

Overview

HP Elite c645 14 inch G2 Chromebook



Left

1. Internal Microphones (2)
2. HP Privacy Camera Shutter
3. 5MP camera
4. Webcam LED
5. Glass Clickpad
6. Smart Card Reader (Smart card is not included) (Optional)
7. MicroSD memory card reader (Memory card is not included.)
8. SuperSpeed USB Type-C® 10Gbps signaling rate (USB Power Delivery, DisplayPort™ 1.4)
9. Super Speed USB Type-A 5Gbps signaling rate (Available on selected models) (Support charging) (USB 3.2 Gen 1)
10. HDMI port (Cable not included)

Overview



Right

1. Power Button
2. Headphone/Microphone Combo Jack
3. SuperSpeed USB Type-A 10Gbps signaling rate (Available on selected models) (Support charging) (USB 3.2 Gen 1)
4. Nano Lock Slot (Lock sold separately)
5. WWAN SIM slot (Only for units with WWAN)
6. Fingerprint Sensor (optional)

Overview

AT A GLANCE

- Bring exceptional clarity and contrast to your images, even in low light environments with the 5MP camera.
- Perform at your best with the latest AMD processor for the perfect combination of power consumption and value.
- Attain fast and secure authentication in Chrome or your virtualized computing environment with an optional smart card reader and fingerprint sensor.
- HP speakers, custom-tuned in collaboration with experts at Bang & Olufsen, deliver rich, authentic sound.
- 4G LTE delivers fast data uploads and transfers, while Wi-Fi 6E and Bluetooth® connectivity provide speed and stability on crowded networks
- Get peace of mind with a built-in HP Privacy Camera that blocks the lens of your camera.
- Instantly block prying eyes by making your screen appear unreadable from the side with HP Sure View Reflect and includes low blue light for added comfort
- Keep working with long battery life and HP Fast Charge for 90% battery life in just 90 minutes of charging.

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

Technical Specifications

PRODUCT NAME

HP Elite c645 14 inch G2 Chromebook

OPERATING SYSTEM

Preinstalled Chrome OS

PROCESSORS

AMD Ryzen™ 7 5825C (2.00 GHz base frequency, up to 4.5 GHz max boost clock, 16 MB L3 cache, 8 cores) ^{1,2}

AMD Ryzen™ 5 5625C (2.30 GHz base frequency, up to 4.3 GHz max boost clock, 16 MB L3 cache, 6 cores) ^{1,2}

AMD Ryzen™ 3 5425C (2.70 GHz base frequency, up to 4.1 GHz max boost clock, 8 MB L3 cache, 4 cores) ^{1,2}

Processor Family

AMD Ryzen™ 7^{1,2}

AMD Ryzen™ 5^{1,2}

AMD Ryzen™ 3^{1,2}

1. Processor speed denotes maximum performance mode; processors will run at lower speeds in battery optimization mode.
2. 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.

CHIPSET

Chipset is integrated with processor

GRAPHICS

Integrated

AMD Radeon Graphics

Supports

Support HD Decode, DX12, and HDMI 2.0³

3. HD content required to view HD images.

Technical Specifications

DISPLAY

Non-Touch

35.6 cm (14") diagonal FHD (1920 x 1080) HP Sure View Reflect, UWVA anti-glare, micro-edge, eDP1.3+PSR, Low Blue Light, 1000 nits, 72% NTSC with HP Eye Ease^{3,4,5,6,7}

35.6 cm (14") diagonal FHD IPS anti-glare micro-edge WLED-backlit, eDP1.2, narrow bezel bent, 250 nits, 45% NTSC (1920 x 1080)^{3,4,5}

35.6 cm (14") diagonal FHD IPS anti-glare micro-edge WLED-backlit, Low Power, eDP1.3+PSR, narrow bezel bent, 400 nits, 72% NTSC (1920 x 1080)^{3,4,5}

35.6 cm (14") diagonal HD SVA anti-glare micro-edge WLED-backlit, eDP1.2, narrow bezel bent, 250 nits, 45% NTSC (1366 x 768)^{3,4,5}

Touch

35.6 cm (14") diagonal FHD IPS, anti-glare, touch on panel micro-edge WLED-backlit touch screen, eDP1.2 w/o PSR bent, 250 nits, 45% NTSC (1920 x 1080)^{3,4,5,6}

Displays support

Support 3 external displays up to 4K resolution

Display Size (Diagonal)

14"

35.6 cm

3. HD content required to view HD images.
4. Sold separately or as an optional feature.
5. Resolutions are dependent upon monitor capability, and resolution and color depth settings.
6. Actual brightness will be lower with touchscreen or HP Sure View
7. 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.

Technical Specifications

STORAGE AND DRIVES

Primary Storage

64GB eMMC

Primary M.2 Storage

512 GB 2280 PCIe® NVMe™ M.2 SSD ⁸

256 GB 2230 PCIe® NVMe™ M.2 SSD ⁸

128 GB 2230 PCIe® NVMe™ M.2 SSD ⁸

8. For storage drives, GB = 1 billion bytes. Actual formatted capacity is less. For 64GB drive, 5.76GB is not user accessible. For 128GB drive, 8.76GB is not user accessible. For 256GB drive, 17.53GB is not user accessible. For 512GB drive, 48.64GB is not user accessible.

MEMORY

Maximum Memory

16 GB DDR4-4266 SDRAM

Memory

16 GB DDR4-4266 SDRAM

8 GB DDR4-4266 SDRAM

Memory Slots

On-board system memory

Supports Dual Channel Memory

NETWORKING/COMMUNICATIONS

WLAN

Qualcomm® Fast Connect 6900 Wi-Fi 6E Bluetooth® 5.2 WLAN ⁹

WWAN

Intel® XMM 7360 LTE-Advanced (Cat 9)¹⁰

Miracast

Chromecast Support

9. Wi-Fi 6E requires a Wi-Fi 6E router, sold separately, to function in the 6GHz band. Availability of public wireless access points limited. Wi-Fi 6E is backwards compatible with prior 802.11 specs. And available in countries where Wi-Fi 6E is supported.

10. LTE module is optional, must be configured at the factory, requires activation and separately purchased service contract. Check with service provider for coverage and availability in your area. Connection, upload and download speeds will vary due to network, location, environment, network conditions, and other factors. 4G LTE not available on all products, in all regions.

Technical Specifications

AUDIO/MULTIMEDIA

Audio

Dual stereo speakers
Dual microphone
Audio by Bang & Olufsen

Speaker Power

2W/40hm

Camera

5MP camera
HP Privacy Camera

KEYBOARDS/POINTING DEVICES/BUTTONS & FUNCTION KEYS

















Keyboard

Flint silver Full-size spill resistant Chrome keyboard
Flint Silver, Full-size backlit, spill resistant Chrome keyboard ¹¹

Pointing Device

Clickpad with multi-touch gesture support, taps enabled as default

Function Keys

- esc ESC key
-  Go to the previous page
-  Refresh your current page
-  Make your page take up the full screen
-  Show all open windows
-  Take a screenshot
-  Decrease screen brightness
-  Increase screen brightness
-  [for SureView sku]: Turn on SureView
-  [for non-SureView sku]: Keyboard backlight on/off
-  [for SureView sku]: Keyboard backlight on/off
-  [for non-SureView sku]: Play/pause
-  Global microphone mute/unmute
-  Turn off the sound
-  Lower the volume
-  Raise the volume
-  Power button

Technical Specifications

11. Backlit keyboard is an optional feature.

SOFTWARE AND SECURITY

Preinstalled Software

HP QuickDrop ¹²

Manageability Features

Zero Touch Enrollment ¹³

Chrome Enterprise Upgrade ^{14,15}

Chrome Education Upgrade ^{14,16}

NOTE: To enhance brightness, level go to the Intel® Graphics Command Center app, click on System and turn off the Display Power Savings function.

Security Management

Titan C security chip

Nano lock slot

Fingerprint Sensor (Optional)

Smart Card Reader (Optional)

Model number: Alcor AU9560

FIPS 201 Compliant: Yes

IPv6 Support

No

FirstNet Certified

No

Is the BIOS on this notebook ISO/IEC 19678:2015 (formerly NIST 800-147) compliant?: No

12. HP Quick Drop requires Internet access and Chrome OS device preinstalled with HP QuickDrop app and either an Android device (phone or tablet) running Android 7 or higher with the Android HP QuickDrop app, and /or an iOS device (phone or tablet) running iOS 12 or higher with the iOS HP QuickDrop app.

13. ZTE requires separately purchased HP Get More Service. 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

14. Sold separately

15. Chrome Enterprise Upgrade requires one-time setup, subscription, Google Admin Console, and your organization's domain. Please see <https://support.google.com/a/topic/1409901>.

16. Chrome Education Upgrade requires one-time setup, subscription, Google Admin Console, and your organization's domain. Please see <https://support.google.com/a/answer/60216>.

Technical Specifications

POWER

Power Supply

AC Adapter 65 Watt nPFC Standard USB type C Straight ¹⁷

AC Adapter 45 Watt nPFC Standard USB type C Straight ¹⁷

Battery

HP Long Life 3-cell, 58 Wh Li-ion ^{18,19}

Support HP Fast Charge (90% in 90 min) ²⁰

Power Cord

3-wire plug - 1m

Battery Life

Up to 13 hours (Ryzen 5 5625C/8GB/64GB eMMC/FHD)²¹

Battery Weight

227.75 g

17. Availability may vary by country.

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

19. Actual battery Watt-hours (Wh) will vary from design capacity. Battery capacity will naturally decrease with shelf life, time, usage, environment, temperature, system configuration, loaded apps, features, power management settings and other factors.

10. Recharges up to 90% within 90 minutes when the system is off or in standby mode when used with the power adapter provided with the notebook. After charging has reached 90% capacity, charging will return to normal. Charging time may vary +/-10% due to System tolerance

21. Testing conducted by HP using Google Chrome OS power_LoadTest. Battery life will vary and the maximum capacity of the battery will naturally decrease with time and usage and battery optimization activation. See <http://www.chromium.org/chromium-os/testing/power-testing> for test details. Battery configuration and charge capacity is optimized to improve battery health over time based upon charging patterns and temperature

WEIGHTS & DIMENSIONS

Product Weight ²²

Starting at 3.39 lb

Starting at 1.5 kg

Product Dimensions (W x D x H)

12.7 x 8.7 x 0.78 in

32.36 x 22.1 x 1.98 cm

22. Weight will vary by configuration. Does not include power adapter.

Technical Specifications

PORTS/SLOTS

Non-WWAN:

- 2 SuperSpeed USB Type-C® 10Gbps signaling rate
- 2 SuperSpeed USB Type-A 5Gbps signaling rate (Support charging) (USB 3.2 Gen 1)
- 1 HDMI port (Cable not included) ²³
- 1 Smart Card Reader (optional)
- 1 Headphone/Microphone Combo Jack

WWAN:

- 2 SuperSpeed USB Type-C® 10Gbps signaling rate
- 1 SuperSpeed USB Type-A 5bps signaling rate (Support charging) (USB 3.2 Gen 1)
- 1 HDMI port (Cable not included) ²³
- 1 Smart Card Reader (optional)
- 1 External Nano SIM slot for WWAN
- 1 Headphone/Microphone Combo Jack

Expansion Slots

- 1 Smart Card Reader (optional)

[23. HDMI cable sold separately.](#)

Technical Specifications

SERVICE AND SUPPORT

HP Services offers 1-year limited warranties and 90 day software limited warranty options depending on country. Batteries have a default one year limited warranty. Refer to <http://www.hp.com/support/batterywarranty/> for additional battery information. On-site service and extended coverage is also available. HP Care Pack Services are optional extended service contracts that go beyond the standard limited warranties. To choose the right level of service for your HP product, use the HP Care Pack Services Lookup Tool at: <http://www.hp.com/go/cpc>.²⁴

24. 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 <http://www.hp.com/go/cpc>. HP services are governed by the applicable HP terms and conditions of service provided or indicated to Customer at the time of purchase. Customer may have additional statutory rights according to applicable local laws, and such rights are not in any way affected by the HP terms and conditions of service or the HP Limited Warranty provided with your HP Product.

Technical Specifications

SYSTEM UNIT

Stand-Alone Power Requirements (AC Power)	USB-C 45W and 65W adapter
Nominal Operating Voltage	5V/9V/12V/15V
Average Operating Power	< 45W
Integrated graphics	Yes
Discrete Graphics	N/A
Max Operating Power	UMA < 45W
Temperature	
Operating	32° to 95° F (0° to 35° C)
Non-operating	41° to 95° F (5° to 35° C)
Relative Humidity	
Operating	10% to 90%
Non-operating	5% to 95%
Shock	
Operating	40 G, 2 ms, half-sine
Non-operating	240 G, 2 ms, half-sine
Random Vibration	
Operating	1.043 grms
Non-operating	3.5 grms
Altitude (unpressurized)	
Operating	-50 to 10,000 ft (-15 to 3,048 m)
Non-operating	-50 to 40,000 ft (-15 to 12,192 m)
Planned Industry Standard Certifications	
Regulatory Model Number	TPN-Q277
UL	Yes
CSA	None
FCC Compliance	Yes
ENERGY STAR®	Yes ²⁵
EPEAT®	Yes, EPEAT® Gold in United States ²⁶
ICES	Yes
Australia /	Yes
NZ A-Tick Compliance	Yes (NZ RCM compliance)
CCC	Yes
Japan VCCI Compliance	Yes
KC	Yes
BSMI	Yes
CE Marking Compliance	Yes
BNCI or BELUS	None
CIT	None
GOST	Yes (EAC or CU)
Saudi Arabian Compliance (ICCP)	Yes
SABS	Yes
UKRSERTCOMPUTER	None
UL	Yes

25. Configurations of the HP Elite c645 14 inch G3 Chromebook that are ENERGY STAR® qualified are identified as HP Elite c645 14 inch G3 Chromebook ENERGY STAR on HP websites and on <http://www.energystar.gov>.

26. Based on US EPEAT® registration according to IEEE 1680.1-2018 EPEAT®. EPEAT® status varies by country. Visit <http://www.epeat.net> for more information.

Technical Specifications

DISPLAYS

1. Actual brightness will be lower with touchscreen or HP Sure View.

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

Panel LCD 14 inch FHD (1920 x 1080) Anti-Glare WLED UWVA 45percent cg 250nits eDP 1.2 w/o PSR bent Touch on Panel NWBZ	Outline Dimensions (W x H x D)	316.170 x 186.400 max.
	Active Area	309.37 x 174.02
	Weight	<305g max.
	Diagonal Size	14"
	Thickness	3.0mm/ 5.0mm (w/PCB) max.
	Interface	eDP 1.2 (2lane)
	Surface Treatment	Anti-Glare
	Touch Enabled	Yes ¹
	Contrast Ratio	600:1 (typ)
	Refresh Rate	60Hz
	Brightness	250 nits ¹
	Pixel Resolution - Format	1920 x 1080 (FHD)
	Backlight	WLED
	Pixel Resolution	RGB
	Color Gamut Coverage	NTSC 45%
	Color Depth	6bits
	Viewing Angle	UWVA 85/85/85/85
	Low Blue Light	No
	Power Consumption (W, EBL@ 150nits max/ 200nits max)	2.7W max./3.1W max.

Panel LCD 14-in FHD (1920 x 1080) Anti-Glare WLED UWVA 45percent cg 250nits eDP 1.2 w/o PSR NWBZ bent	Outline Dimensions (W x H x D)	316.170 x 186.400 max
	Active Area	309.37 x 174.02
	Weight	300g
	Diagonal Size	14"
	Thickness	3.0mm/ 5.0mm (w/PCB) max.
	Interface	eDP 1.2 (2lane)
	Surface Treatment	Anti-Glare
	Touch Enabled	NO
	Contrast Ratio	600:1 (typ)
	Refresh Rate	60Hz
	Brightness	250nits
	Pixel Resolution - Format	1920 x 1080 (FHD)
	Backlight	WLED
	Pixel Resolution	RGB
	Color Gamut Coverage	NTSC 45%
	Color Depth	6bits
	Viewing Angle	UWVA 85/85/85/85
	Low Blue Light	NO

Technical Specifications

Power Consumption (W, EBL@ 150nits max/ 200nits max)	2.205W Max/2.716W Max
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Panel LCD 14-in HD (1366 x 768)	Outline Dimensions (W x H x D)	316.110x186.370mm(max)
Anti-Glare WLED SVA 45percent	Active Area	309.4 x 173.95
cg 250nits eDP 1.2 w/o PSR	Weight	300g Max
NWBZ bent	Diagonal Size	14"
	Thickness	3.0mm/ 5.0mm (w/PCB) max.
	Interface	eDP 1.2 (1 lane)
	Surface Treatment	Anti-Glare
	Touch Enabled	NO
	Contrast Ratio	300:1 (typ)
	Refresh Rate	60Hz
	Brightness	250 nits
	Pixel Resolution - Format	1366 x 768 (HD)
	Backlight	WLED
	Pixel Resolution	RGB
	Color Gamut Coverage	NTSC 45%
	Color Depth	6 bits
	Viewing Angle	SVA 45/45/15/30
	Low Blue Light	NO
	Power Consumption (W, EBL@ 150nits max/ 200nits max)	2.52W max/2.86W max

14.0 in FHD (1920 x 1080)	Outline Dimensions (W x H x D)	314.612 x 184.900 (max)
Anti-Glare UWVA Low Blue Light	Active Area	309.312 x 173.990 (typ.)
sRGB NB2Y 1000 eDP 1.3+PSR	Weight	230 g (max)
100 PrivacyG4 Plus bent LCD	Diagonal Size	14 (inch)
Panel	Thickness	2.2mm / 3.9mm (w/PCB) (max)
	Interface	eDP1.4
	Surface Treatment	Bright View
	Touch Enabled	No
	Contrast Ratio	1500:1 (typical)
	Refresh Rate	60Hz
	Brightness	1000 nits
	Pixel Resolution - Format	1920 x 1080 (FHD)
	Backlight	WLED
	Pixel Resolution	RGB
	Color Gamut Coverage	sRGB 100%
	Color Depth	8
	Viewing Angle	UWVA 85/85/85/85
	Low Blue Light	Yes

Technical Specifications

Power Consumption (W, EBL@ 150nits max/ 200nits max) 1.6 (max)/2.0(max)

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

Outline Dimensions (W x H x D) 315.370 x 186.900 (max)
Active Area 309.370 x 174.020 mm (typ.)
Weight 200 g (max)
Diagonal Size 14.0 (inch)
Thickness 2.0 mm / 4.0 mm (w/PCB) (max)
Interface eDP1.4 (4 lane)
Surface Treatment Anti-Glare
Touch Enabled No
Contrast Ratio 1200:1 (typical)
Refresh Rate 60Hz
Brightness 400 nits
Pixel Resolution - Format 1920 x 1080 (FHD)
Backlight WLED
Pixel Resolution RGB
Color Gamut Coverage sRGB 100% (NTSC 72%)
Color Depth 6+2 FRC
Viewing Angle UWVA 85/85/85/85
Low Blue Light No
Power Consumption (W, EBL@ 150nits max/ 200nits max) 1.04 (max)/ 1.25 (max)

Technical Specifications

STORAGE AND DRIVES

For storage drives, GB = 1 billion bytes. Actual formatted capacity is less. For 64GB drive, 5.76GB is not user accessible. For 128GB drive, 8.76GB is not user accessible. For 256GB drive, 17.53GB is not user accessible. For 512GB drive, 48.64GB is not user accessible.

64GB eMMC	Form Factor	eMMC
	Capacity	64GB
	NAND Type	MLC/TLC
	Height	1.4mm
	Width	11.5x13mm
	Weight	0.2g
	Interface	MMC protocol
	Maximum Sequential Read	Up to 250MB/s
	Maximum Sequential Write	Up to 70MB/s
	Logical Blocks	64GB (62,537,072,640 Bytes)
	Operating Temperature	0-70
	Features	HS400

SSD 128GB 2230 PCIe NVMe Value (SSD 128GB 2230 PCIe NVMe Value)	Form Factor	M.2 2230
	Capacity	128GB
	NAND Type	Value
	Height	0.09 in (2.3 mm)
	Width	0.87 in (22 mm)
	Interface	PCIe NVMe
	Maximum Sequential Read	3000 Up to MB/s
	Maximum Sequential Write	1400 Up to MB/s
	Logical Blocks	250,069,680
	Operating Temperature	32° to 158°F (0° to 70°C) [ambient temp]
	Features	Pyrite

SSD 256GB 2230 PCIe NVMe Value (SSD 256GB 2230 PCIe NVMe Value)	Form Factor	M.2 2230
	Capacity	256GB
	NAND Type	Value
	Height	0.09 in (2.3 mm)
	Width	0.87 in (22 mm)
	Interface	PCIe NVMe
	Maximum Sequential Read	3000 Up to MB/s
	Maximum Sequential Write	1800 Up to MB/s
	Logical Blocks	500,118,192
	Operating Temperature	32° to 158°F (0° to 70°C) [ambient temp]
	Features	Pyrite

Technical Specifications

SSD 512GB 2280 PCIe NVMe Value (512GB 2280 PCIe NVMe Value 2nd Solid State Drive)	Form Factor	M.2 2280
	Capacity	512GB
	NAND Type	Value
	Height	0.09 in (2.3 mm)
	Width	0.87 in (22 mm)
	Weight	0.02 lb (10 g)
	Interface	PCIe NVMe
	Maximum Sequential Read	3200 Up to MB/s
	Maximum Sequential Write	2700 Up to MB/s
	Logical Blocks	1,000,215,216
	Operating Temperature	32° to 158°F (0° to 70°C) [ambient temp]

Technical Specifications

NETWORKING/COMMUNICATIONS

Qualcomm® Fast Connect Wireless LAN Standards 6900 Wi-Fi 6E + Bluetooth® 5.2 (802.11ax 2x2, supporting gigabit file transfer speeds) ¹

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 802.11u
 IEEE 802.11v
 IEEE 802.11w

Interoperability

Wi-Fi certified

Frequency Band

- 802.11b/g/n/ax
2.402 – 2.482 GHz
- 802.11a/n/ac/ax
5.15 – 5.25 GHz
5.25 – 5.35 GHz
5.47 – 5.725 GHz
5.825 – 5.850 GHz
5.925 – 7.125 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, 4096QAM

Security³

- 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

Network Architecture Models

Wi-Fi Direct in Win10 for peer-to-peer connection.
 Infrastructure (Access Point Required)

Roaming

IEEE 802.11 compliant roaming between access points

Output Power²

2.4GHz (MIMO, typical):

- 802.11b : +18dBm
- 802.11g : +16.5dBm
- 802.11n/ac/ax (HT20/VHT20/HE20) : +16dBm
- 802.11n/ac/ax (HT40/VHT40/HE40) : +12.5dBm

Technical Specifications

	5GHz (MIMO, typical):
	<ul style="list-style-type: none"> • 802.11a : +13dBm • 802.11n/ac/ax (HT20/VHT20/HE20) : +13.5dBm • 802.11n/ac/ax (HT40/VHT40/HE40) : +12.5dBm • 802.11ac/ax (VHT80/HE80) : +11.5dBm • 802.11ax HE160 : +11.5dBm
	6GHz LPI mode (MIMO, typical)::
	<ul style="list-style-type: none"> • 802.11a : 0dBm • 802.11ax HE20 : +1dBm • 802.11ax HE40 : +4dBm • 802.11ax HE80 : +7dBm • 802.11ax HE160 : +7.5dBm
Power Consumption	<ul style="list-style-type: none"> • Transmit mode: 3.0 W • Receive mode: 2.0 W • Idle mode (WLAN associated): 300mW • Idle mode (WLAN unassociated): 100mW • Modern Connected Standby: 10mW • Radio disabled: 8 mW
Power Management	ACPI and PCI Express compliant power management 802.11 compliant power saving mode
Receiver Sensitivity⁴	2.4GHz (SISO): <ul style="list-style-type: none"> • 802.11b, 11Mbps : -82dBm maximum • 802.11g, 54Mbps : -71dBm maximum • 802.11n, MCS7 : -64dBm maximum • 802.11ac, MCS9 : -52dBm maximum • 802.11ax, MCS11 (HT40): -49dBm maximum 5GHz (SISO): <ul style="list-style-type: none"> • 802.11a, 54Mbps : -71dBm maximum • 802.11n, MCS07 : -64dBm maximum • 802.11ac, MCS9 : -52dBm maximum • 802.11ax, MCS11 (HE80/HE160): -46dBm maximum 6GHz (SISO): <ul style="list-style-type: none"> • 802.11a, 54Mbps : -71dBm maximum • 802.11n, MCS7 : -64dBm maximum • 802.11ac, MCS9 : -52dBm maximum • 802.11ax, MCS11 (HE160): -46dBm maximum
Antenna type	High efficiency antenna with spatial diversity, mounted in the display enclosure Two embedded dual band 2.4/5/6 GHz antennas are provided to the card to support WLAN MIMO communications and Bluetooth communications
Form Factor	PCI-Express M.2 MiniCard
Dimensions	Type 2230: 2.3 x 22.0 x 30.0 mm
Weight	Type 2230: 3g
Operating Voltage	3.3 +/- 0.165v
Temperature	Operating 10° to 60° C Non-operating -40° to 85° C
Humidity	Operating 10% to 60% (non-condensing) Non-operating 5% to 95% (non-condensing)

Technical Specifications

Altitude	Operating	0 to 10,000 ft (3,048 m)
	Non-operating	0 to 50,000 ft (15,240 m)
LED Activity		N/A

HP Integrated Module with Bluetooth 4.0/4.1/4.2/5.0/5.1/5.2 Wireless Technology

Bluetooth Specification	4.0/4.1/4.2/5.0/5.1/5.2 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 1.5 Bluetooth device with a maximum transmit power of + 14 dBm and 10 dBm for BR and EDR, respectively.

1. Wi-Fi 6E requires a Wi-Fi 6E router, sold separately, to function in the 6GHz band. Availability of public wireless access points limited. Wi-Fi 6E is backwards compatible with prior 802.11 specs. And available in countries where Wi-Fi 6E is supported. Wi-Fi 6E is designed to support gigabit data rate when transferring files between two devices connected to the same router. Requires a wireless router, sold separately, that supports 80MHz and higher channels.
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).

Technical Specifications

Intel® XMM™ 7360 LTE-Advanced (CAT 9)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), 700 (Band 12 lower), 700 (Band 13 upper), 700 (Band 17 lower), 850 (Band 18 lower), 850 (Band 19 upper), 800 (Band 20), 850 (Band 26), 700 (Band 28), 700 (Band 29 RX only), 2300 (Band 30), 1700/2100 (Band 66), 600 (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 DL-CAT.9, DL 60MHz BW throughput up to 450Mbps; UL-CAT.3 50Mbps WCDMA R99, 3GPP Release 5, 6, 7 and 8 UMTS Specification
	Maximum data rates	LTE: 450Mbps (Download), 50 Mbps (Upload) DC-HSPA+: 42 Mbps (Download), 5.76 Mbps (Upload)
	Maximum output power	LTE: 23 dBm in all bands HSPA+: 23.5 dBm
	Maximum power consumption	LTE: 1,300 mA (peak); 880 mA (average) HSPA+: 800 mA (peak); 650 mA (average)
	Form Factor	M.2, 3042-S3 Key B
	Weight	6.2 g
	Dimensions (Length x Width x Thickness)	42 x 30 x 2.3 mm

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

Technical Specifications

POWER

NOTE: Actual battery Watt-hours (Wh) will vary from design capacity. Battery capacity will naturally decrease with shelf life, time, usage, environment, temperature, system configuration, loaded apps, features, power management settings and other factors.

45W AC Adapter	Dimensions	3.74 x 1.69 x 1.08in (9.5 x 4.3 x 2.75 cm)
	Weight	0.44 lb (200 g) max (Not including power cord. Power cord varies by country)
	Input	100 to 240 VAC
	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; Automatic shutdown
	Connector	USB Type-C®
	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	1 to 16,400 ft (0 to 5000m)
	Humidity	20% to 95%
	Storage Humidity	10% to 95%
	EMI and Safety	Eg:
	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.

Technical Specifications

HP 65W USB TYPE-C PD adapter	Dimensions	3.54 x 2.0 x 1.12 in (9.0cm x 5.1 cm x 2.85cm)
	Weight	0.55 lb (250 g) max (Not including power cord. Power cord varies by country)
	Input	
	Input Efficiency	Average Efficiency of 25%, 50%, 75%, 100% load condition with 115Vac/230Vac Spec: 5V : 81.5% 9V : 86.7% 12V : 88% 15V : 88% 20V : 89%
	Input frequency range	47 ~ 63Hz
	Input AC current	Max. 1.6 A at 90 Vac
	Output	
	Output power	5V/15W 9V/27W 12V/60W 15V/60W 20V/65W
	DC output	5V/9V/12V/15V/20V
	Hold-up time	5ms at 115 Vac input
	Output current limit	<8.0A
	Connector	USB Type-C®
	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	1 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, 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.	

Technical Specifications

HP 3-cell Long Life Li-ion (58 Wh)	Dimensions (H x W x L)	4.7. x 249 x 103.07 mm (0.185 x 9.8 x 4.05 inch)
	Weight	0.23 Kg (0.506 lb)
	Cells/Type	3cell Lithium-Ion Polymer cell / 407792
	Energy	
	Voltage	11.55V
	Amp-hour capacity	5.095Ah
	Watt-hour capacity	58.84Wh
	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	1-year
	Optional Travel Battery Available	No

Technical Specifications

AUDIO

HD Stereo Codec	Realtek ALC5682I-VS
Audio I/O Ports	Headset connector supports both CTIA and OMTP style headset
Internal Speaker Amplifier	max98360
Multi-streaming Capable	Follow ChromeOS behavior (NOT SUPPORT in current version)
Sampling	Follow ChromeOS behavior
Wavetable Syntheses	N/A
Analog Audio	Stereo headphone out by 3.5mm audio jack only.
# of Channels on Line-Out	Headphone L/R, No Line Out
Internal Speaker	Yes

FINGERPRINT READER

Sensor vendor	Model: FINGERPRINTS FPC1025
Sensor type	Capacitive
DPI resolution	508 dpi
Scan area	160x160
False Rejection Rate	CLKfreq 8kHz~19kHz
False Acceptance Rate	N/A
Mobile Voltage Operation	1.62V to 1.98V (Typical 1.8V)
Operating Temperature	-40° to +85°C
Current Consumption	< 6 mA
Image	
Low Latency Wait For Finger	2.1 mA
ESD Resistance	ESD Resistance: +/- 30kV
Detection Matrix	Detection Matrix: 160 x 160 pixels

Technical Specifications

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® • US Federal Energy Management Program (FEMP) • EPEAT[®] Gold registered in the United States. See http://www.epeat.net for registration status in your country. • TCO Certified • China Energy Conservation Program (CECP) • China State Environmental Protection Administration (SEPA) • Taiwan Green Mark • Korea Eco-label • Japan PC Green label* 		
Sustainable Impact Specifications	<ul style="list-style-type: none"> • Ocean-bound plastic in Speaker • 5% post-consumer recycled plastic • Low halogen • Outside Box and corrugated cushions are 100% sustainably sourced and recyclable • Molded Paper Pulp Cushion inside box is 100% sustainably sourced and recyclable • Bulk packaging available 		
System Configuration	<p>The configuration used for the Energy Consumption and Declared Noise Emissions data for the Notebook model is based on a “Typically Configured Notebook”.</p>		
Energy Consumption (in accordance with US ENERGY STAR® test method)	115VAC, 60Hz	230VAC, 50Hz	100VAC, 50Hz
Normal Operation (Sort idle)	4.56 W	4.65 W	4.47 W
Normal Operation (Long idle)	2.97 W	3.03 W	2.86 W
Sleep	0.45 W	0.49 W	0.46 W
Off	0.22 W	0.24 W	0.22 W
	<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, 50Hz
Normal Operation (Short idle)	15.6 BTU/hr	15.9 BTU/hr	15.3 BTU/hr
Normal Operation (Long idle)	10.2 BTU/hr	10.4 BTU/hr	9.8 BTU/hr
Sleep	1.5 BTU/hr	1.7 BTU/hr	1.6 BTU/hr
Off	0.8 BTU/hr	0.8 BTU/hr	0.8 BTU/hr

Technical Specifications

	*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 _{WAd} , bels)	Sound Pressure (L _{pAm} , decibels)	
Typically Configured – Idle	2.7	23.8	
Fixed Disk – Random writes	2.7	23.8	
Optical Drive – Sequential reads	-	-	
Longevity and Upgrading	This product can be upgraded, possibly extending its useful life by several years. Upgradeable features and/or components contained in the		
	Spare parts are available throughout the warranty period and or for up to “5” years after the end of production.		
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 is 96.6% recycle-able when properly disposed of at end of life. 		
Packaging Materials	External:	PAPER/Corrugated	230 g
		PAPER/Paperboard	51 g
		PAPER/Molded Pulp	95 g
	Internal:	PLASTIC/Polyethylene low density - LDPE	9 g
		The plastic packaging material contains at least 100.0% recycled content.	
		The corrugated paper packaging materials contains at least 35.6% recycled content.	
RoHS Compliance	<p>HP Inc. complies fully with materials regulations. We were among the first companies to extend the restrictions in the European Union (EU) Restriction of Hazardous Substances (RoHS) Directive to our products worldwide through the HP GSE. HP has contributed to the development of related legislation in Europe, as well as China, India, and Vietnam.</p> <p>We believe the RoHS directive and similar laws play an important role in promoting industry-wide elimination of substances of concern. We have supported the inclusion of additional substances—including PVC, BFRs, and certain phthalates—in future RoHS legislation that pertains to electrical and electronics products.</p> <p>We met our voluntary objective to achieve worldwide compliance with the new EU RoHS requirements for virtually all relevant products by July 2013, and we will continue to extend the scope of the commitment to include further restricted substances as regulations continue to evolve.</p> <p>To obtain a copy of the HP RoHS Compliance Statement, see HP RoHS position statement.</p>		

Technical Specifications

<p>Material Usage</p>	<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/supplychain/gen_specifications.html):</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 • Bis(2-Ethylhexyl) phthalate (DEHP) • Benzyl butyl phthalate (BBP) • Dibutyl phthalate (DBP) • Diisobutyl phthalate (DIBP) • 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)
<p>Packaging Usage</p>	<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.
<p>End-of-life Management and Recycling</p>	<p>HP 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>

Technical Specifications

	<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 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.</p>
<p>HP, Inc. Corporate Environmental Information</p>	<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 and http://www.hp.com/hpinfo/globalcitizenship/environment/pdf/cert.pdf</p>
<p>footnotes</p>	<ul style="list-style-type: none"> • Percentage of ocean-bound plastic contained in each component varies by product • Recycled plastic content percentage is based on the definition set in the IEEE 1680.1-2018 standard. • External power supplies, WWAN modules, power cords, cables and peripherals excluded. • 100% outer box packaging and corrugated cushions made from sustainably sourced certified and recycled fibers. • Fiber cushions made from 100% recycled wood fiber and organic materials.

COUNTRY OF ORIGIN

China

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

Category	Description	Part Number
Audio/Video	HP Wired USB-A Stereo Headset	428K6AA
	HP Wired 3.5mm Stereo Headset	428K7AA
Cases	HP Executive 15.6 Backpack	6KD07AA
	HP Executive 15.6 Top Load	6KD06AA
	HP Executive Slim 14.1 Top Load	6KD04AA
	HP Prelude G2 15.6 Backpack	1E7D6AA
	HP Prelude G2 15.6 Top Load	1E7D7AA
	HP Prelude Pro Recycled 15.6 Backpack	1X644AA
	HP Prelude Pro Recycled 15.6 Top Load	1X645AA
	HP Renew Business 14.1" Bag	3E5F9AA
	HP Renew Business 17.3" Backpack	3E2U5AA
	HP Renew Business 14.1" Sleeve	3E2U7AA
	HP Renew Business 15.6" Bag	3E5F8AA
	HP Renew Business 17.3" Bag	3E2U6AA
Docking	HP USB-C Dock G5	5TW10AA
	HP USB-C/A Universal Dock G2	5TW13AA
Hub	HP USB-C Mini Dock	1PM64AA
	HP Universal USB-C Multiport Hub	50H55AA
	HP USB-C Travel Dock G2	7PJ38AA
	HP USB-C to USB-A Hub	Z6A00AA
Adapter	HP HDMI to DVI Adapter	F5A28AA
	HP HDMI to VGA Adapter	H4F02AA
	HP USB to Gigabit RJ45 Adapter	N7P47AA
	HP USB-C to DisplayPort Adapter	N9K78AA
	HP USB-C to HDMI 2.0 Adapter	1WC36AA
	HP USB-C to RJ45 Adapter	V7W66AA
	HP USB-C to USB 3.0 Adapter	N2Z63AA
	HP USB-C to VGA Adapter	N9K76AA
Keyboard/Combo	HP 325 Chrome BT Keyboard	45U14AA
Mouse	HP USB Premium Wireless Mouse	1JR31AA
	HP 435 Multi-Device Wireless Mouse	3B4Q5AA
	HP 125 USB-A Wired Mouse	265A9AA
	HP 128 USB Laser Wired Mouse	265D9AA
	HP 320M USB-A Wired Mouse	9VA80AA
	HP Creator USB-A+Bluetooth 935 Wireless Mouse Black	1D0K8AA
	HP USB-A+Bluetooth Multi-Device 635 Wireless Mouse Black	1D0K2AA
	HP USB-A+Bluetooth Travel Bluetooth Mouse	6SP30AA

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

Power	HP 65W USB-C Auto AC Power Adapter	5TQ76AA
	HP 45W USB-C G2 AC Power Adapter	1HE07AA
	HP 45W USB-C LC AC Power Adapter	1MZ01AA
	HP 65W USB-C AC Power Adapter	1HE08AA
	HP 65W USB-C LC AC Power Adapter	1P3K6AA
	HP 65W USB-C Travel Slim AC Power Adapter	3PN48AA
Commodity	HP Nano Keyed Cable Lock	1AJ39AA
	HP Nano Master Keyed Cable Lock	1AJ40AA
	HP SureKey Standard/Nano/Wedge Cable Lock	6UW42AA

Summary of Changes

Date of change:	Version History:	Updated	Description of change:
May 17, 2022	V1 to V2	Added	Battery life
May 26, 2022	V2 to V3	Added	Environmental Data
June 15, 2022	V3 to V4	Added	Added note in Manageability Feature
September 26, 2022	V4 to V5	Removed	GPS data
	V5 to V6		

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