QuickSpecs

Overview

HP EliteBook 845 G7 Notebook PC

Left

1.	Ambient Light Sensor (Optional)	**7.**	Glass Clickpad
2.	Internal microphones (2)	**8.**	Optional Smartcard reader
3.	Webcam LED (Optional)	**9.**	Audio Combo Jack
4.	Camera Shutter	**10.**	USB 3.1 Gen 1 Port
5.	HD and IR Camera (Optional)	**11.**	USB 3.1 Gen 1 Charging Port
6.	IR Camera LEDs (Optional)	12.	Nano Security Lock Slot (Lock sold separately)

Overview

Right

1. Power Button Key
2. Power Connector
3. HDMI port (Cable not included)
4. USB-C® (Alt Mode, 3.1 Gen2)

5. USB-C® (Alt Mode, 3.1 Gen2)
6. Nano Sim
7. HP Fingerprint Sensor (select models)

1. All units have a SIM card stray but units that do not support WWAN are shipped with a non-removable SIM slot plug

Overview

AT A GLANCE

- Preinstall Windows 10, FreeDOS 3.0
- AMD® Ryzen Pro 4000 processors
- Display include your choice of 33.8cm (13") diagonal IPS Wide viewing Angle, FHD or UHD, Touch or Non-Touch
- AMD Radeon™ Graphics
- Enterprise grade security with HP Sure Sense[4], HP Sure Start Gen6, HP Privacy Camera, HP Sure View Reflect[1], HP Sure Run Gen3, HP Sure Recover Gen3, HP Sure Click, SmartCard Reader[2] and Touch Fingerprint reader[4] (select models)
- Passed 19 MIL-STD 810H testing, plus an additional 120,000 hours of reliability testing through HP's Total Test Process[3]
- Weight starting at 2.96 lb (1.34 kg)
- Battery life up to 26 hours and 15 minutes
- Supports wireless LAN and wireless WAN options for connectivity on the go
- Up to 1 TB Solid State Drives
- Up to 64 GB total system memory
- 720p HD webcam, IR camera for face authentication with Windows Hello
- Designed to support USB-C® and Thunderbolt HP docking options including the HP Universal Dock G5[2]
- Full size, backlit, Keyboard and Clickpad with image sensor and glass surface, multi-touch gestures enabled, taps enabled as default
- Enables AMD Memory Guard to help defend against cold boot attacks with real-time encryption and decryption of system's memory
- Support HP Sure View Reflect with Optional 1000 nit Anti-Glare Privacy Screen which prevents visual hacking[1]

1. HP Sure View Reflect 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. MIL-STD-810G testing is not intended to demonstrate fitness of U.S. Department of Defense (DoD) contract requirements or for military use. Test results are not a guarantee of future performance under these test conditions. Accidental damage requires an optional HP Accidental Damage Protection Care Pack.
4. HP Sure Sense requires Windows 10. See product specifications for availability.
5. HP Fingerprint Sensor is an optional feature and requires configuration at purchase.

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

Technical Specifications

PRODUCT NAME

HP EliteBook 845 G7 Notebook PC

OPERATING SYSTEM

Preinstalled   Windows 10 Pro 64 - HP recommends Windows 10 Pro for business[1]
Windows 10 Pro 64 (National Academic only)[2]
Windows 10 Home 64[1]
Windows 10 Home Single Language 64[1]
Windows 10 Pro (Windows 10 Enterprise available with a Volume Licensing Agreement)[1]
FreeDOS (Planned to be available December 2020)

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

2. Some devices for academic use will automatically be updated to Windows 10 Pro Education with the Windows 10 Anniversary
see https://aka.ms/ProEducation for Windows 10 Pro Education feature information.

Note: Your product does not support Windows 8 or Windows 7. In accordance with Microsoft's support policy, HP does not sup
Windows 7 operating system on products configured with Intel® and AMD® 7th generation and forward processors or provide a
Windows 7 drivers on http://www.support.hp.com. A full list of HP products and the Windows 10 versions tested is available o
website. https://support.hp.com/us-en/document/c05195282.
HP tested Windows 10, version 1809 on this platform For testing information on newer versions of Windows 10,   please see
https://support.hp.com/document/c05195282.

FreeDOS planned to be available September 2020.

PROCESSORS

AMD Ryzen™ 3 PRO 4450U APU with Radeon™ Graphics (2.5 GHz base clock, up to 3.8 GHz max boost clock, 4 MB L3 cache, 4 co
AMD Ryzen™ 5 PRO 4650U APU with Radeon™ Graphics (2.1 GHz base clock, up to 4 GHz max boost clock, 8 MB L3 cache, 6 core
AMD Ryzen™ 7 PRO 4750U APU with Radeon™ Graphics (1.7 GHz base clock, up to 4.1 GHz max boost clock, 8 MB L3 cache, 8 co

Processor Family
2nd Gen AMD® Ryzen™ PRO processor

3. Multicore is designed to improve performance of certain software products. Not all customers or software applications will n
use of this technology. Performance and clock frequency will vary depending on application workload and your hardware and s
AMD's numbering is not a measurement of clock speed.

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

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

CHIPSET

Technical Specifications

Chipset is integrated with processor

GRAPHICS

Integrated
AMD Radeon™ Graphics[6]

Supports
Support HD decode, DX12, HDMI2.0

6. HD content required to view HD images.

DISPLAY

Non-Touch
35.56 cm (14") diagonal FHD IPS eDP anti-glare WLED-backlit bent, 250 nits, 45% NTSC (1920 x 1080)[6,7,8]
35.56 cm (14") diagonal FHD IPS eDP anti-glare WLED-backlit bent, 250 nits, 45% NTSC for HD camera (1920 x 1080)[6,7,8]
35.56 cm (14") diagonal FHD IPS eDP anti-glare WLED-backlit bent, 250 nits, 45% NTSC for HD + IR camera (1920 x 1080)[6,7,8]
35.56 cm (14") diagonal FHD IPS eDP anti-glare WLED-backlit bent, 250 nits, 45% NTSC for WWAN (1920 x 1080)[6,7,8]
35.56 cm (14") diagonal FHD IPS eDP anti-glare WLED-backlit bent, 250 nits, 45% NTSC for HD camera for WWAN (1920 x 1080)[6,7]
35.56 cm (14") diagonal FHD IPS eDP anti-glare WLED-backlit bent, 250 nits, 45% NTSC for HD + IR camera for WWAN (1920 x 1080)[6,7,8]
35.56 cm (14") diagonal FHD IPS eDP + PSR anti-glare WLED-backlit bent, 1000 nits with HP Sure View Integrated Privacy Screen, 72% NTSC with Ambient Light Sensor and HD + IR camera (1920 x 1080)[6,7,8,9]
35.56 cm (14") diagonal FHD IPS eDP + PSR anti-glare WLED-backlit bent, 1000 nits with HP Sure View Integrated Privacy Screen, 72% NTSC with Ambient Light Sensor and HD + IR camera for WWAN (1920 x 1080)[6,7,8,9]
35.56 cm (14") diagonal FHD IPS eDP + PSR anti-glare WLED-backlit bent, 400 nits, low power, 72% NTSC with Ambient Light Sen and HD + IR camera (1920 x 1080)[6,7,8,9]
35.56 cm (14") diagonal FHD IPS eDP + PSR anti-glare WLED-backlit bent, 400 nits, lower power, 72% NTSC with Ambient Light Sensor and HD + IR camera for WWAN (1920 x 1080)[6,7,8,9]

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

HDMI 2.0
Support resolution up to 4K @60 Hz

6. HD content required to view HD images.
7. Sold separately or as an optional feature.
8. Resolutions are dependent upon monitor capability, and resolution and color depth settings.
9. HP Sure View integrated privacy screen is an optional feature that must be configured at purchase and is designed to function landscape orientation.

QuickSpecs

HP EliteBook 845 G7 Notebook PC

Technical Specifications

Docking station model	Total number of supported displays (incl. the notebook) display)	Max. resolutions supported	Dock Connectors	Technical limitations
HP Thunderbolt Dock G2	4	Dual 4K @ 60Hz	2xDP, 1xVGA, 1xUSB-C alt-mode	Dual 4k (4096 x 2160) only with: • 1 DP or • USB-C alt mode + TB port Dual 4K (3840 x 2160) with any of the DP or USB-C alt mode video ports
HP Elite USB-C Dock G5	4	Three 1680x1050 @ 60 Hz Dual 2K @ 60Hz Single 4K @ 60Hz (3840 x 1440)	1xHDMI, 2xDP	
HP USB-C Universal Dock G2	4	Dual 4K @ 60Hz Single 5K @ 60Hz	1xHDMI, 2xDP	
HP USB-C Travel Dock	2	Single 2K @ 60Hz	1xHDMI, 1xVGA	Single external display Only HDMI or VGA at the time

STORAGE AND DRIVES

Primary M.2 Storage
128 GB M.2 SATA-3 TLC[10]
256 GB PCIe® Gen3x4 NVMe™ TLC Opal 2[10]
256 GB PCIe® Gen3x4 NVMe™ SS TLC[10]
512 GB PCIe® Gen3x4 NVMe™ M.2 SS TLC[10]
1 TB PCIe® Gen3 x4 NVMe™ SS TLC[10]
256 GB PCIe® NVMe™ Value[10]
512 GB PCIe® NVMe™ Value[10]
512 GB PCIe® Gen3x4 NVMe™ TLC Opal 2[10]

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

MEMORY

Technical Specifications

Maximum Memory
64 GB DDR4-3200 SDRAM
Memory
64 GB DDR4-3200 SDRAM (2x32GB)
32 GB DDR4-3200 SDRAM (2 x 16 GB)[11]
24 GB DDR4-3200 SDRAM (16 GB (1 x 16 GB) and 8 GB (1 x 8 GB)) [11]
20 GB DDR4-3200 SDRAM (16 GB (1 x 16 GB) and 4 GB (1 x 4 GB)) [11]
16 GB DDR4-3200 SDRAM (1 x 16 GB) [11]
16 GB DDR4-3200 SDRAM (2 x 8 GB) [11]
12 GB DDR4-3200 SDRAM (8 GB (1 x 8 GB) and 4 GB (1 x 4 GB)) [11]
8 GB DDR4-3200 SDRAM (1 x 8 GB) [11]
8 GB DDR4-3200 SDRAM (2 x 4 GB) [11]
4 GB DDR4-3200 SDRAM (1 x 4 GB) [11]

Memory Slots
2 SODIMM
Both slots are customer accessible / upgradeable
DDR4 SODIMMS, system runs at 3200
Supports Dual Channel Memory

11. Due to the non-industry standard nature of some third-party memory modules, we recommend HP branded memory to ens
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[TM] (supporting gigabit file transfer speeds)[12,16]
Realtek RTL8822BE 802.11ac (2x2) and Bluetooth® 5 Combo[12]

WWAN
Intel® XMM[TM] 7360 LTE-Advanced Cat 9[13,15,17]
NFC
NXP NPC300 Near Field Communication Module

Miracast
Native Miracast Support[14]

12. Wireless access point and internet service required and sold separately. Availability of public wireless access points
backwards compatible with prior 802.11 specs. The specifications for Wi-Fi 6 (802.11ax) are draft and are not final. If the f
differ from the draft specifications, it may affect the ability of the notebook to communicate with other 802.11ax devices.
13. WWAN module is an optional feature, requires factory configuration and requires separately purchased service contra
service provider for coverage and availability in your area. Connection speeds will vary due to location, environment, netwo
and other factors. 4G LTE not available on all products, in all regions.
14. Miracast is a wireless technology your PC can use to project your screen to TVs, projectors, and streaming.
15. Gigabit class Category 16 4G LTE module is optional and must be configured at the factory. Module designed for up to 1 Gbps
carriers deploy 5 carrier aggregation and 100Mhz channel bandwidth, requires activation and separately purchased service cont
compatible to HSPA 3G technologies. Check with service provider for coverage and availability in your area. Connection, upload a
will vary due to network, location, environment, network conditions, and other factors. 4G LTE not available on all products, in a
16. For full Intel® vPro[TM] functionality, Windows, a vPro supported processor, vPro enabled chipset, vPro enabled WLAN card and
required. See https://www.intel.com/content/www/us/en/architecture-and-technology/vpro/vpro-platform-general.html.
17. Standalone GPS is an optional feature and requires factory configuration. GPS and WWAN are mutually exclusive.

Technical Specifications

AUDIO/MULTIMEDIA

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

Camera
720p HD camera[6,7]
720p HD+IR camera[6,7,18]

Sensors
Ambient light sensor (select models only)
Hall Sensor

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

KEYBOARDS/POINTING DEVICES/BUTTONS & FUNCTION KEYS

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

Pointing Device
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 (with LED)
F3 - Brightness Down
F4 - Brightness Up
F5 - Audio Mute
F6 - Volume Down
F7 - Volume Up
F8 - Mic Mute
F9 - Blank or Backlit Toggle
F10 - Insert
F11 - Airplane Mode
F12 - HP Programmable Key
Print Screen
Power Button (with LED)

Hidden Function Keys
Fn+R - Break
Fn+S - Sys Rq
Fn+C - Scroll Lock

Technical Specifications

SOFTWARE AND SECURITY

Preinstalled Software

BIOS
HP BIOSphere Gen5[19]
HP Drive Lock & Automatic Drive Lock
BIOS Update via Network
Power On Authentication
HP Secure Erase[20]
Absolute Persistence Module[21]
Pre-boot Authentication

Software
HP Connection Optimizer
HP Hotkey Support
HP JumpStarts
HP Support Assistant[22]
HP Noise Cancellation Software
Buy Office (sold separately)

Manageability Features
HP Driver Packs (download)[23]
HP System Software Manager (SSM) (download)
HP BIOS Config Utility (BCU) (download)
HP Client Catalog (download)
HP Manageability Integration Kit Gen4 (download)[24]
HP Image Assistant (download)
HP Client Management Script Library (download)
Ivanti Management Suite (download)

Client Security Software
HP Client Security Manager Gen6[25]
HP Fingerprint Sensor[26]
Windows Defender[27]

Security Management
Pre-boot Authentication
TPM 2.0 Embedded Security Chip shipped with Windows 10 (Common Criteria EAL4+ Certified) (FIPS 140-2 Level 2 Certified)[28]
USB enable/disable (via BIOS)
Power-on password (via BIOS)
Setup password (via BIOS)
Support for chassis padlocks and cable lock devices
HP Sure Click[29]
HP Sure Start Gen6[30]
HP Sure Run Gen3[31]
HP Sure Recover Gen3[32]
HP Sure Sense[33]

IPv6 Certification:
Yes
Is the BIOS on this notebook ISO/IEC 19678:2015 (formerly NIST 800-147) compliant?: Yes
UEFI version: 2.7
Class: Class 3

20. HP Secure Erase for the methods outlined in the National Institute of Standards and Technology Special Publication 800-88 "Clear" sanitation method.   HP Secure Erase does not support platforms with Intel® Optane™.
21. 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: https://www.absolute.com/about/legal/agreements/absolute/.

Technical Specifications

22. HP Support Assistant requires Windows and Internet access.

23. HP Driver Packs not preinstalled, however available for download at http://www.hp.com/go/clientmanagement.

24. HP Manageability Integration Kit can be downloaded from http://www8.hp.com/us/en/ads/clientmanagement/overview.htm

25. HP Client Security Manager Gen6 requires Windows and is available on the select HP Elite and Pro PCs.

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

27. Windows Defender Opt in and internet connection required for updates.

28. Firmware TPM is version 2.0

29. HP Sure Click requires Windows 10 and supports Microsoft Internet Explorer, Google Chrome[TM], and Chromium[TM]. Supported attachments include Microsoft Office (Word, Excel, PowerPoint) and PDF files in read only mode, when Microsoft Office or Adobe Acrobat are installed.

30. HP Sure Start Gen6 is available on select HP PCs.

31. HP Sure Run Gen3 is available on select Windows 10 based HP Pro, Elite and Workstation PCs with select Intel® or AMD processors.

32. HP Sure Recover Gen3 is available on select HP PCs and requires an open network connection. Not available on platforms with multiple internal storage drives. You must back up important files, data, photos, videos, etc. before using HP Sure Recover to avoid loss of data.

33. HP Sure Sense requires Windows 10.

Smart Card Reader	Smart card standard	PC/SC 2.0 for Windows smart card standard
	Dimensions (L x W x H)	0.41x 0.08 x 0.32 in (10.5 x 2 x 8.2 mm)
	Smart Card support	ISO 7816 Class A and AB smart cards
	Smart Card Interface	Smart Card Interface with T = 0 and T = 1 support Support I2C memory card, SLE4418, SLE4428, SLE4432, SLE4442, SLE4436, SLE5536, SLE6636, AT88SC1608, AT45D041 card and AT45DB041 card via external EEPROM

POWER

Power Supply
HP Smart 45 W External AC power adapter[34]
HP Smart 45 W External AC power adapter, 2-prong (Japan only) [34]
HP Smart 65 W External AC power adapter[34]
HP Smart 65 W EM External AC power adapter[34]
65 Watt nPFC Slim USB-C Straight AC Adapter[31] 65 W USB Type-C® adapter[34]

Primary Battery
HP Long Life 3-cell, 53 Wh Li-ion[35,36]
Support HP Fast Charge (Up to 50% in 30 minutes with 65W AC Adapter)[35,36]
Battery Life
MM14
Up to 26 hours and 15 minutes (2nd Gen AMD® Ryzen[TM] PRO APU processor, 14" 400nits panel and 3-cell 53WHr battery)[37]
MM18
Up to 15 hours and 45 minutes
Power Cord
2-wire plug - 1.0m
3-wire plug - 1.0m

34. Availability may vary by country.

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

36. Supports HP Fast Charge with 65W AC Adapter. Recharges the battery up to 50% within 30 minutes when the system is off Power adapter with a minimum capacity of 65 watts is required. After charging has reached 50% capacity, charging will return t may vary +/-10% due to System tolerance.

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

Technical Specifications

WEIGHTS & DIMENSIONS

Product Weight
Non-touch
Starting at 2.96 lb[38]
Starting at 1.34 kg[38]

Touch
Starting at 3.24 lb[38]
Starting at 1.47 kg[38]

Product Dimensions (W x D x H)
Non-touch, WLAN only
12.73 x 8.44 x 0.70 in
32.34 x 21.46 x 1.79 cm

Touch, WLAN only
12.73 x 8.44 x 0.75 in
32.34 x 21.46 x 1.91 cm

WWAN
12.73 x 8.44 x 0.75 in
32.34 x 21.46 x 1.91 cm
38. Weight will vary by configuration.

PORTS/SLOTS

Ports
2 USB Type-C® 3.1 Gen 2(Alt mode), DisplayPort[TM] 1.2
1 USB 3.1 Gen 1 port
1 USB 3.1 Gen 1 (1 charging)
1 HDMI 2.0[6]
1 headphone/microphone combo
1 AC power
1 SIM card slot[39]
1 Smartcard reader
6. HD content required to view HD images.
39 SIM slot is not user accessible without WWAN configuration.

SERVICE AND SUPPORT

Technical Specifications

HP Services offers 1-year or 3-year limited warranties and 90 day software limited warranty options depending on country. Ba
one year limited warranty except for Long Life batteries which will have same 1-year or 3-year limited warranty as the platform
http://www.hp.com/support/batterywarranty/ for additional battery information. On-site service and extended coverage is als
Pack Services are optional extended service contracts that go beyond the standard limited warranties. To choose the right leve
product, use the HP Care Pack Services Lookup Tool at: http://www.hp.com/go/cpc.[40]

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

SYSTEM UNIT

Stand-Alone Power Requirements (AC Power)	**Nominal Operating Voltage**	19 V
	Average Operating Power	2.65 W
	Integrated Graphics	6.78 W
	Max Operating Power	Discrete < 65W UMA < 45W
Temperature	**Operating**	32° to 95° F (0° to 35° C) (not writing optical)
	Non-operating	41° to 95° F (5° to 35° C) (writing optical)
Relative Humidity	**Operating**	10% to 90%, non-condensing
	Non-operating	5% to 95%, 101.6° F (38.7° C) maximum wet bulb temperature
Shock	**Operating**	40 G, 2 ms, half-sine
	Non-operating	200 G, 2 ms, half-sine
Random Vibration	**Operating**	0.75 grms
	Non-operating	1.50 grms
Altitude (unpressurized)	**Operating**	-50 to 10,000 ft (-15.24 to 3,048 m)
	Non-operating	-50 to 40,000 ft (-15.24 to 12,192 m)
Planned Industry Standard Certifications	**UL**	Yes
	CSA	Yes
	FCC Compliance	Yes
	ENERGY STAR®	Select models[42]
	EPEAT®	EPEAT® 2019 Gold in United States[43]
	ICES	Yes
	Australia / 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

Technical Specifications

SABS	Yes

42. Configurations of the HP ProBook 650 G7 that are ENERGY STAR® qualified are identified as HP ProBook 650 G7 ENERGY STAI on http://www.energystar.gov.
43. Based on US EPEAT® registration according to IEEE 1680.1-2018 EPEAT®. Status varies by country. Visit http://www.epeat. information.

DISPLAYS

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

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

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

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

Panel LCD 14 inch FHD (1920x1080) Anti-Glare WLED

Outline Dimensions (W x H x D)	315.07 x 186.6 mm (max)
Active Area	309.37 X 174.02 mm (typ.)

Technical Specifications

UWVA sRGB 100% NTSC 400nits eDP 1.4+PSR2 bent LP NB2X		
	Weight	200 g (max)
	Diagonal Size	14.0 inch
	Thickness	2.0 mm/4.0 mm (w/PCB) (max)
	Interface	eDP 1.4
	Surface Treatment	Anti-Glare
	Touch Enabled	No
	Contrast Ratio	1200:1 (typ)
	Refresh Rate	60 Hz
	Brightness	400 nits
	Pixel Resolution	1920 x 1080 (FHD)
	Format	RGB Stripe
	Backlight	LED
	Color Gamut Coverage	sRGB 100% (NTSC 72%)
	Color Depth	8 bits
	Viewing Angle	UWVA 85/85/85/85

Panel LCD 14-in diagonal FHD (1920 x 1080) Anti-Glare WLED UWVA 72% NTSC 1000 nits eDP 1.4+PSR Sure View Reflect		
	Outline Dimensions (W x H x D)	314.612 x 185.33 mm (max)
	Active Area	309.312 x 173.99 mm
	Weight	230 g (max)
	Diagonal Size	14 inch
	Thickness	3.9 mm (max)
	Interface	eDP
	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% of NTSC
	Color Depth	8 bits
	Viewing Angle	UWVA 85/85/85/85

STORAGE

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 (10g)
	Interface	ATA-8, SATA 3.0
	Maximum Sequential Read	550 ~ 560 MB/s

Technical Specifications

	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

SSD 1TB 2280 PCIe-3x4 NVMe Three Layer Cell single-sided	**Form Factor**	M.2 2280
	Capacity	1 TB
	NAND Type	TLC
	Height	0.09 in (2.3 mm)
	Width	0.87 in (22 mm)
	Weight	0.02 lb (10g)
	Interface	PCIe NVMe Gen3X4
	Maximum Sequential Read	3100 ~ 3500 MB/s
	Maximum Sequential Write	2770 ~ 3037 MB/s
	Logical Blocks	2,000,409,264
	Operating Temperature	32° to 158°F (0° to 70°C) [ambient temp]
	Features	ATA Security; TRIM; L1.2

SSD 256GB 2280 M2 PCIe-3x4 SS NVMe TLC	**Form Factor**	M.2 2280
	Capacity	256 GB
	NAND Type	TLC
	Height	0.09 in (2.3 mm)
	Width	0.87 in (22 mm)
	Weight	0.02 lb (10g)
	Interface	PCIe NVMe Gen3X4
	Maximum Sequential Read	2800 ~ 3500 MB/s
	Maximum Sequential Write	1400 ~ 2200 MB/s
	Logical Blocks	500,118,192
	Operating Temperature	32° to 158°F (0° to 70°C) [ambient temp]
	Features	ATA Security; TRIM; L1.2

SSD 256GB 2280 PCIe NVMe Value	**Form Factor**	M.2 2280
	Capacity	256 GB
	NAND Type	Value
	Height	0.09 in (2.3 mm)
	Width	0.87 in (22 mm)
	Weight	0.02 lb (10g)
	Interface	PCIe NVMe Gen3

Technical Specifications

	Maximum Sequential Read	2100 ~ 2200 MB/s
	Maximum Sequential Write	900 ~ 1400 MB/s
	Logical Blocks	500,118,192
	Operating Temperature	32° to 158°F (0° to 70°C) [ambient temp]
	Features	ATA Security (optional); TRIM; L1.2

SSD 256GB 2280 PCIe-3x4 NVMe Self Encrypted OPAL2 Three Layer Cell	**Form Factor**	M.2 2280
	Capacity	256 GB
	NAND Type	TLC
	Height	0.09 in (2.3 mm)
	Width	0.87 in (22 mm)
	Weight	0.02 lb (10g)
	Interface	PCIe NVMe Gen3X4
	Maximum Sequential Read	2800 ~ 3500 MB/s
	Maximum Sequential Write	1663 ~ 2200 MB/s
	Logical Blocks	500,118,192
	Operating Temperature	32° to 158°F (0° to 70°C) [ambient temp]
	Features	ATA Security (Option); TCG Opal 2.0; TRIM; L1.2

SSD 512GB 2280 M2 PCIe-3x4 SS NVMe TLC	**Form Factor**	M.2 2280
	Capacity	512 GB
	NAND Type	TLC
	Height	0.09 in (2.3 mm)
	Width	0.87 in (22 mm)
	Weight	0.02 lb (10g)
	Interface	PCIe NVMe Gen3X4
	Maximum Sequential Read	3100 ~ 3500 MB/s
	Maximum Sequential Write	2400 ~ 2956 MB/s
	Logical Blocks	1,000,215,215
	Operating Temperature	32° to 158°F (0° to 70°C) [ambient temp]
	Features	ATA Security; TRIM; L1.2

SSD 512GB 2280 PCIe NVMe Value	**Form Factor**	M.2 2280
	Capacity	512 GB
	NAND Type	Value
	Height	0.09 in (2.3 mm)
	Width	0.87 in (22 mm)
	Weight	0.02 lb (10g)
	Interface	PCIe NVMe Gen3
	Maximum Sequential Read	2200 ~ 2300 MB/s

Technical Specifications

	Maximum Sequential Write	1000 ~ 1600 MB/s
	Logical Blocks	1,000,215,215
	Operating Temperature	32° to 158°F (0° to 70°C) [ambient temp]
	Features	ATA Security (optional); TRIM; L1.2

SSD 512GB 2280 PCIe-3x4 NVMe Self Encrypted OPAL2 Three Layer	**Form Factor**	M.2 2280
	Capacity	512 GB
	NAND Type	TLC
	Height	0.09 in (2.3 mm)
	Width	0.87 in (22 mm)
	Weight	0.02 lb (10g)
	Interface	PCIe NVMe Gen3X4
	Maximum Sequential Read	3100 ~ 3500 MB/s
	Maximum Sequential Write	2400 ~ 2956 MB/s
	Logical Blocks	1,000,215,215
	Operating Temperature	32° to 158°F (0° to 70°C) [ambient temp]
	Features	ATA Security (Option); TCG Opal 2.0; TRIM; L1.2

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

NETWORKING

Intel® Wi-Fi 6[1] AX200 and Bluetooth® 5.0 802.11 ax (2x2) non-vPro, supporting gigabit file transfer speeds) non-vPro	**Wireless LAN Standards**	IEEE 802.11a IEEE 802.11b IEEE 802.11g IEEE 802.11n IEEE 802.11ac IEEE 802.11ax IEEE 802.11d IEEE 802.11e IEEE 802.11h IEEE 802.11i IEEE 802.11k IEEE 802.11r IEEE 802.11v
	Interoperability	Wi-Fi CERTIFIED™
	Frequency Band	• 802.11b/g/n/ax 2.402 - 2.482 GHz • 802.11a/n/ac/ax 4.9 - 4.95 GHz (Japan) 5.15 - 5.25 GHz 5.25 - 5.35 GHz 5.47 - 5.725 GHz

Technical Specifications

	5.825 - 5.850 GHz
Data Rates	802.11b: 1, 2, 5.5, 11 Mbps 802.11g: 6, 9, 12, 18, 24, 36, 48, 54 Mbps 802.11a: 6, 9, 12, 18, 24, 36, 48, 54 Mbps 802.11n: MCS 0 ~ MCS 15, (20MHz, and 40MHz) 802.11ac: MCS0 ~ MCS9, (1SS, and 2SS) (20MHz, 40MHz, 80MHz & 160MHz) 802.11ax: MCS0 ~ MCS11, (1SS and 2SS) (20MHz, 40MHz, 80MHz & 160MHz)
Modulation	Direct Sequence Spread Spectrum OFDM, BPSK, QPSK, CCK, 16-QAM, 64-QAM, 256-QAM,1024QAM
Security[3]	- IEEE and Wi-Fi compliant 64 / 128 bit WEP encryption for a/b/g mode only - AES-CCMP: 128 bit in hardware 802.1x authentication - WPA, WPA2: 802.1x. WPA-PSK, WPA2-PSK, TKIP, and AES. - WPA2 certification - WPA3 certification - IEEE 802.11i - WAPI
Network Architecture Models	Ad-hoc (Peer to Peer) Infrastructure (Access Point Required)
Roaming	IEEE 802.11 compliant roaming between access points
Output Power[2]	802.11b: +18.5dBm minimum 802.11g: +17.5dBm minimum 802.11a: +18.5dBm minimum 802.11n HT20(2.4GHz): +15.5dBm minimum 802.11n HT40(2.4GHz): +14.5dBm minimum 802.11n HT20(5GHz): +15.5dBm minimum 802.11n HT40(5GHz): +14.5dBm minimum 802.11ac VHT80(5GHz): +11.5dBm minimum 802.11ac VHT160(5GHz): +11.5dBm minimum 802.11ax HT40(2.4GHz): +10dBm minimum 802.11ax VHT160(5GHz): +10dBm minimum
Power Consumption	- Transmit mode 2.0 W - Receive mode 1.6 W - Idle mode (PSP) 180 mW (WLAN Associated) - Idle mode 50 mW (WLAN unassociated) - Connected Standby 10 mW - 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 802.11ax, MCS11(HT40): -59dBm maximum 802.11ax, MCS11(VHT160): -58.5dBm maximum

QuickSpecs

HP EliteBook 845 G7 Notebook PC

Technical Specifications

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** **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** **LED Off**	Radio Off Radio On

HP Integrated Module with Bluetooth 4.0/4.1/4.2/5.0/5.1 Wireless Technology

Bluetooth Specification	4.0/4.1/4.2/5.0/5.1 Compliant
Frequency Band	2402 to 2480 MHz
Number of Available Channels	Legacy: 0~79 (1 MHz/CH) BLE: 0~39 (2 MHz/CH)
Signaling Data Rate	Legacy: 3 Mbps data rate; throughput up to 2.17 Mbps BLE: 1 Mbps data rate; throughput up to 0.2 Mbps Legacy: Synchronous Connection Oriented links up to 3, 64 kbps, voice channels Legacy: Asynchronous Connection Less links 2178.1 kbps/177.1 kbps asymmetric (3-DH5) or 864 kbps symmetric (3-EV5)
Transmit Power	The Bluetooth component shall operate as a Class II Bluetooth device with a maximum transmit power of + 9.5 dBm for BR and EDR.
Power Consumption	Peak (Tx) 330 mW Peak (Rx) 230 mW Selective Suspend 17 mW
Bluetooth Software Supported **Link Topology**	Microsoft Windows Bluetooth Software
Power Management	Microsoft Windows ACPI, and USB Bus Support
Certifications	FCC (47 CFR) Part 15C, Section 15.247 & 15.249
Power Management Certifications	ETS 300 328, ETS 300 826 Low Voltage Directive IEC950 UL, CSA, and CE Mark
Bluetooth Profiles Supported	BT4.1-ESR 5/6/7 Compliance LE Link Layer Ping LE Dual Mode LE Link Layer LE Low Duty Cycle Directed Advertising LE L2CAP Connection Oriented Channels Train Nudging & Interlaced Scan BT4.2 ESR08 Compliance

Technical Specifications

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 required and sold separately. Availability of public wireless access points limited. Wi-Fi 6 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. Only available in countries where 802.11ax is supported.
2. The FCC has declared as of September 1, 2014 products that utilize passive scanning on channel 12/13 and are capable of transmitting must fully comply with requirements of 15.247 or otherwise disable those channels.
3. Check latest software/driver release for updates on supported security features.
4. Receiver sensitivity is measured at a packet error rate of 8% for 802.11b (CKK modulation) and a packet error rate of 10% for 802.11a/g (OFDM modulation).

Realtek RTL8822CE
802.11ac 2x2 Wi-Fi and
Bluetooth® 5.0

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 • 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 OFDM, BPSK, QPSK, CCK, 16-QAM, 64-QAM, 256-QAM
Security[3]	• IEEE and Wi-Fi compliant 64 / 128 bit WEP encryption for a/b/g mode only • AES-CCMP: 128 bit in hardware

Technical Specifications

- 802.1x authentication
- WPA, WPA2: 802.1x. WPA-PSK, WPA2-PSK, TKIP, and AES.
- WPA2 certification
- WPA3 certification
- IEEE 802.11i
- WAPI

Network Architecture Models	Ad-hoc (Peer to Peer) Infrastructure (Access Point Required)
Roaming	IEEE 802.11 compliant roaming between access points
Output Power[2]	802.11b: +18.5dBm minimum 802.11g: +17.5dBm minimum 802.11a: +18.5dBm minimum 802.11n HT20(2.4GHz): +15.5dBm minimum 802.11n HT40(2.4GHz): +14.5dBm minimum 802.11n HT20(5GHz): +15.5dBm minimum 802.11n HT40(5GHz): +14.5dBm minimum 802.11ac VHT80(5GHz): +11.5dBm minimum 802.11ac VHT160(5GHz): +11.5dBm minimum
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 10 mW - Radio disabled 8 mW
Power Management	ACPI and PCI Express compliant power management 802.11 compliant power saving mode
Receiver Sensitivity[4]	802.11b, 1Mbps: -93.5dBm maximum 802.11b, 11Mbps: -84dBm maximum 802.11a/g, 6Mbps: -86dBm maximum 802.11a/g, 54Mbps: -72dBm maximum 802.11n, MCS07: -67dBm maximum 802.11n, MCS15: -64dBm maximum 802.11ac, MCS0: -84dBm maximum 802.11ac, MCS9: -59dBm maximum
Antenna type	High efficiency antenna with spatial diversity, mounted in the display enclosure Two embedded dual band 2.4/5 GHz antennas are provided to the card to support WLAN MIMO communications and Bluetooth communications
Form Factor	PCI-Express M.2 MiniCard
Dimensions	1. Type 2230: 2.3 x 22.0 x 30.0 mm 2. Type 1216: 1.67 x 12.0 x 16.0 mm
Weight	1. Type 2230: 2.8g 2. Type 126: 1.3g
Operating Voltage	3.3v +/- 9%

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

Technical Specifications

	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
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Signaling Data Rate	Legacy: 3 Mbps data rate; throughput up to 2.17 Mbps BLE: 1 Mbps data rate; throughput up to 0.2 Mbps Legacy: Synchronous Connection Oriented links up to 3, 64 kbps, voice channels Legacy: Asynchronous Connection Less links 2178.1 kbps/177.1 kbps asymmetric (3-DH5) or 864 kbps symmetric (3-EV5)
Transmit Power	The Bluetooth component shall operate as a Class II Bluetooth device with a maximum transmit power of + 4 dBm for BR and EDR.
Power Consumption	Peak (Tx) 330 mW Peak (Rx) 230 mW Selective Suspend 17 mW
Bluetooth Software Supported Link Topology	Microsoft Windows Bluetooth Software
Power Management	Microsoft Windows ACPI, and USB Bus Support
Certifications	FCC (47 CFR) Part 15C, Section 15.247 & 15.249
Power Management Certifications	ETS 300 328, ETS 300 826 Low Voltage Directive IEC950 UL, CSA, and CE Mark
Bluetooth Profiles Supported	BT4.1-ESR 5/6/7 Compliance LE Link Layer Ping LE Dual Mode LE Link Layer LE Low Duty Cycle Directed Advertising LE L2CAP Connection Oriented Channels Train Nudging & Interlaced Scan BT4.2 ESR08 Compliance LE Secure Connection- Basic/Full LE Privacy 1.2 -Link Layer Privacy LE Privacy 1.2 -Extended Scanner Filter Policies LE Data Packet Length Extension FAX Profile (FAX) Basic Imaging Profile (BIP)2 Headset Profile (HSP) Hands Free Profile (HFP) Advanced Audio Distribution Profile (A2DP)

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),

Technical Specifications

		2300 (Band 30), 1700/2100 (Band 66).
		TDD LTE: 2600 (Band 38), 1900 (Band 39), 2400 (Band 40), 2500 (Band 41).
		HSPA+: 2100 (Band 1), 1900 (Band 2), 1700/2100 (Band 4), 850 (Band 5), 900 (Band 8) MHz
	Wireless protocol standards	3GPP Release 11 LTE Specification CAT.9, DL 60MHz BW throughput up to 450Mbps; UL 20MHz throughput up to 50Mbps
	GPS	Standalone, A-GPS (MS-A, MS-B)
	GPS bands	1575.42 MHz ± 1.023 MHz, GLONASS 1596-1607MHz, Beidou 1561.098 MHz
	Maximum data rates	LTE: 450 Mbps (Download), 50 Mbps (Upload) DC-HSPA+: 42 Mbps (Download), 5.76 Mbps (Upload) HSPA+: 21Mbps (Download), 5.76 Mbps (Upload)
	Maximum output power	LTE: 23 dBm HSPA+: 23.5 dBm
	Maximum power consumption	LTE: 1,200 mA (peak); 900 mA (average) HSPA+: 1,100 mA (peak); 800 mA (average)
	Form Factor	M.2, 3042-S3 Key B
	Weight	5.8 g
	Dimensions **(Length x Width x Thickness)**	42 x 30 x 2.3 mm

1. Mobile Broadband is an optional feature. Connection requires wireless data service contract, network support, and is not available i 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.

Near Field Communications Controller (optional)	Dimensions (L x Wx H)	Module 25 mm by 10 mm by 2.0 mm
	Chipset	NPC100
	System interface	I2C
	NFC RF standards	ISO/IEC 14443 A ISO/IEC 14443 B ISO/IEC 15693 ISO/IEC 18092 ECMA-340 NFCIP-1 Target and Initiator ECMA-320 NFCIP-2
	NFC Forum Support	Tag Type 1, Type 2, Type3 and Type 4, NFCIP-1 and NFCIP-2
	Reader (PCD-VCD) Mode	ISO/IEC 14443 A ISO/IEC 14443 B ISO/IEC 15693 MIFARE 1K MIFARE 4K MIFARE DESFire

Technical Specifications

	FeliCa
	Jewel and Topaz cards
Card Emulation (PICC-VICC) Mode	ISO/IEC 14443 A
	ISO/IEC 14443 B and B'
	MIFARE
	FeliCa
Frequency	13.56 MHz
NFC Modes Supported	Reader/Writer, Peer-to-Peer
Raw RF Data Rates	106, 212, 424, 848 kbps
Operating temperature	0°C to 70°C
Storage temperature	-20°C to 125°C
Humidity	10-90% operating
	5-95% non-operating
Supply Operating voltage	4.35 to 5.25 Volts
I/O Voltage	1.8V or 3.3V

Power Consumption
(Booster enable, VBAT= 3.3V,
VCC_BOOST = 5V)

Mode	Power Consumption, Typical
Polling	7.3 mA
Detected Test Tag Type 1	Total 283.8 mA
	Net Module 236.8 mA
Detected Test Tag Type 2	Total 288.8 mA
	Net Module 241.8 mA
Detected Test Tag Type 3	Total 287.7 mA
	Net Module 240.7 mA

Technical Specifications

Detected Test Tag Type 4	Total 282.3 mA Net Module 235.3 mA
Antenna	Antenna connector, 0.5mm pitch, 7 connector FPC. Antenna matching is external to module

POWER

AC Adapter 45 Watt Smart nPFC Standard Barrel 4.5mm Right Angle 1.8m	**Dimensions**	95 x 45 x 26.8 mm	
	Weight	unit: 200g +/- 10g	
	Input	**Input Efficiency**	87.74 % at 115 Vac and 88.4 % at 23
		Input frequency range	47 ~ 63 Hz
		Input AC current	Max. 1.4 A at 90 Vac
	Output	**Output power**	45W
		DC output	19.5V
		Hold-up time	5ms at 115 Vac input
		Output current limit	<8.0A
	Connector	**Connector**	4.5 mm Barrel Type
	Environmental Design	**Operating temperature**	32°F to 95°F (0°to 35°C)
		Non-operating (storage) temperature	-4°F to 185°F (-20°to 85°C)
		Altitude	0 to 16,400 ft (0 to 5000m)
		Humidity	20% to 95%
		Storage Humidity	10% to 95%
	EMI and Safety Certifications	Eg: *CE Mark - full compliance with LVD and EMC directives *Worldwide safety standards - IEC60950, EN60950, UL60950, Class1 approvals - C-UL-US, NORDICS, DENAN, EN55022 Class B, FCC Class B CCC, NOM-1 NYCE. *MTBF - over 200,000 hours at 25°C ambient condition.	

QuickSpecs

Technical Specifications

AC Adapter 45 Watt Smart nPFC Standard Barrel 4.5mm Right Angle 1.8m 2prong			
	Dimensions	95 x 45 x 26.8 mm	
	Weight	unit: 200g +/- 10g	
	Input	**Input Efficiency**	87.74 % at 115 Vac and 88.4 % at 23
		Input frequency range	47 ~ 63 Hz
		Input AC current	Max. 1.4 A at 90 Vac
	Output	**Output power**	45W
		DC output	19.5V
		Hold-up time	5ms at 115 Vac input
		Output current limit	<8.0A
	Connector	**Connector**	4.5 mm Barrel Type
	Environmental Design	**Operating temperature**	32°F to 95°F (0°to 35°C)
		Non-operating (storage) temperature	-4°F to 185°F (-20°to 85°C)
		Altitude	0 to 16,400 ft (0 to 5000m)
		Humidity	20% to 95%
		Storage Humidity	10% to 95%
	EMI and Safety Certifications	Eg: *CE Mark - full compliance with LVD and EMC directives *Worldwide safety standards - IEC60950, EN60950, UL60950, Class1 approvals - C-UL-US, NORDICS, DENAN, EN55022 Class B, FCC Class B CCC, NOM-1 NYCE. *MTBF - over 200,000 hours at 25°C ambient condition.	

AC Adapter 65 Watt nPFC Slim USB type C® Straight 1.8m			
	Dimensions	88 x 53.5 x 21 mm	
	Weight	unit: 220g +/- 10g	
	Input	**Input Efficiency**	81.5% min at 115 Vac/ 230Vac @ 5V 86.7% min at 115 Vac/ 230Vac @ 9V 88% min at 115 Vac/ 230Vac @ 12V 89% min at 115 Vac/ 230Vac @ 15V 89% min at 115 Vac/ 230Vac @ 20V
		Input frequency range	47 ~ 63 Hz
		Input AC current	1.6 A at 90 VAC and maximum load
	Output	**Output power**	65W
		DC output	5V/9V/12V/15V/20V
		Hold-up time	5ms at 115 Vac input
		Output current limit	<8.0A
	Connector	**Connector**	USB Type C®
	Environmental Design	**Operating temperature**	32°F to 95°F (0°to 35°C)
		Non-operating (storage) temperature	-4°F to 185°F (-20°to 85°C)
		Altitude	0 to 16,400 ft (0 to 5000m)
		Humidity	5% to 95%
		Storage Humidity	5% to 95%
	EMI and Safety Certifications	Eg: *CE Mark - full compliance with LVD and EMC directives *Worldwide safety standards - IEC60950, EN60950, UL60950, Class1 approvals - C-UL-US, NORDICS, DENAN, EN55022 Class B, FCC Class B CCC, NOM-1 NYCE. *MTBF - over 100,000 hours at 25°C ambient condition.	

Technical Specifications

AC Adapter 65 Watt nPFC Standard type C® Straight 1.8m	**Dimensions**		90.0 x 51 x 28.5 mm
	Weight		unit: 250g +/- 10g
	Input	**Input Efficiency**	81.5% min at 115 Vac/ 230Vac @ 5V/3A
			86.7% min at 115 Vac/ 230Vac @ 9V/3A
			88% min at 115 Vac/ 230Vac @ 12V/5A
			89% min at 115 Vac/ 230Vac @ 15V/4.33A
			89% min at 115 Vac/ 230Vac @ 20V/3.25A
		Input frequency range	47 ~ 63 Hz
		Input AC current	1.6 A at 90 VAC and maximum load
	Output	**Output power**	65W
		DC output	5V/9V/12V/15V/20V
		Hold-up time	5ms at 115 Vac input
		Output current limit	8.0A
	Connector	**Connector**	USB Type C®
	Environmental Design	**Operating temperature**	32°F to 95°F (0°to 35°C)
		Non-operating (storage) temperature	-4°F to 185°F (-20°to 85°C)
		Altitude	0 to 16,400 ft (0 to 5000m)
		Humidity	20% to 95%
		Storage Humidity	10% to 95%
	EMI and Safety Certifications		*CE Mark - full compliance with LVD and EMC directives *Worldwide safety standards -IEC60950, EN60950, UL60950, UL62368, Class1, SELV; Agency approvals - C-UL-US, NORDICS, DENAN, EN55022 Class B, FCC Class B, CISPR22 Class B, CCC, NOM-1 NYCE. *MTBF - over 200,000 hours at 25°C ambient condition.

AC Adapter 65 Watt Smart nPFC EM Barrel 4.5mm New EM	**Dimensions**		102 x 55 x 30 mm
	Weight		unit: 220g +/- 10g
	Input	**Input Efficiency**	88.0 % at 115 Vac and 89.0 % at 230 Vac
		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	5ms at 115 Vac input
		Output current limit	<11.0A
	Connector	**Connector**	4.5 mm Barrel Type
	Environmental Design	**Operating temperature**	32°F to 95°F (0°to 35°C)
		Non-operating (storage) temperature	-4°F to 185°F (-20°to 85°C)

Technical Specifications

	Altitude	0 to 16,400 ft (0 to 5000m)
	Humidity	20% to 95%
	Storage Humidity	10% to 95%
EMI and Safety Certifications	Eg:	

*CE Mark - full compliance with LVD and EMC directives
*Worldwide safety standards - IEC60950, EN60950, UL60950, Class1, SELV; Agency approvals - C-UL-US, NORDICS, DENAN, EN55022 Class B, FCC Class B, CISPR22 Class B, CCC, NOM-1 NYCE.
*MTBF - over 200,000 hours at 25°C ambient condition.

AC Adapter 65 Watt Smart nPFC Standard Barrel 4.5mm Right Angle 1.8m	**Dimensions**	90 x 51 x 28.5 mm	
	Weight	unit: 230g +/- 10g	
	Input	**Input Efficiency**	88.0 % at 115 Vac and 89.0 % at 230 Vac
		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	5ms at 115 Vac input
		Output current limit	<11.0A
	Connector	**Connector**	4.5 mm Barrel Type
	Environmental Design	**Operating temperature**	32°F to 95°F (0°to 35°C)
		Non-operating (storage) temperature	-4°F to 185°F (-20°to 85°C)
		Altitude	0 to 16,400 ft (0 to 5000m)
		Humidity	20% to 95%
		Storage Humidity	10% to 95%
	EMI and Safety Certifications	Eg:	

*CE Mark - full compliance with LVD and EMC directives
*Worldwide safety standards - IEC60950, EN60950, UL60950, Class1, SELV; Agency approvals - C-UL-US, NORDICS, DENAN, EN55022 Class B, FCC Class B, CISPR22 Class B, CCC, NOM-1 NYCE.
*MTBF - over 200,000 hours at 25°C ambient condition.

Technical Specifications

Battery CC 3 Cell WHr 53 Long Life -PL Fast Charge	**Dimensions** (H x W x L)	7.3 x 52.9 x 267.11 mm 0.287 x 2.082 x 10.516 inch	
	Weight	205 g (0.45 lb) 0.45 lb	
	Cells/Type	3cell Lithium-Ion Polymer cell / 645180	
	Energy	**Voltage**	11.55V
		Amp-hour capacity	4.59Ah
		Watt-hour capacity	53Wh
	Temperature	**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)
	Warranty	Depends on system offering	
	Optional Travel Battery Available	No	

COUNTRY OF ORIGIN

China

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

Type	Description	Part Number
Cases	HP Business Backpack (up to 17.3")	2SC67AA
	HP Business Case (up to 15.6")	2SC66AA
	HP Business Slim Top Load (up to 14.1" x .75" thick)	2SC65AA
	HP Essential Top Load Case (up to 15.6")	H2W17AA
Docking	HP Thunderbolt Dock 120W G2	2UK37AA
	HP Thunderbolt Dock 230W G2	2UK38AA
	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 Mini Dock	1PM64AA
	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 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 Wireless Premium Mouse	1JR31AA
	HP USB Premium Mouse	1JR32AA
	HP Essential USB Mouse	2TX37AA
	HP Elite Presenter Mouse	2CE30AA
	HP Bluetooth Travel Mouse	6SP30AA
	HP 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 VGA	H4F02AA
	HP USB-C to HDMI 2.0 Adapter	1WC36AA
	HP USB-C to RJ45 Adapter	V7W66AA
	HP USB-C Travel Hub G2	7PJ38AA
	HP Elite USB-C Hub	4WX89AA

DASH capability is supported with an exclusive USB-C to RJ45 dongle that can be purchased via HP Services as 3rd party option. (Available in Q3 2021)

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

Power		
	HP 65W Slim AC Adapter	H6Y82AA
	HP 45W Smart AC Adapter	H6Y88A
	HP 65W Smart AC Adapter	H6Y89AA
	HP 45W 2-prong 4.5 mm DC jack AC Adapter	L6F60AA#ABJ
	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
	HP USB-C Notebook Power Bank	1TZ86AA
Storage		
	HP USB External DVDRW Drive	F2B56AA
	HP 1TB TLC PCI-e 3x4 NVMe M.2 SSD (2280)	6SK99AA
	HP 2TB TLC PCI-e 3x4 NVMe M.2 SSD (2280)	6SL00AA
Memory		
	HP 4 GB 2666 Mhz DDR4	4VN05AA
	HP 8 GB 2666 Mhz DDR4	4VN06AA
	HP 16 GB 2666 Mhz DDR4	4VN07AA
Security		
	HP Nano Keyed Cable Lock	1AJ39AA
	HP Nano Dual-Head Keyed Cable Lock	1AJ41AA
	HP Sure Key Cable Lock	6UW42AA
WWAN		
	HP XMMT 7360 LTE WWAN	3FB01AA

Summary of Changes

Date of change:	Version History:	Updated	Description of change:
	V1 to V2		Display section updated
September 17, 2020	V2 to V3		Battery life updated
September 22, 2020	V3 to V4		Smart Card Reader
December 10, 2020	V4 to V5		Display section updated
January 12, 2021	V5 to V6		Memory section updated
January 21, 2021	V6 to V7	Added	WPA3 certification in Security, Networking section
March 24, 2021	V7 to V8	Updated	Options and Accessories section
March 29, 2021	V8 to V9	Updated	Product Dimensions
	V9 to V10		