Overview

HP Pro x360 Fortis 11 inch G10



Left

- 1. Internal microphones (2)
- 2. Webcam and HP Privacy Camera
- 3. Webcam LED
- 4. Pen garage (optional)
- 5 Clickpad
- 6. World-facing 5 Megapixels Webcam (Optional)
- 7. World-facing Webcam LED (Optional)
- 8. SuperSpeed USB Type-C® 5 Gbps signaling rate port
- **9.** SuperSpeed USB Type-A 5 Gbps signaling rate port (USB 3.2 Gen 1)
- 10. HDMI port (Cable not included)
- 11. Ethernet (RJ-45) port
- **12.** Power Connector

Overview



Right

- 1. Power Button Key
- 2. Security lock slot (nano lock sold separately)
- 3. SuperSpeed USB Type-A 5 Gbps signaling rate port (USB 3.2 Gen 1)
- 4. Audio combo jack

Overview

AT A GLANCE

- Windows 11 Pro, other Windows OS, or FreeDOS preinstalled
- Weight starting at 3.33 lbs (1.51 kgs)
- At 21.2 mm (0.84"), this flexible 360° hinge converts to laptop, tablet, tent, stand or book mode easily
- Undergoes 19 MIL-STD 810H tests, with rugged features such as co-molded rubber trim, spill- and pick-resistant keyboard, and Corning® Gorilla® Glass 3 touch screen
- Optional dual camera system for project-based learning
- Optional HP Slim Rechargeable Pen can be safely charged and housed on the keyboard in an optional spill-resistant garage
- Choice of 12th generation Intel® Core™ i5 and i3 processors
- Choice of 29.5cm (11.6") diagonal HD IPS slim LED touch screen (1366 x 768) or 29.5 cm (11.6") diagonal HD SVA slim LED touch screen (1366 x 768) displays
- Up to 256 GB PCle® NVMe™ M.2 Solid State Drive storage options
- Up to 8 GB total system memory
- Reliable connectivity with choice of Intel® Wi-Fi 6E AX211 and Bluetooth® 5.2 Combo WLAN or Intel® 9560 802.11b/g/n/a/ac (2x2) and Bluetooth® 5 Combo WLAN for learning and collaboration beyond the classroom
- Built-in ports include: Ethernet (RJ-45), USB 3.1 Gen 1, USB Type-C®, and HDMI 1.4b port for connecting to high-resolution displays
- Enhanced security TPM 2.0 discrete chip
- Battery life up to 9 hours and 30 minutes

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



Technical Specifications

PRODUCT NAME

HP Pro x360 Fortis 11inch G10

OPERATING SYSTEM

Preinstalled Windows 11 Pro 1

Windows 11 Pro Education 1

Windows 11 Home - HP recommends Windows 11 Pro for business 1

Windows 11 Home Single Language - HP recommends Windows 11 Pro for business ¹ Windows 11 Pro (Windows 11 Enterprise available with a Volume Licensing Agreement) ¹

Windows 10 Pro (available through downgrade rights from Windows 11 Pro) 1,2

FreeDOS

- 1. Not all features are available in all editions or versions of Windows. Systems may require upgraded and/or separately purchased hardware, drivers, software or BIOS update to take full advantage of Windows functionality. Windows is automatically updated and enabled. High speed internet and Microsoft account required. ISP fees may apply and additional requirements may apply over time for updates. See http://www.windows.com
- 2. This system is preinstalled with Windows 10 Pro software and also comes with a license for Windows 11 Pro software and provision for recovery software. You may only use one version of the Windows software at a time. Switching between versions will require you to uninstall one version and install the other version. You must back up all data (files, photos, etc.) before uninstalling and installing operating systems to avoid loss of your data.

PROCESSORS

Processor ^{3,4,5,6}	Cores	Number of P-cores	Number of E-cores	Threads	L3 Cache	Max Turbo Frequency		Base Frequency	
						P-	E-	P-cores	E-cores
						cores	cores	P-Cores	E-cores
Intel® Core™ i5-1230U	10	2	8	12	12MB	4.4	3.3	1.0 GHz	0.7 GHz
						GHz	GHz		
Intel® Core™ i3-1210U	6	2	4	8	10MB	4.4	3.3	1.0 GHz	0.7 GHz
						GHz	GHz		

- 3. Multicore is designed to improve performance of certain software products. Not all customers or software applications will necessarily benefit from use of this technology. Performance and clock frequency will vary depending on application workload and your hardware and software configurations. Intel's numbering, branding and/or naming is not a measurement of higher performance.
- 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 products configured with Intel and AMD 7th generation and forward processors or provide any Windows 8 or Windows 7 drivers on http://www.support.hp.com.
- 6. Intel® Turbo Boost performance varies depending on hardware, software and overall system configuration. See http://www.intel.com/technology/turboboost for more information.



Technical Specifications

CHIPSET

Chipset is integrated with processor

GRAPHICS

Integrated

Intel® UMA Graphics

Supports

Support HD decode, DX12, HDMI 1.4b. 7

7. HD content required to view HD images.

DISPLAY

Touch

29.5 cm (11.6") diagonal, HD (1366x768), touch, SVA, BrightView Glass, Corning® Gorilla® Glass 3, eDP, 250 nits, 45% NTSC ^{7,8,9,10}

29.5 cm (11.6") diagonal, HD (1366x768), touch, IPS, BrightView Glass, Corning® Gorilla® Glass 3, eDP, 250 nits, 50% NTSC ^{7,8,9,10}

Display Size

11.6" diagonal 29.46 cm (11.6") diagonal

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



DOCKING (Sold Separately)

Docking station model #1HP USB-C Dock G5Docking station model #2HP USB-C Mini Dock

Docking station model #3HP USB-C/A Universal Dock G2Docking station model #4HP USB-C Travel Dock G2

For additional aftermarket options and docking specs please see page 27.

STORAGE AND DRIVES

Primary Storage

128 GB PCIe[®] NVMe[™] Value M.2 SSD ¹¹
256 GB PCIe[®] NVMe[™] Value M.2 SSD ¹¹

11. For storage drives, GB = 1 billion bytes. TB = 1 trillion bytes. Actual formatted capacity is less. Up to 30 GB (for Windows 10 and 11) is reserved for system recovery software.

MEMORY

Maximum Memory

8 GB LPDDR4X-4266 MHz RAM (on-board) 12,13

Memory

8 GB LPDDR4X-4266 MHz RAM (on-board) (2 x 4 GB) 12,13 4 GB LPDRR4X-4266 MHz RAM (on-board) (1 x 4 GB) 12,13

Memory Slots

On-board LPDDR4x; system runs at 4266 MHz ^{12,13} Supports Dual Channel Memory

- 12. All slots are non-accessible / non-upgradeable.
- 13. Due to the non-industry standard nature of some third-party memory modules, we recommend HP branded memory to ensure compatibility. If you mix memory speeds, the system will perform at the lower memory speed.



NETWORKING/COMMUNICATIONS

WLAN

Intel® Wi-Fi CERTIFIED 6E™ AX211 and Bluetooth® 5.2 combo, non-vPro® 14
Intel® Dual Band Wireless-AC 9560 802.11a/b/g/n/ac (2x2) Wi-Fi® and Bluetooth® 5 combo, non-vPro® 15

Miracast

Native Miracast Support 16

Ethernet

Realtek RTL8111HSH-CG 10/100/1000 GbE NIC 17

- 14. 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.
- 15. Wireless access point and internet service required and sold separately. Availability of public wireless access points limited. Wi-Fi 5 (802.11 ac) is backwards compatible with prior 802.11 specs.
- 16. Miracast is a wireless technology your PC can use to project your screen to TVs, projectors, and streaming.
- 17. The term "10/100/1000" or "Gigabit" Ethernet indicates compatibility with IEEE standard 802.3ab for Gigabit Ethernet, and does not connote actual operating speed of 1 Gb/s. For high-speed transmission, connection to a Gigabit Ethernet server and network infrastructure is required.

AUDIO/MULTIMEDIA

Audio

HP HD Audio

2 Integrated stereo speakers

Integrated dual array microphone

Speaker Power

2W/4ohm per speaker

Camera

720p HD camera 7,15

World-facing Wide Field of View 80° 5MP auto-focus secondary camera (Optional) 7,8,18

- 7. HD content required to view HD images.
- 8. Sold separately or as an optional feature.
- 15. Wireless access point and internet service required and sold separately. Availability of public wireless access points limited. Wi-Fi 5 (802.11 ac) is backwards compatible with prior 802.11 specs.
- 18. Internet access required.



Technical Specifications

KEYBOARDS/POINTING DEVICES/BUTTONS & FUNCTION KEYS

Keyboard

Full-sized keyboard, spill and pick resistant keyboard Optional pen garage

Pointing Device

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

Function Keys

- F1 Display Switching
- F2 Brightness Down
- F3 Brightness Up
- F4 Speaker Mute
- F5 Volume Down
- F6 Volume Up
- F7 Mic Mute
- F8 Blank
- F9 Blank
- F10 Insert
- F11 Wi-Fi Toggle
- F12 HP Programmable Key

Pen

Passive Targus Slim Stylus (Optional) HP Slim Rechargeable Pen (Optional)

Sensors

Combo Chip

Accelerometer

Magnetometer

Gyroscope

Hall Sensor



SOFTWARE AND SECURITY

Preinstalled Software

Software

HP Ouick Touch

HP Ouick Drop 19

HP PC Hardware Diagnostics Windows

HSA Fusion for Commercial

HSA Telemetry for Commercial

Touchpoint Customizer for Commercial

myHP

HP Smart Support 20

HP Connection Optimizer

HP Mac Address Manager

HP Hotkey Support

HP Support Assistant 21

HP Notifications

HP Privacy Settings

Buy Microsoft Office (Sold separately)

Al Noise Reduction Gen 2

Manageability Features

HP Manageability Integration Kit Gen4 (download) 22

HP Power Manager

HP Driver Packs (download)

HP Client Catalog (download)

HP Client Management Script Library (download)

HP Image Assistant (download)

Security Management

HP Sure Click 23

HP Sure Sense 2²⁴

HP Sure Start Gen7²⁵

HP Sure Admin 26

BIOS

HP BIOSphere Gen6 27

HP Secure Erase 28

Absolute Persistence Module 29

HP DriveLock & Automatic DriveLock

BIOS Update via Network

HP Wake on WLAN

TPM 2.0 Embedded Security Chip (Common Criteria EAL4+ Certified) (FIPS 140-2 Level 2 Certified)

HP Fingerprint Sensor 30

IPv6 Support

No



19. HP Quick Drop requires Internet access and Windows 10 PC 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.

20. HP Smart Support automatically collects the telemetry necessary upon initial boot of the product to deliver device-level configuration data and health insights and is available preinstalled on select products, thru HP Factory Configuration Services; or it can be downloaded. For more information about how to enable HP Smart Support or for download, please visit http://www.hp.com/smart-support.

- 21. Requires Windows and Internet Access
- 22. HP Manageability Integration Kit can be downloaded from http://www.hp.com/go/clientmanagement.
- 23. HP Sure Click requires Windows 10 Pro or Enterprise. See https://bit.ly/2PrLT6A_SureClick for complete details.
- 24. HP Sure Sense is available on select HP PCs and is not available with Windows10 Home.
- 25. HP Sure Start Gen6 is available on select HP PCs.
- 26. HP Sure Admin requires Windows 10, HP BIOS, HP Manageability Integration Kit from http://www.hp.com/go/clientmanagement and HP Sure Admin Local Access Authenticator smartphone app from the Android or Apple store.
- 27. HP BIOSphere Gen6 features may vary depending on the platform and configuration.
- 28. 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™.
- 29. Absolute firmware module is shipped turned off and can only be activated with the purchase a license subscription and full activation of the software agent. License subscriptions can be purchased for terms ranging multiple years. Service is limited, check with Absolute for availability outside the U.S. Certain conditions apply. For full details visit: https://www.absolute.com/about/legal/agreements/absolute/.
- 30. Fingerprint Reader is an optional feature that must be configured at purchase.

POWER

Power Supply

HP Smart 65 W EM External AC power adapter ³¹ HP Smart 45 W External AC power adapter ³¹ HP Smart 45 W USB Type-C adapter ³¹

Battery

HP Long Life 3-cell, 42 Wh Polymer ^{32,33} Supports HP Fast Charge (90% in 90 minutes) ³⁴

Power Cord

2-wire plug - 1m 3-wire plug - 1m

Battery life

Up to 9 hours and 30 minutes 35

Battery Weight

HP Long Life 3-cell - 42 Wh Polymer - .49 lb HP Long Life 3-cell - 42 Wh Polymer - 225g

- 31. Availability may vary by country.
- 32. Battery is internal and not replaceable by customer. Serviceable by warranty.



- 33. 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.
- 34. 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 speed will return to normal. Charging time may vary +/-10% due to System tolerance.
- 35. Windows 10 MM18 battery life will vary depending on various factors including product model, configuration, loaded applications, features, use, wireless functionality, and power management settings. The maximum capacity of the battery will naturally decrease with time and usage. See http://www.bapco.com for additional details.

WEIGHTS & DIMENSIONS

Product Weight

Starting at 3.33 lb ³⁶ Starting at 1.51 kg ³⁶

Product Dimensions (W x D x H)

11.7 x 8.02 x 0.84 in 29.7 x 20.37 x 2.12 cm

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

PORTS/SLOTS

- 2 Super Speed USB Type-A 5Gbps signaling rate (USB 3.2 Gen 1)
- 1 SuperSpeed USB Type-C® 5 Gbps signaling rate port (USB Power Delivery, Alt-mode DisplayPort™ 1.4)
- 1 HDMI 1.4b 37
- 1 RJ-45
- 1 AC power
- 1 headphone/microphone combo jack
- 37. HDMI cable sold separately.



Technical Specifications

SERVICE AND SUPPORT

HP Services offers 1-year or 3-year limited warranties and 90 day software limited warranty options depending on country. Batteries have a default one year limited warranty. 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/qo/cpc 38

38. 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.



SYSTEM UNIT

Stand-Alone Power Requirements (AC Power)

Nominal Operating Voltage 19V

Average Operating Power

Integrated graphics Yes
Discrete Graphics N/A
Max Operating Power UMA<45W

Temperature

Operating 32° to 95° F (0° to 35° C) Non-operating -4° to 140° F (-20° to 60° C)

Relative Humidity

Operating 10% to 90%, non-condensing

Non-operating 5% to 95%, 101.6° F (38.7° C) maximum wet bulb temperature

Shock

Operating 40 G, 2 ms, half-sine Non-operating 240 G, 2 ms, half-sine

Random Vibration

Operating 0.75 grams
Non-operating 1.50 grams

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 HSN-147C UL Yes CSA Yes FCC Compliance Yes ENERGY STAR® Yes³⁹

EPEAT® Registered Gold in United States 40

ICES Yes Australia / Yes **NZ A-Tick Compliance** Yes Yes Japan VCCI Compliance Yes KC Yes **BSMI** Yes **CE Marking Compliance** Yes **BNCI or BELUS** Yes CIT Yes GOST (EAC) Yes Saudi Arabian Compliance (ICCP) Yes **SABS** Yes

39. Configurations of the HP Pro x360 Fortis 11 inch G10 that are ENERGY STAR® certified are identified HP Pro x360 Fortis 11 inch G10 ENERGY STAR on HP websites and on http://www.energystar.gov.

Yes



UKRSERTCOMPUTER

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

DISPLAYS

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

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

Interface

11.6 in HD (1366x768) Bright-View SVA NTSC 250 eDP 45 flat LCD Panel Outline Dimensions (W x H) 268.5 x 168.5 max. (w/ PCB)
Active Area 256.125 x 144.0 mm

eDP1.2

Weight 210g max.

Diagonal Size 11.6 inch

Thickness 3.0mm max

Surface Treatment Bright View glass

Touch Enabled Yes¹

Contrast Ratio 400:1 (typ)
Refresh Rate 60Hz
Brightness 250nits¹
Pixel Resolution - Format RGB
Backlight WLED

Pixel Resolution1366 x 768 (HD)Color Gamut Coverage45%NTSCColor Depth6bits

Viewing Angle 40/40/15/30

Low Blue Light No

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

<2.08W max@150nits

11.6 in HD (1366x768) Bright-View IPS NTSC 250 eDP 50 flat LCD Panel
 Outline Dimensions (W x H)
 278.5 x 168.5 max (w/ PCB)

 Active Area
 256.125 x 144.0 mm

Weight 200g max.

Diagonal Size 11.6"

Thickness 3.0mm max Interface eDP1.2

Surface Treatment Bright View glass

Touch Enabled Yes¹
Contrast Ratio 600:1 (typ)
Refresh Rate 60Hz
Brightness 250nits¹
Pixel Resolution - Format RGB
Backlight WLED

Pixel Resolution 1366 x 768 (HD) **Color Gamut Coverage** 50%NTSC



Color Depth6bits + Hi FRCViewing Angle85/85/85/85

Low Blue Light No

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

<1.94W max@150nits



Technical Specifications

STORAGE AND DRIVES

For storage drives, GB = 1 billion bytes. TB = 1 trillion bytes. Actual formatted capacity is less. Up to 30 GB (for Windows 10 and 11) is reserved for system recovery software.

SSD 128GB 2230 PCIe NVMe Value

Form Factor M.2 2230
Capacity 128GB
NAND Type TLC

 Height
 0.09 in (2.3 mm)

 Width
 0.87 in (22 mm)

 Weight
 0.01 lb (5 g)

Interface PCIe NVMe Gen3X4 or Gen3X2

Maximum Sequential ReadUp To 2100 MB/sMaximum Sequential WriteUp To 1200 MB/sLogical Blocks250,069,680

Operating Temperature 32° to 158°F (0° to 70°C) [ambient temp]

Features Pyrite; TRIM; L1.2

SSD 256GB 2230 PCIe NVMe Value Form Factor M.2 2230

Capacity 256GB NAND Type TLC

 Height
 0.09 in (2.3 mm)

 Width
 0.87 in (22 mm)

Interface PCIe NVMe Gen3X4 or Gen3X2

Maximum Sequential ReadUp To 2500 MB/sMaximum Sequential WriteUp To 1300 MB/sLogical Blocks250,069,680

Operating Temperature 32° to 158°F (0° to 70°C) [ambient temp]

Features Pyrite; TRIM; L1.2



NETWORKING

Intel® AX211 Wi-Fi 6E¹ and Bluetooth® 5.2 M.2 160MHz CNVi WW WLAN non-vPro® Wireless LAN Standards IEEE 802.11a

IEEE 802.11b

IEEE 802.11n

IEEE 802.1111

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

5.825 – 5.850 GHz

5.955 - 6.415 GHz

6.435 – 6.515 GHz 6.535 – 6.875 GHz

6.895 - 7.115 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: max 300Mbps •802.11ac: 1733Mbps

• 802.11ax: max 2.4Gbps

Modulation Direct Sequence Spread Spectrum

OFDM, BPSK, QPSK, CCK, 16-QAM, 64-QAM, 256-QAM, 1024QAM

Security³ •IEEE and WiFi compliant 64 / 128 bit WEP encryption for a/b/g mode only

•AES-CCMP: 128 bit in hardware

•802.1x authentication

•WPA, WPA2: 802.1x. WPA-PSK, WPA2-PSK, TKIP, and AES.

WPA2 certificationWPA3 certificationIEEE 802.11i

•WAPI

Network Architecture Ad-hoc (Peer to Peer)

Models Infrastructure (Access Point Required)

Roaming IEEE 802.11 compliant roaming between access points

Output Power² • 802.11b: +17dBm minimum



• 802.11g : +16dBm minimum • 802.11a : +17dBm minimum

• 802.11n HT20(2.4GHz) : +14dBm minimum

• 802.11n HT40(2.4GHz) : +13dBm minimum

• 802.11n HT20(5GHz): +14dBm minimum

• 802.11n HT40(5GHz) : +13dBm minimum

• 802.11ac VHT80(5GHz): +10dBm minimum

• 802.11ac VHT160(5GHz) : +10dBm minimum

• 802.11ax HE40(2.4GHz) : +12dBm minimum

• 802.11ax HE80(5GHz) : +10dBm minimum

• 802.11ax HE160(5GHz): +10dBm minimum

Power Consumption •Transmit mode2.0 W

•Receive mode1.6 W

Idle mode (PSP)180 mW (WLAN Associated)
 Idle mode50 mW (WLAN unassociated)

Connected Standby 10mW

•Radio disabled8 mW

Power Management ACPI and PCI Express compliant power management

802.11 compliant power saving mode

Receiver Sensitivity⁴ • 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(VHT80): -84dBm maximum

802.11ac, MCS9(VHT80): -59dBm maximum
 802.11ac, MCS9(VHT160): -58.5dBm maximum

• 802.11ac, MCS9(VH1160): -58.5uBiii iiiaxiiiiuii • 802.11ax. MCS11(HE40): -57dBm maximum

• 802.11ax, MCS11(HE80): -54dBm maximum

• 802.11ax, MCS11(HE160): -53.5dBm 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 1216: 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)



Technical Specifications

Non-operating 0 to 50,000 ft (15,240 m)

LED Activity LED Amber – Radio OFF; LED Off – Radio ON

HP Integrated Module with Bluetooth 4.0/4.1/4.2/5.0/5.1/5.2 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 Legacy: 0~79 (1 MHz/CH) **Channels** BLE: 0~39 (2 MHz/CH)

Data Rates andLegacy: 3 Mbps data rate; throughput up to 2.17 Mbps **Throughput**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.

- 1. 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. 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.
- 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® 9560 **Wireless LAN Standards** IEEE 802.11a 802.11a/b/q/n/ac (2x2) IEEE 802.11b Wi-Fi® and Bluetooth® 5.0 IEEE 802.11a Combo 1 non-vPro® 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/q/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: max 300Mbps •802.11ac:max 1733Mbps Modulation Direct Sequence Spread Spectrum BPSK, QPSK, CCK, 16-QAM, 64-QAM, 256-QAM Security³ •IEEE and WiFi compliant 64 / 128 bit WEP encryption for a/b/g mode only •AES-CCMP: 128 bit in hardware 802.1x authentication •WPA, WPA2: 802.1x. WPA-PSK, WPA2-PSK, TKIP, and AES. •WPA2 certification WPA3 certification •IEEE 802.11i •WAPI **Network Architecture** Ad-hoc (Peer to Peer) Models Infrastructure (Access Point Required) Roaming IEEE 802.11 compliant roaming between access points Output Power² • 802.11b: +17dBm minimum 802.11a: +16dBm minimum 802.11a: +17dBm minimum 802.11n HT20(2.4GHz): +14dBm minimum

 802.11n HT40(2.4GHz): +13dBm minimum 802.11n HT20(5GHz): +14dBm minimum 802.11n HT40(5GHz): +13dBm minimum 802.11ac VHT80(5GHz): +10dBm minimum

• 802.11ac 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/Modern Standby: 10mW

Radio disabled: 8 mW

Power Management ACPI and PCI Express compliant power management

802.11 compliant power saving mode

Receiver Sensitivity⁴ • 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(VHT80): -84dBm maximum
 802.11ac, MCS9(VHT80): -59dBm maximum
 802.11ac, MCS9(VHT160): -58.5dBm 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 with CNVi Interface

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 1216: 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)

Operating 0 to 10,000 ft (3,048 m)

Non-operating 0 to 50,000 ft (15,240 m)

LED Activity LED Amber – Radio OFF; LED Off – Radio ON

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

Bluetooth Specification 4.0/4.1/4.2/5.0 Compliant

Frequency Band 2402 to 2480 MHz

Number of Available Legacy: 0~79 (1 MHz/CH)
Channels BLE: 0~39 (2 MHz/CH)

Data Rates andLegacy: 3 Mbps data rate; throughput up to 2.17 Mbps **Throughput**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.

1. Wi-Fi 5 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. Wireless access point and internet service required and sold separately. Availability of public wireless access points limited. Wi-Fi 5 (802.11 ac) is backwards compatible with prior 802.11 specs.

- 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 RTL8111HSH 10/100/1000 Integrated NIC	Ethernet Features	10 Mbit/s operation (10BASE-T; IEEE 802.3i; IEEE 802.3 clauses 13-14) 100 Mbit/s operation (100BASE-TX; IEEE 802.3u; IEEE 802.3 clauses 21-30)
		1000 Mbit/s operation (1000BASE-T; IEEE 802.3ab; IEEE 8023 clauses 40)

Auto-Negotiation (Automatic Speed Selection)
Full Duplex Operation at all Speeds. Half Duplex operation at 10 and 100

Mbit/s

Power Management ACPI compliant – multiple power modes

Situation-sensitive features reduce power consumption Advanced link down power saving for reducing link down power

consumption

Performance Features TCP/IP/UDP Checksum Offload (configurable)

Protocol Offload (ARP & NS)

Large send offload and Giant send offload

Receiving Side Scaling Jumbo Frame 9K

Manageability Wake-on-LAN from standby and hibernation (Magic Packet and

Microsoft Wake-Up Frame); Wake-on-LAN from off (Magic Packet only)

PXE 2.1 Remote Boot

Statistics Gathering (SNMP MIB II, Ethernet-like MIB, Ethernet MIB

(802.3x, clause 30))

Comprehensive diagnostic and configuration software suite

Virtual Cable Doctor for Ethernet cable status

Interface PCIe + SMBus

NIC Device Driver Name Realtek PCIe GBE Ethernet Family Controller



POWER

HP 45W Smart AC adapter

Dimensions 3.74 x 1.57 x 1.04 in (9.5 x 4.0 x 2.65 cm)

 Weight
 0.386 lb (175g) max

 Input
 90 to 265 VAC

Input Efficiency 87.74% at 115Vac and 88.4% at 230Vac

Input frequency range 47 to 63 Hz
Input AC current 1.4 A at 90 VAC

Output

Output power 45W **DC output** 19.5V

Hold-up time 5 msec at 115 VAC input

Output current limit <8.0A

Connector 4.5mm Barrel Type, 3 pin/grounded, mates with interchangeable

cords

Environmental Design

Operating temperature 32° to 95° F (0° to 35° C) **Non-operating (storage)** -4° to 185° F (-20° to 85° C)

temperature

Altitude 0 to 16,400 ft (0 to 5000m)

Humidity20% to 95%Storage Humidity10% to 95%

EMI and Safety Eg.

Certifications *CE Mark - full compliance with LVD and EMC directives

*Worldwide safety standards - IEC60950, EN60950, UL60950, Class1, SELV; Agency approvals - C-UL-US, NORDICS, DENAN, EN55022 Class B, FCC Class B, CISPR22 Class B, CCC, NOM-1 NYCE.

*MTBF - over 200,000 hours at 25°C ambient condition.

HP 65W EM Smart AC adapter

 Dimensions
 102x55x30mm

 Weight
 270g +/- 10g

Input

Input Efficiency 87% min at 115V/230V

Input frequency range 47 to 63 Hz

Input AC current 1.7 A at 90 VAC and maximum load

Output

Output power 65W

DC output 65W (19.5V/3.33A) **Hold-up time** 5 msec at 115 VAC input

Output current limit<11A, Over voltage protection- 29V max automatic shutdown</th>Connector4.5mm Barrel Type, 3 pin/grounded, mates with interchangeable

cords

Environmental Design

Operating temperature 32° to 95° F (0° to 35° C)



Non-operating (storage)

temperature

-4° to 185° F (-20° to 85° C)

Altitude 0 to 16,400 ft (0 to 5000m)

Humidity 0% to 95% **Storage Humidity** 0% to 95%

EMI and Safety Certifications

EN60950, UL60950, Class1, SELV; Agency approvals - C-UL-US, NORDICS, DENAN, EN55022 Class B, FCC Class B, CISPR22 Class B, CCC, NOM-1 NYCE; Reliability - failure rate of less than 0.1% annually

*CE Mark - EMC directives: Worldwide safety standards - IEC60950.

within the first three years of operation.

HP 45W USB Type-C Straight 1.8m AC Adapter **Dimensions** 94.0mm x 40.0mm x 26.5mm

Weight 192.5g +/-10%

Input

Input Efficiency Average Efficiency of 25%, 50%, 75%, 100% load condition with

115Vac/230Vac Spec:

5V: 81.5% 9V: 86.7% 12V: 87.41% 15V: 87.8% 47 ~ 63Hz

Input frequency range 4

Input AC current Max. 1.4 A at 90 Vac

Output

Output power 5V/15W

9V/27W 12V/36W 15V/45W 5V/9V/12V/15V

DC output 5V/9V/12V/15V **Hold-up time** 5ms at 115 Vac input

Output current limit < 5.0A **Connector** USB Type-C

Environmental Design

Operating temperature 32° to 95° F (0° to 35° C)
Non-operating (storage) -4° to 185° F (-20° to 85° C)

temperature

Altitude 0 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, 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.

AN 42Whr Long Life Polymer Fast Charge 3 cell Battery **Dimensions (H x W x L)** H6.6mm Max; W67.8mm ±0.15; L249.5mm ±0.2

Weight 225g Max
Cells/Type 3 cell; Polymer

Energy

Voltage 11.4V

Amp-hour capacity 3.75Ah

Watt-hour capacity 42.75Wh

Temperature 5° to 40° C

Operating (Charging) 0° to 45° C

Operating (Discharging) -10° to 60° C

Fuel Gauge LED NA

Warranty 1000 cycles

Optional Travel Battery

Available



AUDIO

HD Stereo Codec Realtek ALC3247

Audio I/O Ports CTIA only

Internal Speaker Amplifier 2W class D stereo amplifier for the internal speaker only

Multi-streaming Capable Yes, follow Microsoft policy

Sampling spk/headphone - 16/24bit, 48kHz

microphone - 16bit/48kHz

external - 16/24bit, 48kHz/44.1kHz

Wavetable Syntheses 2w/4ohm per speaker

Analog Audio CTIA only
of Channels on Line-Out N/A
Internal Speaker YES

COUNTRY OF ORIGIN

China



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

DOCKING (Sold Separately)

Docking station model #1 HP USB-C Dock G5

Total number of supported displays

(incl.the notebook display) Max.resolutions supported

Dual 5K@ 30Hz + (1) 4K UHD (multi-function mode) 5120 x 2880 1

Dock Connectors 1xHDMI, 2xDP

Technical limitations Highest resolution with dual displays is two 8K@ 60Hz host in High Resolution

Three maximum displays supported are two 5K@ 30 Hz on DP ports plus one

4K UHD@ 30 Hz on HDMI in multi-function mode

The highest resolution for a non-Thunderbolt host in multi-function mode is a

single 5K dual cable (using both DP ports) + (1) 4K on HDMI port.

HP USB-C Mini Dock Docking station model #2

Total number of supported displays

(incl.the notebook display)

Max.resolutions supported Single 4K@30Hz (HDMI) or 2K@60Hz (VGA) 1

3

1

Dock Connectors 1xHDMI. 1xVGA

Technical limitations One display supported at a time

Docking station model #3 HP USB-C/A Universal Dock G2

Total number of supported displays

(incl.the notebook display)

Max.resolutions supported Triple 4K UHD@ 60Hz 3840 x 2160 1

Dock Connectors 1xHDMI, 2xDP

Technical limitations The best resolution for dual or triple displays is 4K UHD@ 60Hz.

> For use with the USB-A adapter that comes in the box the maximum number of displays supported is (2) 4k x 60 Hz on the Type-A Gen 1 connection from

Best single display is with High Resolution mode using HDMI port.

HP USB-C Travel Dock G2 Docking station model #4

Total number of supported displays

(incl.the notebook display)

Max.resolutions supported Single 4K@ 30 Hz 4960 x 2160 (via HDMI) or 1920 x 1200@ 60Hz via VGA 1

Dock Connectors 1xHDMI, 1xVGA

Technical limitations Single external display using either HDMI or VGA.

1

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



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 Always On 11.6 Black Case	1D3D0AA
	HP Business 13.3 Sleeve	2UW00AA
	HP Business 14.1 Sleeve	2UW01AA
	HP Business 15.6 Top Load	2SC66AA
	HP Business Slim 14.1 Top Load	2SC65AA
	HP Business Slim 17.3 Top Load	2UW02AA
	HP Executive 14.1 Tote	6KD10AA
	HP Executive 15.6 Backpack	6KD07AA
	HP Executive 15.6 Top Load	6KD06AA
	HP Executive 17.3 Backpack	6KD05AA
	HP Executive 17.3 Top Load	6KD08AA
	HP Executive Leather 15.6 Top Load	6KD09AA
	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 14 Laptop Sleeve	2E6U9AA, 2E6V0AA
	HP Renew Business 14.1 Laptop Bag	3E5F9AA
	HP Renew Business 14.1 Laptop Sleeve	3E2U7AA
	HP Renew Business 15.6 Laptop Bag	3E5F8AA
	HP Renew Business 17.3 Laptop Backpack	3E2U5AA
	HP Renew Business 17.3 Laptop Bag	3E2U6AA
	HP Reversible 11.6 Sleeve	7ZE81AA
	HP Reversible 13.3 Sleeve	7ZE82AA
	HP Mobility 11.6 Laptop	4U9G8AA
Docking	HP USB-C 120W G5 Dock	5TW10AA
	HP USB-C/A 120W G2 Universal Dock	5TW13AA
	THE OSD CAN TEST BE SHIVE I SULL BOCK	511111
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
Adaptor	UD UDMI - DW Advas	F
Adapter	HP HDMI to DVI Adapter	F5A28AA
	HP HDMI to VGA Adapter	H4F02AA
	HP USB-C to DisplayPort Adapter	N9K78AA
	HP USB-C to HDMI 2.0 Adapter	1WC36AA
	HP USB-C to RJ45 Adapter	V7W66AA



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

-		
	HP USB-C to USB 3.0 Adapter	N2Z63AA
	HP USB-C to VGA Adapter	N9K76AA
Keyboard/Combo	HP 975 USB+Bluetooth Dual-Mode Wireless Keyboard	3Z726AA
	HP 455 Programmable Wireless Keyboard	4R177AA
	HP 125 WD USB Keyboard	266C9AA
	HP 320K WD USB Keyboard	9SR37AA
	HP 655 Wireless Keyboard and Mouse Combo	4R009AA
	HP 225 Wired Mouse and Keyboard Combo	286J4AA
	HP 235 Wireless Mouse and Keyboard Combo	1Y4D0AA
	HP Slim Wireless Keyboard and Mouse	T6L04AA
	HP Wired Desktop 320MK Mouse and Keyboard	9SR36AA
	HP Wireless Rechargeable 950MK Mouse and Keyboard	3M165AA
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
Pen Charger	HP Rechargeable Pro Slim Pen Charger	4X491AA
Power	HP 65W USB-C Auto Chevy AC Power Adapter	5TQ76AA
	HP 45W 4.5 mm Smart AC Power Adapter	H6Y88AA
	HP 45W USB-C G2 Zeus AC Power Adapter	1HE07AA
	HP 45W USB-C LC Dali AC Power Adapter	1MZ01AA
	HP 65W 4.5 mm Smart AC Power Adapter	H6Y89AA
	HP 65W 4.5 mm wDongle 7.4 mm Slim AC Power Adapter	H6Y82AA
	HP 65W USB-C Hades AC Power Adapter	1HE08AA
	HP 65W USB-C LC AC Power Adapter	1P3K6AA
Commodity	HP USB DVD-Writer EXT ODD	F2B56AA
	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:
January 26, 2022	V1 to V2	Added	Al Noise Reduction Gen 2 in Software and Security section
February 15, 2022	V2 to V3	Updated	Displays
February 28, 2022	V3 to V4	Removed	HP 955 4K Webcam from Accessories section
March 4, 2022	V4 to V5	Added	Fast Charge in Battery section
April 11, 2022	V5 to V6	Added	Reference for USB ports
April 21, 2022	V6 to V7	Added	Battery Life and removed eMMC
	V7 to V8		

Copyright © 2022 HP Development Company, L.P. The only warranties for HP products are set forth in the express limited warranty statements accompanying such products. Nothing herein should be construed as constituting an additional warranty. HP shall not be liable for technical or editorial errors or omissions contained herein.

Intel, Celeron, Pentium, and Intel vPro are trademarks or registered trademarks of Intel Corporation or its subsidiaries in the United States and other countries. USB Type-C® and USB-C® are registered trademarks of USB Implementers Forum. SDXC is a registered trademark of SD-3C in the United States, other countries or both. ENERGY STAR is a registered trademark of the U.S. Environmental Protection Agency. All other trademarks are the property of their respective owners.

