB041 card via external EEPROM</p>
Operating systems	No driver is required for this device. Native support is provided by the operating system.
Power	<p>Normal Mode With card present, before being suspended: 40.9 mA Without card present, before being suspended: 33.16 mA After being suspended with smart card present: 380 μA After being suspended without smart card present: 380 μA</p> <p>Power Saving Mode With card present, before being suspended: 40.6 mA Without card present: 380 μA After being suspended with smart card present: 380 μA</p>
Features	<ul style="list-style-type: none"> • Support single slot • Support T0, T1 protocol • Support I2C memory card, SLE4418, SLE4428, SLE4432, SLE4442, SLE4436, • SLE5536, SLE6636, AT88SC1608, AT45D041 card and AT45DB041 card via external EEPROM • Support ISO7816 Class A, B and C (5V/3V/1.8V) card • Implemented as an USB full speed device with bulk transfer endpoint, Mass • Storage endpoint • Built-in PLL for USB and Smart Card clocks requirement • Support EEPROM for USB descriptors customization (PID/VID/iManufacturer/iProduct/Serial Number), Direct Web Page Link, and accessing memory card module. • EEPROM programmable via USB interface • Support software update for memory card module • Support Direct Web Page Link via configuration in external EEPROM • Support short APDU and extended APDU • Compatible with Microsoft USB-CCID driver • Support remote wake up through inserting card/removing card • Support USB selective suspend • Support Power Saving Mode (Using one pin to select between Normal/PWR Saving Mode) • Support card power over current protection mechanism • Built in resonator.

Technical Specifications

- Support USB LPM (Link Power Management) features.
- Embedded clock source.

NETWORKING/COMMUNICATIONS

Broadband Wireless (WWAN)

<p>HP It4120 LTE/EVDO/HSPA+ Gobi 4G Mobile Broadband Module</p>	<p>Technology/Operating Bands</p>	<p>LTE: 2100 (Band 1), 1900 (Band 2), 1800 (Band 3), 1700/2100 (Band 4), 850 (Band 5), 2600 (Band 7), 900 (Band 8), 700 (Band 12 lower), 700 (Band 13 upper), 700 (Band 17 lower), 800 (Band 20), 700 (Band 28). HSPA+: 2100 (Band 1), 1900 (Band 2), 1700/2100 (Band 4), 850 (Band 5), 900 (Band 8) MHz EV-DO: 850 (BC0), 1900 (BC1) MHz (Only work with Verizon network) E-GPRS: 1900 (Band 2), 1800 (Band 3), 850 (Band 5), 900 (Band 8) MHz</p>
	<p>Wireless Protocol Standards</p>	<p>3GPP Release 10 LTE Specification CAT.4, 20MHz BW WCDMA R99, 3GPP Release 5, 6, 7 and 8 UMTS Specification 1xEVDO Release 0, A and B. E-GPRS: Class B, Multi-slot class 12, coding schemes CS1 - CS4 and MSC1 - MSC9</p>
	<p>GPS</p>	<p>Standalone, A-GPS (MS-A, MS-B and XTRA)</p>
	<p>GPS bands</p>	<p>1575.42 MHz ± 1.023 MHz, GLONASS 1596-1607MHz</p>
	<p>Maximum data rates</p>	<p>LTE: 150 Mbps (Download), 50 Mbps (Upload) DC-HSPA+: 42 Mbps (Download), 5.76 Mbps (Upload) HSPA+: 21Mbps (Download), 5.76 Mbps (Upload) CDMA 1xRTT: 153.6 kbps (Download), 153.6 kbps (Upload) EVDO Rel.A: 3.1 Mbps (Download), 1.8 Mbps (Upload) EVDO Rel.B: 14.7 Mbps (Download), 5.4Mbps (Upload) EDGE: 236.8 kbps (Download), 236.8 kbps (Upload) GPRS: 85.6 kbps(Download), 85.6 kbps (Upload)</p>
	<p>Maximum output power</p>	<p>LTE: 23 dBm HSPA+: 23.5 dBm 1xRTT/EVDO: 24dBm E-GPRS 1900/1800: 26 dBm E-GPRS 900/850: 27 dBm GPRS 1900/1800: 29.5 dBm GPRS 900/850: 32.5 dBm</p>
	<p>Maximum power consumption</p>	<p>LTE: 1,200 mA (peak); 900 mA (average) HSPA+: 1,100 mA (peak); 800 mA (average) 1xRTT/EVDO: 1,000 mA (peak); 700 mA (average) E-GPRS: 2,800 mA (peak); 500 mA (average)</p>
	<p>Form Factor</p>	<p>M.2, 3042-S3 Key B</p>
	<p>Weight</p>	<p>6.2 g</p>
	<p>Dimensions (Length x Width x Thickness)</p>	<p>42 x 30 x 2.3 mm</p>

* 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



Technical Specifications

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.

HP hs3110 HSPA+ Intel® Mobile Broadband Module*	Technology/Operating Bands	HSPA+: 2100 (Band 1), 1900 (Band 2), 1700 (Band 4), 850 (Band 5), 900 (Band 8) MHz E-GPRS: 1900 (Band 2), 1800 (Band 3), 850 MHz (Band 5), 900 (Band 8) MHz
	Wireless Protocol Standards	E-GPRS: Class B, Multi-slot class 33, coding schemes CS1 - CS4 and MSC1 - MSC9. UMTS/WCDMA: Release 99 and Release 7
	Maximum Data Rates	HSPA+: 21.6 Mbps (Download), 5.76 Mbps (Upload) HSPA: 7.2 Mbps (Download), 5.76 Mbps (Upload) WCDMA PS: 384 kbps (Download), 384 kbps (Upload) WCDMA CS: 64 kbps (Download), 64 kbps (Upload) E-GPRS: 296 kbps (Download), 236.8 kbps (Upload) GPRS: 107 kbps (Download), 85.6 kbps (Upload)
	GPS	Standalone, A-GPS
	GPS Bands	1575.42 MHz (± 1.023 MHz), GLONASS 1596-1607MHz
	Maximum Output Power	HSPA+: 24 dBm E-GPRS 1800/1900: 26 dBm E-GPRS 850/900: 27 dBm GPRS 1800/1900: 30 dBm GPRS 850/900: 33 dBm
	Maximum Power Consumption	2500 mA (peak); 600 mA (average)
	Form Factor	M.2, 3042-S3 Key B
	Weight	6g
	Dimensions (Length x Width x Thickness)	1.65 x 1.18 x 0.09 in (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.	

Wireless LAN (WLAN)

Broadcom 943228 Dual Band 802.11 a/b/g/n (2x2) Bluetooth 4.0 Combo	Wireless LAN Standards	IEEE 802.11a IEEE 802.11b IEEE 802.11g IEEE 802.11n
	Interoperability	Wi-Fi certified
	Frequency Band	802.11b/g/n <ul style="list-style-type: none"> • 2.402 – 2.482 GHz

Note: The FCC has declared as of January 1, 2015 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.

- 802.11a
 - 4.9 – 4.95 GHz (Japan)



Technical Specifications

- 5.15 – 5.25 GHz
- 5.25 – 5.35 GHz
- 5.47 – 5.725 GHz
- 5.825 – 5.850 GHz

NOTE: Indonesia only supports 5.725 - 5.825 GHz (CH149 - CH161)

Antenna Structure	2 transmit; 2 receive (2x2)
Data Rates	802.11a: 6, 9, 12, 18, 24, 36, 48, 54 Mbps 802.11b: 1, 2, 5.5, 11 Mbps 802.11g: 6, 9, 12, 18, 24, 36, 48, 54 Mbps 802.11n: MCS 0 ~ MCS 15, (20MHz, and 40MHz)
Modulation	Direct Sequence Spread Spectrum CCK, BPSK, QPSK, 16-QAM, 64-QAM
Security¹	<ul style="list-style-type: none">• IEEE and WiFi compliant 64 / 128 bit WEP encryption for a/b/g mode only• AES-CCMP: 128 bit in hardware• 802.1x authentication• WPA, WPA2: 802.1x. WPA-PSK, WPA2-PSK, TKIP, and AES.• WPA2 certification• IEEE 802.11i• Cisco Certified Extensions, all versions through CCX4 and CCX Lite• WAPI
Sub-channels	Multinational support with frequency bands and channels compliant to local regulations.
Network Architecture	Ad-hoc (Peer to Peer)
Models	Infrastructure (Access Point Required)
Roaming	IEEE 802.11 compliant roaming between band Access Points
Output Power	<ul style="list-style-type: none">• 802.11b : +16dBm minimum• 802.11g : +14dBm minimum• 802.11a : +14dBm minimum• 802.11n HT20(2.4GHz) : +13dBm minimum• 802.11n HT40(2.4GHz) : +13dBm minimum• 802.11n HT20(5GHz) : +12dBm minimum• 802.11n HT40(5GHz) : +12dBm minimum
Power Consumption	Transmit: 2.0 W (max) Receive: 1.6 W (max) Idle mode (PSP): 180 mW (WLAN Associated) Idle mode: 60 mW (WLAN unassociated) Radio disabled: 30 mW
Power Management	ACPI and PCI Express compliant power management 802.11 compliant power saving mode
Receiver Sensitivity	802.11b, 1Mbps : -94dBm maximum 802.11b, 11Mbps : -86dBm maximum 802.11g, 6Mbps : -88dBm maximum 802.11g, 54Mbps : -74dBm maximum 802.11a, 6Mbps : -86dBm maximum 802.11a, 54Mbps : -72dBm maximum

Technical Specifications

	802.11n, MCS07 : -69dBm maximum 802.11n, MCS15 : -66dBm 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 and Bluetooth communications
Form factor	PCI-Express M.2 MiniCard
Dimensions	Type 2230 : 2.3 x 22.0 x 30.0 mm Or Type 1630 : 2.3 x 16.0 x 30.0 mm
Weight	Type 2230 : 2.8g Or Type 1630 : 2g
Operating Voltage	3.3v +/- 9%
Temperature	Operating 14° to 158° F (-10° to 70° C) Non-operating -40° to 176° F (-40° to 80° C)
Humidity	Operating 10% to 90% (non-condensing) Non-operating 5% to 95% (non-condensing)
Altitude	Operating 0 to 10,000 ft (3,048 m) Non-operating 0 to 50,000 ft (15,240 m)
LED Activity	LED Amber - Radio OFF; LED White - Radio ON

1. Check latest software/driver release for updates on supported security features.
2. Maximum output power may vary by country according to local regulations.
3. 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).

HP Integrated Module with Bluetooth 4.0+EDR Wireless Technology

Bluetooth Specification	4.0+EDR Compliant												
Frequency Band	2402 to 2480 MHz												
Number of Available Channels	79 (1 MHz) available channels												
Data Rates and Throughput	3 Mbps data rate; throughput up to 2.17 Mbps Synchronous Connection Oriented links up to 3, 64 kbps, voice channels Asynchronous Connection Less links 2178.1 kbps/177.1 kbps asymmetric or 1306.9 kbps symmetric												
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.												
Receiver Sensitivity	<table border="1"> <thead> <tr> <th>Modulation</th> <th>0.01% BER</th> <th>0.001% BER</th> </tr> </thead> <tbody> <tr> <td>GFSK</td> <td>-80 dBm</td> <td>-70 dBm</td> </tr> <tr> <td>$\pi/4$-DQPSK</td> <td>-80 dBm</td> <td>-70 dBm</td> </tr> <tr> <td>8DPSK</td> <td>-80 dBm</td> <td>-70 dBm</td> </tr> </tbody> </table>	Modulation	0.01% BER	0.001% BER	GFSK	-80 dBm	-70 dBm	$\pi/4$ -DQPSK	-80 dBm	-70 dBm	8DPSK	-80 dBm	-70 dBm
Modulation	0.01% BER	0.001% BER											
GFSK	-80 dBm	-70 dBm											
$\pi/4$ -DQPSK	-80 dBm	-70 dBm											
8DPSK	-80 dBm	-70 dBm											
Power Consumption	Peak (Tx) 330 mW Peak (Rx) 230 mW Selective Suspend 17 mW												



Technical Specifications

Range	Up to 33 ft (10 m)
Electrical Interface	USB 2.0 compliant
Bluetooth Software Supported	Microsoft Windows Bluetooth Software
Link Topology	
Electrical Interface	Point to Point, Multipoint Pico Nets up to 7 slaves
Bluetooth Software Supported	Full support of Bluetooth Security Provisions
Security	
Power Management	Microsoft Windows ACPI, and USB Bus Support Self-configurable to optimize power conservation in all operating modes, including Standby, Hold, Park, and Sniff
Security Certifications	All necessary regulatory approvals for supported countries, including: FCC (47 CFR) Part 15C, Section 15.247 & 15.249
Bluetooth Profiles Supported	
Power Management	ETS 300 328, ETS 300 826
Certifications	Low Voltage Directive IEC950, UL, CSA, and CE Mark
Bluetooth Profiles Supported	Serial Port Profile (SPP) ¹ Service Discovery Application Profile (SDAP) Dial-Up Networking (DUN) ^{1,2} Generic Object Exchange Profile (GOEP) ^{1,2} Object Push Profile (OPP) ^{1,2} File Transfer Profile (FTP) Synchronization Profile (SYNC) Hard Copy Cable Replacement (HCRP) ^{1,2} Personal Area Networking Profile (PAN) ^{1,2} Human Interface Device Profile (HID) ^{1,2} FAX Profile (FAX) Basic Imaging Profile (BIP) ² Headset Profile (HSP) Hands Free Profile (HFP) Advanced Audio Distribution Profile (A2DP)

Technical Specifications

Intel® 7265 802.11ac(2x2) + Bluetooth 4.2 Combo	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 <ul style="list-style-type: none">2.402 – 2.482 GHz Note: The FCC has declared as of January 1, 2015 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.
		802.11a <ul style="list-style-type: none">4.9 – 4.95 GHz (Japan)5.15 – 5.25 GHz5.25 – 5.35 GHz5.47 – 5.725 GHz5.825 – 5.850 GHz Note: Indonesia only supports 5.725 - 5.825 GHz (CH149 - CH161)
	Data Rates	<ul style="list-style-type: none">802.11b: 1, 2, 5.5, 11 Mbps802.11g: 6, 9, 12, 18, 24, 36, 48, 54 Mbps802.11a: 6, 9, 12, 18, 24, 36, 48, 54 Mbps802.11n: MCS 0 ~ MCS 15, (20MHz, and 40MHz)802.11ac : MCS0 ~ MCS9, (1SS, and 2SS) (20MHz, 40MHz, and 80MHz)
	Modulation	Direct Sequence Spread Spectrum BPSK, QPSK, CCK, 16-QAM, 64-QAM, 256-QAM
	Security¹	<ul style="list-style-type: none">IEEE and WiFi compliant 64 / 128 bit WEP encryption for a/b/g mode onlyAES-CCMP: 128 bit in hardware802.1x authenticationWPA, WPA2: 802.1x. WPA-PSK, WPA2-PSK, TKIP, and AES.WPA2 certificationIEEE 802.11iCisco Certified Extensions, all versions through CCX4 and CCX LiteWAPI
	Network Architecture Models	Ad-hoc (Peer to Peer) Infrastructure (Access Point Required)



Technical Specifications

Roaming	IEEE 802.11 compliant roaming between access points
Output Power²	<ul style="list-style-type: none">• 802.11b : +16dBm minimum• 802.11g : +14dBm minimum• 802.11a : +14dBm minimum• 802.11n HT20(2.4GHz) : +13dBm minimum• 802.11n HT40(2.4GHz) : +13dBm minimum• 802.11n HT20(5GHz) : +12dBm minimum• 802.11n HT40(5GHz) : +12dBm minimum• 802.11ac 80MHz(5GHz) : +11dBm minimum
Power Consumption	Transmit: 2.0 W (max) Receive: 1.6 W (max) Idle mode (PSP): 180 mW (WLAN Associated) Idle mode: 60 mW (WLAN unassociated) Radio disabled: 30 mW
Power Management	ACPI and PCI Express compliant power management 802.11 compliant power saving mode
Receiver Sensitivity³	802.11b, 1Mbps : -94dBm maximum 802.11b, 11Mbps : -86dBm maximum 802.11g, 6Mbps : -88dBm maximum 802.11g, 54Mbps : -74dBm maximum 802.11a, 6Mbps : -86dBm maximum 802.11a, 54Mbps : -72dBm maximum 802.11n, MCS07 : -69dBm maximum 802.11n, MCS15 : -66dBm maximum 802.11ac, 1SS, MCS-0 : -86dBm maximum 802.11ac, 1SS, MCS-9 : -61dBm maximum 802.11ac, 2SS, MCS-0 : -83dBm maximum 802.11ac, 2SS, MCS-9 : -58dBm 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 Or Type 1630 : 2.3 x 16.0 x 30.0 mm
Weight	Type 2230 : 2.8g Or Type 1630 : 2g
Operating Voltage	3.3v +/- 9%

Technical Specifications

Temperature	Operating	14° to 158° F (–10° to 70° C)
	Non-operating	–40° to 176° F (–40° to 80° C)
Humidity	Operating	10% to 90% (non-condensing)
	Non-operating	5% to 95% (non-condensing)
Altitude	Operating	0 to 10,000 ft (3,048 m)
	Non-operating	0 to 50,000 ft (15,240 m)
LED Activity	LED Amber – Radio OFF; LED White – Radio ON	

1. Check latest software/driver release for updates on supported security features.
2. Maximum output power may vary by country according to local regulations.
3. 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).

Technical Specifications

AUDIO/MULTIMEDIA – BANG & OLUFSEN SOUND

DTS Studio Sound™

Hardware	Implementation	ALC3228
	Function Key Volume Controls	Volume up, volume down, and mute
	Full Duplex	Yes
	Microphone In	Stereo
	Headphone/Line Out	Stereo
	Integrated Microphone	Yes, dual digital microphone array

Audio Output Quality	Frequency Response	20 Hz – 20 kHz
	Signal to Noise Ratio	>85 dB
	Total Harmonic Distortion	0.01%
	Noise Floor	-110 dB
	Play/Record Sampling Rate(s)	8 kHz – 48kHz
	DAC	16, 20 or 24-bit
	ADC	16 or 20-bit

Integrated Stereo Speakers	Power Rating	2 Watts
	Impedance	4 Ohms

POWER

HP 45W Smart AC Adapter	Dimensions (H x W x D)	3.74 x 1.57 x 1.04 in (9.5 x 4.0 x 2.65 cm)		
	Weight	0.386 lb (175g) max		
	Input	Input	90 to 265 VAC	
		Input Efficiency	87.74% at 115Vac and 88.4% at 230Vac	
		Input frequency range	47 to 63 Hz	
		Input AC current	1.4 A at 90 VAC	
	Output	Output power	45W	
		DC output	9.50V	
		Hold-up time	5 msec at 115 VAC input	
		Output current limit	<8.0A	
		Connector	3 pin/grounded, mates with interchangeable cords	
	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>	
HP 65W Smart AC Adapter EM	Dimensions	4.98 x 1.97 x 1.18 in (12.65 x 5.0 x 3.0 cm)	
	Weight	0.62 lb. (280 g)	
	Input	90 to 265 VAC	
		Input Efficiency	87% min at 115/230 VAC
		Input frequency range	47 to 63 Hz
		Input AC current	1.7 A at 90 VAC, 0.85 A at 180 VAC
	Output	Output power	65W
		DC output	19.5V
		Hold-up time	5 msec at 115 VAC input
		Output current limit	<11A, Over voltage protection- 29V max automatic shutdown
	Connector	3 pin/grounded, mates with interchangeable cords	
	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 3,048 m)
		Humidity	20% to 95%
		Storage Humidity	10% to 95%
	EMI and Safety Certifications	<p>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.</p>	
HP 3-cell Long Life Li-Ion (46.5 WHr)	Dimensions (H x W x L)	0.27 x 4.05 x 7.79in (0.68 x 10.28 x 19.8cm)	
	Weight	216.3g, 0.48lb (ATL), 217.8g, 0.48lb (COS)	
	Cells/Type	3-cell Lithium-Ion Polymer	
	Energy	Voltage	11.4V
		Amp-hour capacity	4080mAh
		Watt-hour capacity	46.5Wh
	Temperature	Operating (Charging)	32° to 113° F (0° to 45° C)
		Operating (Discharging)	14° to 140° F(-10° to 60° C)
		Non-operating	41° to 104° F (5° to 40° C)
	Fuel Gauge LED	NA	
	Warranty	1000 cycles >65% (at 23° C)	
	Optional Travel Battery Available	No	



Technical Specifications

SOFTWARE SUPPORT

Host Environment	Protocol	Microsoft Windows® Embedded	
		WES 7E (32-bit)	WE 10 IoT (64-bit)
Microsoft Remote Desktop Services	RDP	√	√
Citrix®	ICA, HDX	√	√
VMware® Horizon	RDP, PCoIP	√	√

Protocol Clients	Microsoft Windows® Embedded	
	WES 7E (32-bit)	WE 10 IoT (64-bit)
Citrix® Receiver	√	√
Microsoft Remote Desktop Client	√	√
VMware™ Horizon View™ Client	√	√
Remote Graphics Software (RGS)	√	√

Browser Support	Microsoft Windows® Embedded	
	WES 7E (32-bit)	WE 10 IoT (64-bit)
Internet Explorer	11	11

ENVIRONMENTAL

Environmental Data

Eco-Label Certifications & declarations

This product has received or is in the process of being certified to the following approvals and may be labeled with one or more of these marks:

- IT ECO declaration
- US ENERGY STAR®
- EPEAT <Gold> registered in the United States. See <http://www.epeat.net> for registration status in your country.

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 (Sort idle)	9.58 W	9.86 W	9.17 W
Normal Operation (Long idle)	6.61 W	6.86 W	6.08 W
Sleep	1.48 W	1.56 W	1.45 W
Off	0.72 W	0.85 W	0.71 W

Note:

Energy efficiency data listed is for an ENERGY STAR® compliant product if offered within the model family. HP computers marked with the ENERGY STAR® Logo are compliant with the



Technical Specifications

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.

Heat Dissipation*	115VAC, 60Hz	230VAC, 50Hz	100VAC, 60Hz
Normal Operation (Short idle)	33 BTU/hr	34 BTU/hr	31 BTU/hr
Normal Operation (Long idle)	23 BTU/hr	23 BTU/hr	21 BTU/hr
Sleep	5 BTU/hr	5 BTU/hr	5 BTU/hr
Off	2 BTU/hr	3 BTU/hr	2 BTU/hr

***NOTE:** Heat dissipation is calculated based on the measured watts, assuming the service level is attained for one hour.

Declared Noise Emissions (in accordance with ISO 7779 and ISO 9296)	Sound Power (L _{WA} , bels)	Sound Pressure (L _{pAm} , decibels)
Typically Configured – Idle	3.4	27
Fixed Disk – Random writes	3.4	27

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:

- 1 USB Charging Port
- 1 USB Basic Type-CTM
- 1 VGA
- 1 DisplayPort
- 1 Docking connector
- 1 SD media reader
- 1 SC reader
- 1 Micro SIM Slot

Spare parts are available throughout the warranty period and or for up to “5” years after the end of production.

Batteries

This battery(s) in this product comply with EU Directive 2006/66/EC

Batteries used in the product do not contain:

- Mercury greater the 1ppm by weight
- Cadmium greater than 20ppm by weight

Battery size: CR2032 (coin cell)

Battery type: Lithium

Technical Specifications

Additional Information

- This product is in compliance with the Restrictions of Hazardous Substances (RoHS) directive - 2011/65/EC.
- This HP product is designed to comply with the Waste Electrical and Electronic Equipment (WEEE) Directive – 2002/96/EC.
- This product is in compliance with California Proposition 65 (State of California; Safe Drinking Water and Toxic Enforcement Act of 1986).
- This product is in compliance with the IEEE 1680 (EPEAT) standard at the <gold> level, see www.epeat.net
- Plastics parts weighing over 25 grams used in the product are marked per ISO11469 and ISO1043.
- This product contains 0% post-consumer recycled plastic (by wt.)
- This product is 94.8% recycle-able when properly disposed of at end of life.

Packaging Materials

External:	PAPER/Corrugated	332.3 g
Internal:	PLASTIC/EPE (Expanded Polyethylene)	21.8 g
	PLASTIC/Polyethylene low density	13.6 g

The plastic packaging material contains at least 50% recycled content.

The corrugated paper packaging materials contains at least 70% recycled content.

Material Usage

This product does not contain any of the following substances in excess of regulatory limits (refer to the HP General Specification for the Environment at <http://www.hp.com/hpinfo/globalcitizenship/environment/pdf/gse.pdf>):

- 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, and certain retail packaging has been voluntarily removed from most applications.
- Radioactive Substances
- Tributyl Tin (TBT), Triphenyl Tin (TPT), Tributyl Tin Oxide (TBTO)

Technical Specifications

Packaging Usage

HP follows these guidelines to decrease the environmental impact of product packaging:

- Eliminate the use of heavy metals such as lead, chromium, mercury and cadmium in packaging materials.
- Eliminate the use of ozone-depleting substances (ODS) in packaging materials.
- Design packaging materials for ease of disassembly.
- Maximize the use of post-consumer recycled content materials in packaging materials.
- Use readily recyclable packaging materials such as paper and corrugated materials.
- Reduce size and weight of packages to improve transportation fuel efficiency.
- Plastic packaging materials are marked according to ISO 11469 and DIN 6120 standards.

End-of-life Management and Recycling

Hewlett-Packard offers end-of-life HP product return and recycling programs in many geographic areas. To recycle your product, please go to: <http://www.hp.com/go/reuse-recycle> or contact your nearest HP sales office. Products returned to HP will be recycled, recovered or disposed of in a responsible manner.

The EU WEEE directive (2002/95/EC) requires manufacturers to provide treatment information for each product type for use by treatment facilities. This information (product disassembly instructions) is posted on the Hewlett Packard web site at: <http://www.hp.com/go/recyclers>. These instructions may be used by recyclers and other WEEE treatment facilities as well as HP OEM customers who integrate and re-sell HP equipment.

Hewlett-Packard Corporate Environmental Information

For more information about HP's commitment to the environment:

Global Citizenship Report

<http://www.hp.com/hpinfo/globalcitizenship/gcreport/index.html>

Eco-label certifications

<http://www8.hp.com/us/en/hp-information/environment/ecolabels.html>

ISO 14001 certificates:

http://www.hp.com/hpinfo/globalcitizenship/environment/pdf/PC_GBU_Product_Design_ISO_14K_Certificate.pdf

and

<http://www.hp.com/hpinfo/globalcitizenship/environment/pdf/cert.pdf>

COUNTRY OF ORIGIN

China



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

<u>Type</u>	<u>Description</u>	<u>Part #</u>
<i>Docking</i>	HP 3005pr USB 3.0 Port Replicator	H1L08AA#xxx
	HP 2013 UltraSlim Docking Station TAA US	E5C22AV#ABA
<i>Input/Output – Adapters</i>	DisplayPort to DVI Adapter	F7W96AA
	DisplayPort to VGA	F7W97AA
	DisplayPort to HDMI 1.4 Adapter	F3W43AA
<i>Power Adapters</i>	HP 45W Smart AC Adapter	H6Y88AA#xxx
	HP 65W Smart AC Adapter	H6Y89AA#xxx
	HP 90W Smart AC Adapter	H6Y90AA#xxx
<i>Security</i>	HP Docking Station Cable Lock	AU656AA#XXX
	HP UltraSlim Keyed Cable Lock	H4D73AA
<i>Headset</i>	HP Wired Headset	K7V17AA
<i>Phone</i>	HP Speaker Phone	K7V16AA
	HP 14" Notebook PC Privacy Filter	J6E65AA



Summary of Changes

Date of change:	Version History:		Description of change:
November 4, 2015	From v1 to v2	Added	Environmental Data
January 12, 2016	From v2 to v3	Added	Software Support added to Technical Specifications
		Removed	Planned availability disclaimer in Overview section
January 25, 2016	From v3 to v4	Added	Windows 10 IoT compatibility
June 7, 2016	From v4 to v5	Changed	Battery life
		Added	Standby
August 10, 2016	From v5 to v6	Added	Intel® 7265 card to Features and Technical Specifications sections.
January 1, 2017	From v6 to v7	Removed	Memory is non customer accessible / upgradeable note under Memory subsection.

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