

Overview

HP Chromebook x360 11 G3 EE



1. Webcam LED
2. Webcam
3. Internal Microphone
4. Touchpad
5. Microphone (Optional)
6. 5MP Webcam (Optional)
7. Webcam LED (Optional)

Left

8. Volume Button
9. Power Light
10. Power Button
11. USB 3.1 Type-A™ Gen 1
12. USB 3.1 Type-C™ Gen 1 - support charging, power delivery, video, data
13. Nano Security Lock Slot

Overview



Right

1. **Lock Key**
2. **USB 3.1 Type-C™ Gen 1 Port
(Support Charging, Power Delivery, Video, Data)**
3. **AC Adapter and Battery Light**
4. **USB 3.1 Type-A™ Gen 1 Port**
5. **MicroSD™ Memory Card Reader**
6. **Stereo Headphone / Microphone Combo Jack**

Overview

AT A GLANCE

- Corning® Gorilla® Glass damage-resistant cover glass
- Enjoy affordable, convenient mobile productivity with Latest Intel® Celeron® N4020 and N4120 processors
- Designed to pass MIL STD 810 H tests, 76 cm drop on concrete and 122 cm drop on plywood, and enhanced USB-C™ connectors to stand against daily uses of plug and unplug¹
- 2 USB-C™ ports (supports Power Delivery, DisplayPort™, data)
- Choice of up to 8GB memory and 64GB eMMC storage
- Spill and pick resistant keyboard with HP Improved Anchored Key Design
- All-day battery life and spend less time charging with HP Fast Charge technology²
- Flexible 360°hinge, 2nd 5MP world-facing camera (Optional) and HP EMR pen (Optional) support blended-learning in laptop, tablet, tent or stand mode
- Enjoy Android™ Apps* on Chrome OS™³
- Your Chromebook boots up within 10 seconds and you can be browsing online and working in Google Apps just moments later
- Intel® 2x2 AC WLAN with MU-MIMO and HP Extended Range Wireless Lan for stable connection in dense environment
- Keyboard that can be repeatedly wiped down with common household cleaning wipes.
- Easy for small hands to grip and handle with Unique textured surface
- Degrees of IP41 certified to against access to hazardous/solid foreign objects and ingress of water

1. MIL-STD-810H 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.
2. 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.
3. Sold separately or as an optional feature.

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

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

PRODUCT NAME

HP Chromebook x360 11 G3 EE

OPERATING SYSTEM

Preinstalled **Chrome OS™**

PROCESSOR

Intel® Celeron® N4020 with Intel® UHD Graphics 600 (1.1 GHz base frequency, up to 2.8 GHz boost frequency, 4 MB cache, 2 cores)^{1,2}

Intel® Celeron® N4120 with Intel® UHD Graphics 600 (1.1 GHz base frequency, up to 2.6 GHz boost frequency, 4 MB cache, 4 cores)^{1,2}

Intel® Celeron® N4000 with Intel® UHD Graphics 600 (1.1 GHz base frequency, up to 2.6 GHz boost frequency, 4 MB cache, 2 cores)^{1,2}

Intel® Celeron® N4100 with Intel® UHD Graphics 600 (1.1 GHz base frequency, up to 2.4 GHz boost frequency, 4 MB cache, 4 cores)^{1,2}

Processor Family

Intel® Celeron® processor (N4020, N4120, N4100, N4000)

1. 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.

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

CHIPSET

Chipset is integrated with processor

GRAPHICS

Integrated

Intel® UHD Graphics 600³

Supports

Support HD Decode, DX12, and HDMI 1.4b

3. HD content required to view HD images.

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

DISPLAY

Touch

29.46 cm (11.6") diagonal HD IPS eDP BrightView WLED-backlit TOP+ touch screen with Corning® Gorilla® Glass 3, 220 nits, 69% NTSC (1366 x 768)^{3,4,5}

29.46 cm (11.6") diagonal HD IPS eDP BrightView WLED-backlit TOP+ touch screen with Corning® Gorilla® Glass 3 and Digitizer, 220 nits, 69% NTSC (1366 x 768)^{3,4,5}

Display Size

11.6"

29.46 cm (11.6")

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.

STORAGE AND DRIVES

Primary Storage

32 GB eMMC 5.0⁶

64 GB eMMC 5.0⁶

6. For storage drives, GB = 1 billion bytes. Actual formatted capacity is less. Up to 8.1 GB is not user available

MEMORY

Maximum Memory

8 GB LPDDR4-2400 SDRAM

Memory

8 GB LPDDR4-2400 SDRAM

4 GB LPDDR4-2400 SDRAM

Memory Slots

Memory soldered on board

Dual channel support

NETWORKING/COMMUNICATIONS

WLAN

Intel® Dual Band Wireless-AC 9560 802.11 ac (2x2) Wi-Fi® and Bluetooth® 5.0 Combo, non-vPro™⁷

MU-MIMO supported

HP Extended Range Wireless Lan supported

Chromecast

Chromecast Support⁸

7. Wireless access point and Internet service required and sold separately. Availability of public wireless access points limited.

8. Chromecast must be purchased separately.

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

AUDIO/MULTIMEDIA

Audio

HD Audio

Dual Speakers

Integrated Microphone

Camera

720p HD camera³

5 MP Rear Camera (World Facing secondary camera, Fixed Focus)⁴

3. HD content required to view HD images.

4. Sold separately or as an optional feature.

KEYBOARD / POINTING DEVICES

Keyboard

Full Size Textured island-style Keyboard, spill-resistant & HP Improved Anchored Key Design

Pointing Device

Touchpad with multi-touch gesture support. Taps enabled as default

SOFTWARE AND SECURITY

Preinstalled Software

Store up to 100 GB with Google Drive (2-year subscription included)⁹

HP Classroom Manager¹⁰

Manageability Features

Chrome Enterprise Upgrade^{11, 12}

Chrome Education Upgrade^{11, 12}

Security Management

Google H1 Security Chip

Nano Security lock slot¹¹

9. Google Drive offer is tied to this device and is non-transferable. If this device is returned, the extra storage will be revoked. In order to redeem this offer, you will need to be on Chrome OS™ 23 or later. Internet access is required and not included. Additional information about storage plan refunds, renewals, cancellations and expiration is available at the Google website: <https://support.google.com/chromebook/answer/2703646?hl=en>.

10. HP Classroom Manager is sold separately. Control and device locking from the teacher's desktop requires purchase of HP Classroom Manager.

11. Sold separately.

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

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

POWER

Power Supply

HP Smart 45 W Type-C™ AC power adapter

Primary Battery

HP Long Life 2-cell, 47.36 Wh Li-ion polymer¹³

HP Fast Charge Technology (90% in 90 minutes)¹⁴

Power Cord

3-wire plug - 1 m

Battery life

Up to 13 hours*

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

14. 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.

*** 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. See <http://www.chromium.org/chromium-os/testing/power-testing> for test details. Full charge battery life will decrease after Adaptive Battery Optimizer activation.**

ENVIRONMENTAL

<p><i>Environmental Data</i></p>	<p><i>Eco-Label Certifications & declarations</i></p>	<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 <input type="checkbox"/> Silver registered in the United States. See http://www.epeat.net for registration status in your country. • TCO or TCO Certified Edge • China Energy Conservation Program (CECP) • China State Environmental Protection Administration (SEPA) • Taiwan Green Mark • Korea Eco-label • Japan PC Green label*
	<p><i>System Configuration</i></p>	<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>

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

<i>Energy Consumption (in accordance with US ENERGY STAR® test method)</i>	115VAC, 60Hz	230VAC, 50Hz	100VAC, 50Hz
Normal Operation (Sort idle)	3.108 W	3.288 W	3.012 W
Normal Operation (Long idle)	0.888 W	1.068 W	0.912 W
Sleep	0.360 W	0.420 W	0.360 W
Off	0.336 W	0.396 W	0.336 W
	<p>Note:</p> <p>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>		
<i>Heat Dissipation*</i>	115VAC, 60Hz	230VAC, 50Hz	100VAC, 50Hz
Normal Operation (Short idle)	10.63 BTU/hr	11.24 BTU/hr	10.3 BTU/hr
Normal Operation (Long idle)	3.04 BTU/hr	3.65 BTU/hr	3.12 BTU/hr
Sleep	1.23 BTU/hr	1.44 BTU/hr	1.23 BTU/hr
Off	1.15 BTU/hr	1.35 BTU/hr	1.15 BTU/hr
	<p>*NOTE: Heat dissipation is calculated based on the measured watts, assuming the service level is attained for one hour.</p>		
<i>Declared Noise Emissions (in accordance with ISO 7779 and ISO 9296)</i>	Sound Power (L_{WA}d, bels)		Sound Pressure (L_{pAm}, decibels)

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

	Typically Configured – Idle	2.2	22
	Fixed Disk – Random writes	2.2	22
	Optical Drive – Sequential reads	4.8	42
	<i>Longevity and Upgrading</i>	<p>This product can be upgraded, possibly extending its useful life by several years. Upgradeable features and/or components contained in the product may include:</p> <ul style="list-style-type: none"> • 3 USB ports • 1 PC card slot (type I/II) • 1 ExpressCard/54 slot • 1 IEEE 1394 Port • 2 SODIMM memory slots • Optional expansion base docking station • 1 multi-bay II storage port • Interchangeable HDD?? <p>Spare parts are available throughout the warranty period and or for up to “5” years after the end of production.</p>	
	<i>Batteries</i>	<p>This battery(s) in this product comply with EU Directive 2006/66/EC</p> <p>Batteries used in the product do not contain: Mercury greater the 1ppm by weight Cadmium greater than 20ppm by weight</p> <p>Battery description: GH02047PL Battery type: Li-Ion/Li-Ion Polymer Battery description: 6-cell high capacity Lithium-Ion battery (optional 8 cell available) Battery type:</p>	
	<i>Additional Information</i>	<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 Silver level, see http://www.epeat.net • Plastics parts weighing over 25 grams used in the product are marked per ISO11469 and ISO1043. • This product contains 11.6% post-consumer recycled plastic (by wt.) according to IEEE 1680.1-2018 standard, criterion 4.2.1.1. • This product is 97.2% recycle-able when properly disposed of at end of life. 	
	<i>Packaging Materials</i>	External:	PAPER/Corrugated
			226 g

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

		<table border="1"> <tr> <td><i>Internal:</i></td> <td>PLASTIC/Polyethylene low density - LDPE</td> <td>7 g</td> </tr> <tr> <td></td> <td>PAPER/Molded Pulp</td> <td>121 g</td> </tr> <tr> <td></td> <td></td> <td></td> </tr> </table>	<i>Internal:</i>	PLASTIC/Polyethylene low density - LDPE	7 g		PAPER/Molded Pulp	121 g			
<i>Internal:</i>	PLASTIC/Polyethylene low density - LDPE	7 g									
	PAPER/Molded Pulp	121 g									
		<p>The plastic packaging material contains at least xx% recycled content.</p> <p>The corrugated paper packaging materials contains at least xx% recycled content.</p>									
<p><i>RoHS Compliance</i></p>		<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>									
	<p><i>Material Usage</i></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) 									

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

		<ul style="list-style-type: none"> • 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><i>Packaging Usage</i></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><i>End-of-life Management and Recycling</i></p>	<p>Hewlett-Packard offers end-of-life HP product return and recycling programs in many geographic areas. To recycle your product, please go to: http://www.hp.com/go/reuse-recycle or contact your nearest HP sales office. Products returned to HP will be recycled, recovered or disposed of in a responsible manner.</p> <p>The EU WEEE directive (2002/95/EC) requires manufacturers to provide treatment information for each product type for use by treatment facilities. This information (product disassembly instructions) is posted on the 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><i>HP, Inc. Corporate Environmental Information</i></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:</p> <p>http://h20195.www2.hp.com/V2/GetDocument.aspx?docname=c04755842and</p>

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

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

WEIGHTS & DIMENSIONS

Product Weight

Starting at 3.19 lb¹⁵

Starting at 1.45 kg¹⁵

Product Dimensions (w x d x h)

11.61 x 8.08 x 0.82 in

29.5 x 20.53 x 2.09 cm

15. Weight will vary by configuration.

PORTS/SLOTS

Ports

2 USB 3.1 Type-C™ Gen 1 (supports Power Delivery, DisplayPort™, data)

2 USB 3.1 Gen 1

1 Stereo headphone/microphone combo jack

Expansion Slots

1 Micro SD multi-format digital media reader

Supports SD, SDHC, SDXC

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

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 except for Long Life batteries which will have same 1-year limited warranty as the platform. Refer to <http://www.hp.com/support/batterywarranty/> for additional battery information. On-site service and extended coverage is also available. HP Care Pack Services are optional extended service contracts that go beyond the standard limited warranties. To choose the right level of service for your HP product, use the HP Care Pack Services Lookup Tool at: <http://www.hp.com/go/cpc>.¹⁶

16. 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.

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

SYSTEM UNIT

<i>Stand-Alone Power Requirements (AC Power)</i>	USB-C 45 W adapter	
	<i>Nominal Operating Voltage</i>	15 V
	<i>Average Operating Power</i>	<4.0 W with PLT test
	<i>Integrated Graphics</i>	HD Graphics 600 12EUs HD Graphics 600 12EUs
	<i>Max Operating Power</i>	< 45 W
<i>Temperature</i>	<i>Operating</i>	41° to 95° F (5° to 35° C)
	<i>Non-operating</i>	-4° to 140° F (-20° to 60° C)
<i>Relative Humidity</i>	<i>Operating</i>	10% to 90%
	<i>Non-operating</i>	5% to 95%
<i>Shock</i>	<i>Operating</i>	40 G, 2 ms, half-sine
	<i>Non-operating</i>	240 G, 2 ms, half-sine
<i>Random Vibration</i>	<i>Operating</i>	1.043 grms
	<i>Non-operating</i>	3.5 grms
<i>Altitude (unpressurized)</i>	<i>Operating</i>	-50 to 10,000 ft (-15 to 3,048 m)
	<i>Non-operating</i>	-50 to 40,000 ft (-15 to 12,192 m)
<i>Planned Industry Standard Certifications</i>	<i>UL</i>	Yes
	<i>FCC Compliance</i>	Yes
	<i>ENERGY STAR®</i>	Yes¹⁷
	<i>EPEAT® 2019</i>	Yes, Silver in U.S.¹⁸
	<i>ICES</i>	Yes
	<i>Australia /</i>	Yes
	<i>NZ RCM Compliance</i>	Yes
	<i>KC</i>	Yes
	<i>BSMI</i>	Yes
	<i>CE Marking Compliance</i>	Yes
	<i>EAC</i>	Yes
	<i>Saudi Arabian Compliance (ICCP)</i>	Yes
	<i>SABS</i>	Yes

17. Configurations of the HP ChromeBook x360 11 G3 EE that are ENERGY STAR® qualified are identified as HP ChromeBook x360 11 G3 EE ENERGY STAR on HP websites and on <http://www.energystar.gov>.

18. 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.

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

DISPLAYS

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

<i>11.6 inch diagonal HD (1366 x 768) BrightView WLED UWVA 50% NTSC 220 nits eDP 1.2 w/o PSR slim TOP+ OBZ</i>	<i>Outline Dimensions (W x H x D)</i>	284.85 X 189.84 (mm)
	<i>Active Area</i>	256.125 x 144.0 (mm)
	<i>Weight</i>	320 g max
	<i>Diagonal Size</i>	11.6 (inch)
	<i>Thickness</i>	4.2 max w PCBA
	<i>Interface</i>	eDP 1.2
	<i>Surface Treatment</i>	BrightView
	<i>Touch Enabled</i>	yes
	<i>Contrast Ratio</i>	800:1 (typical)
	<i>Refresh Rate</i>	60 HZ
	<i>Brightness</i>	220 nit typical (Panel Only)
	<i>Pixel Resolution</i>	1366 x 768 (HD)
	<i>Format of LCD Pixel Arrangement</i>	RGB
	<i>Backlight</i>	LED
	<i>Color Gamut Coverage</i>	50% of NTSC
	<i>Color Depth</i>	6 bit
	<i>Viewing Angle</i>	UWVA 85/85/85/85

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

STORAGE AND DRIVES*

32 G eMMC	Drive Weight	0.2 g
	Rotation speed	32 GB / 64 GB
	Cache Buffer	1.4 mm
	Height	11.5 x 13 mm
	Width	MMC protocol
	Transfer Rate	Up to 250 MB/s
	Seek Time	Up to 70 MB/s
	Logical Blocks	32 GB (31,268,536,320 Bytes) / 64 GB (62,537,072,640 Bytes)
	Operating Temperature	0 to 70
	Security Features	HS400

64 G eMMC	Drive Weight	0.2 g
	Rotation speed	32 GB / 64 GB
	Cache Buffer	1.4 mm
	NAND Type/Size	11.5 x 13 mm
	Height	MMC protocol
	Interface	Up to 250 MB/s
	Transfer Rate	Up to 70 MB/s
	Seek Time	32 GB (31,268,536,320 Bytes) / 64 GB (62,537,072,640 Bytes)
	Logical Blocks	0 to 70
	Operating Temperature	HS400

For storage drives, GB = 1 billion bytes. Actual formatted capacity is less. Up to 8.1 GB is not user available

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

NETWORKING/COMMUNICATIONS

<p>Intel® 9560 802.11a/b/g/n/ac (2 x 2) Wi-Fi® and Bluetooth® 5.0 Combo¹ non-vPro</p>	<p>Wireless LAN Standards</p>	<p>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</p>
	<p>Interoperability</p>	<p>Wi-Fi certified</p>
	<p>Frequency Band</p>	<ul style="list-style-type: none"> •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
	<p>Data Rates</p>	<ul style="list-style-type: none"> •802.11b: 1, 2, 5.5, 11 Mbps •802.11g: 6, 9, 12, 18, 24, 36, 48, 54 Mbps •802.11a: 6, 9, 12, 18, 24, 36, 48, 54 Mbps •802.11n: MCS 0 ~ MCS 15, (20MHz, and 40MHz) •802.11ac: MCS0 ~ MCS9, (1SS, and 2SS) (20MHz, 40MHz & 80MHz)
	<p>Modulation</p>	<p>Direct Sequence Spread Spectrum BPSK, QPSK, CCK, 16-QAM, 64-QAM, 256-QAM</p>
	<p>Security³</p>	<ul style="list-style-type: none"> •IEEE compliant 64 / 128 bit WEP encryption for a/b/g mode only •AES-CCMP: 128 bit in hardware •802.1x authentication •WPA, WPA2: 802.1x. WPA-PSK, WPA2-PSK, TKIP, and AES. •WPA2 certification •IEEE 802.11i •WAPI
	<p>Network Architecture Models</p>	<p>Ad-hoc (Peer to Peer) Infrastructure (Access Point Required)</p>
	<p>Roaming</p>	<p>IEEE 802.11 compliant roaming between access points</p>
	<p>Output Power²</p>	<ul style="list-style-type: none"> • 802.11b: +18.5dBm minimum • 802.11g: +17.5dBm minimum • 802.11a: +18.5dBm minimum • 802.11n HT20(2.4GHz): +15.5dBm minimum • 802.11n HT40(2.4GHz): +14.5dBm minimum • 802.11n HT20(5GHz): +15.5dBm minimum

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

	<ul style="list-style-type: none"> • 802.11n HT40(5GHz): +14.5dBm minimum • 802.11ac VHT80(5GHz): +11.5dBm minimum • 802.11ac VHT160(5GHz): +11.5dBm minimum
<i>Power Consumption</i>	<ul style="list-style-type: none"> • Transmit mode: 2.0 W • Receive mode: 1.6 W • Idle mode (PSP) 180 mW (WLAN Associated) • Idle mode: 50 mW (WLAN unassociated) • Connected Standby/Modern Standby: 10 mW • Radio disabled: 8 mW
<i>Power Management</i>	ACPI and PCI Express compliant power management 802.11 compliant power saving mode
<i>Receiver Sensitivity</i> ³	<p>802.11b, 1Mbps: -93.5dBm maximum</p> <p>802.11b, 11Mbps: -84dBm maximum</p> <p>802.11a/g, 6Mbps: -86dBm maximum</p> <p>802.11a/g, 54Mbps: -72dBm maximum</p> <p>802.11n, MCS07: -67dBm maximum</p> <p>802.11n, MCS15: -64dBm maximum</p> <p>802.11ac, MCS0: -84dBm maximum</p> <p>802.11ac, MCS9: -59dBm maximum</p>
<i>Antenna type</i>	<p>High efficiency antenna with spatial diversity, mounted in the display enclosure</p> <p>Two embedded dual band 2.4/5 GHz antennas are provided to the card to support WLAN MIMO communications and Bluetooth communications</p>
<i>Form Factor</i>	PCI-Express M.2 MiniCard with CNVi Interface
<i>Dimensions</i>	<p>1. Type 2230: 2.3 x 22.0 x 30.0 mm</p> <p>2. Type 1216: 1.67 x 12.0 x 16.0 mm</p>
<i>Weight</i>	<p>1. Type 2230: 2.8 g</p> <p>2. Type 1216: 1.3 g</p>
<i>Operating Voltage</i>	3.3 v +/- 5%
<i>Temperature</i>	<p>Operating: 14° to 158° F (-10° to 70° C)</p> <p>Non-operating: -40° to 176° F (-40° to 80° C)</p>
<i>Humidity</i>	<p>Operating: 10% to 90% (non-condensing)</p> <p>Non-operating: 5% to 95% (non-condensing)</p>
<i>Altitude</i>	<p>Operating: 0 to 10,000 ft (3,048 m)</p> <p>Non-operating: 0 to 50,000 ft (15,240 m)</p>
<i>LED Activity</i>	<p>LED Amber – Radio OFF</p> <p>LED OFF – Radio ON</p>
<i>HP Integrated Module with Bluetooth 4.0/4.1/4.2/5.0 Wireless Technology</i>	
<i>Bluetooth Specification</i>	4.0/4.1/4.2/5.0 Compliant
<i>Frequency Band</i>	2402 to 2480 MHz
<i>Number of Available Channels</i>	<p>Legacy: 0~79 (1 MHz/CH)</p> <p>BLE: 0~39 (2 MHz/CH)</p>
<i>Signaling Data Rate</i>	<p>Legacy: 3 Mbps signaling data rate¹ 2.17 Mbps</p> <p>BLE: 1 Mbps signaling data rate 0.2 Mbps</p>

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

1. Actual throughput may vary.

<i>Transmit Power</i>	Legacy: Synchronous Connection Oriented links, 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) The Bluetooth component shall operate as a Class II Bluetooth device with a maximum transmit power of + 4 dBm for BR and EDR.
<i>Power Consumption</i>	Peak (Tx): 330 mW Peak (Rx): 230 mW Selective Suspend: 17 mW
<i>Bluetooth Software Supported</i>	Linux kernel version
<i>Link Topology</i>	
<i>Power Management</i>	Intel CNVi/BRI HW power management
<i>Certifications</i>	FCC (47 CFR) Part 15C, Section 15.247 & 15.249
<i>Power Management Certifications</i>	ETS 300 328, ETS 300 826 Low Voltage Directive IEC950 UL, CSA, and CE Mark
<i>Bluetooth Profiles Supported</i>	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)

1. **Wireless access point and Internet service is required. Availability of public wireless access point is limited.**
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).**

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

POWER

<i>45 W PD AC adapter</i>	<i>Dimensions (H x W x D)</i>	95 mm x 43 mm x 27.5 mm
	<i>Weight</i>	200 g +/-10% Not including power cord. Power cord varies by country
	<i>Input</i>	100 to 240 VAC
	<i>Input Efficiency</i>	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%
	<i>Input frequency range</i>	47 ~ 63Hz
	<i>Input AC current</i>	Max. 1.4 A at 90 Vac
<i>Output</i>	<i>Output power</i>	5V/15W 9V/27W 12V/36W 15V/45W
	<i>DC output</i>	5V/9V/12V/15V
	<i>Hold-up time</i>	5ms at 115 Vac input
	<i>Output current limit</i>	<5.0A by each outputs
<i>Connector</i>		USB Type-C™
<i>Environmental Design</i>	<i>Operating temperature</i>	32°F to 95°F (0°C to 35°C)
	<i>Non-operating (storage) temperature</i>	-4°F to 185°F (-20°C to 85°C)
	<i>Altitude</i>	0 to 16,400 ft (0 to 5000m)
	<i>Humidity</i>	20% to 95%
	<i>Storage Humidity</i>	10% to 95%
<i>EMI and Safety Certifications</i>		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.

<i>HP 2-cell Long Life Li-Ion (47 Whr)</i>	<i>Dimensions (H x W x L)</i>	5.2 x 240.8 x 76.4 mm (0.204 x 9.48 x 3 inch)
	<i>Weight</i>	0.19 kg (0.418 lb)
	<i>Cells/Type</i>	2cell Lithium-Ion Polymer cell / 4473A9
	<i>Voltage</i>	7.7 V
	<i>Amp-hour capacity</i>	6.15 Ah
	<i>Watt-hour capacity</i>	47.3 Wh
	<i>Operating (Charging)</i>	32° to 113° F (0° to 45° C)
	<i>Operating (Discharging)</i>	14° to 122° F (-10° to 60° C)
	<i>Warranty</i>	1-year
	<i>Optional Travel Battery Available</i>	No

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

<i>Category</i>	<i>Description</i>	<i>Part Number</i>
<i>Cases</i>	HP Business Slim Top Load	2SC65AA
	HP Essential Top Load Case (up to 15.6")	H2W17AA
	HP Essential Backpack (up to 15.6")	H1D24AA
	HP Reversible Neoprene Sleeve	7ZE81AA
<i>Docking</i>	HP USB-C Travel Dock G2	7PJ38AA
	HP E24d G4 Advanced Docking monitor	6PA50AA
	HP E27d G4 Advanced Docking monitor	6PA56AA
<i>Input/output</i>	HP 3-Button Laser Mouse	H4B81AA
	HP Ultra Mobile Wireless Mouse	H6F25AA
	HP USB Optical Travel mouse	G1K28AA
	HP Essential USB Mouse	2TK37AA
	HP Slim USB KB & Mouse	T6T83AA
	HP USB-C to HDMI 2.0 Adapter	1WC36AA
	HP USB-C to DisplayPort Adapter	N9K78AA
	HP USB-C to USB 3.0 Adapter	N2Z63AAA
	HP USB-C to RJ45 Adapter	V7W66AA
	HP USB-C to VGA Adapter	N9K76AA
	HP USB-C Travel Hub G2	7PJ38AA
Stereo 3.5mm Headset	T1A66AA	
HP EMR Pen	2EB40AA	
<i>Power</i>	HP 45W Type -C Straight Type	1MZ01AA
	HP USB-C Notebook Power Bank	2NA10AA
<i>Storage</i>	HP External USB Optical Drive	F2B56AA
<i>Security</i>	HP Nano Keyed Cable Lock	1AJ39AA
	HP Sure Key Cable lock	6UW42AA

Summary of Changes

<i>Date of change:</i>	<i>Version History:</i>		<i>Description of change:</i>
January 22, 2020	V1 to V2	Added	Environmental Tab
February 6, 2020	V2 to V3	Updated	Compatibility section (HP Pen)
February 21, 2020	V3 to V4	Updated	Docking Section
March 17, 2020	V4 to V5	Updated	Accessories Section
May 23, 2020	V5 to V6	Added	Military Standards Information

Copyright © 2020 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®, Core®, and Intel vPro™ are trademarks or registered trademarks of Intel Corporation or its subsidiaries in the United States and other countries. DisplayPort™ and the DisplayPort™ logo are trademarks owned by the Video Electronics Standards Association (VESA®) in the United States and other countries. USB Type-C™ and USB-C™ are trademarks of USB Implementers Forum. SD, SDHC and SDXC are registered trademarks of SD-3C in the United States, other countries or both. ENERGY STAR is a registered trademark of the U.S. Environmental Protection Agency. © 2019 Google LLC All rights reserved. Google and the Google Logo are registered trademarks of Google LLC.