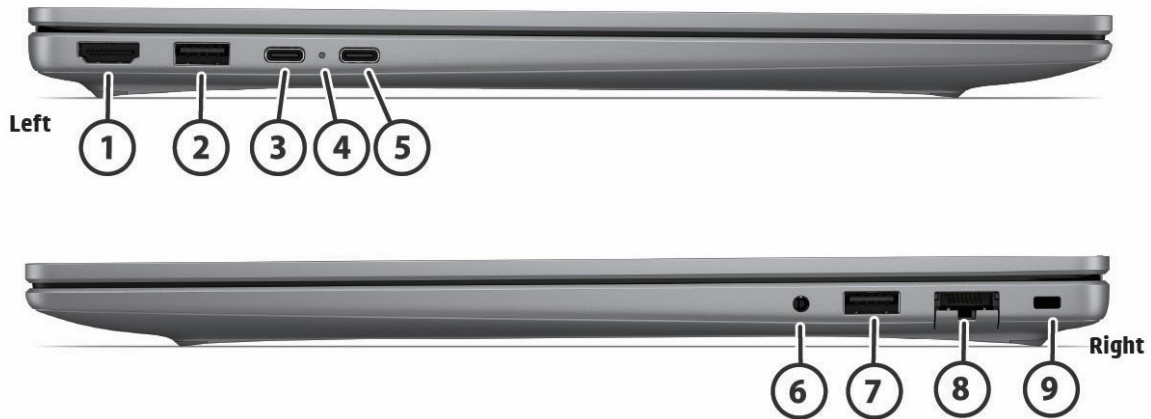


HP 200 G2a 16 inch Notebook PC



Front

- | | | | |
|---|-------------------------|---|------------|
| 1 | Internal Microphone (2) | 4 | Webcam LED |
| 2 | Webcam | 5 | Touchpad |
| 3 | Camera Shutter | | |



		Sides	
1	HDMI 2.1	6	Headphone/mic combo jack
2	USB Type-A 5Gbps signaling rate (Powered)	7	USB Type-A 5Gbps signaling rate (Powered)
3	USB Type-C® 10Gbps signaling rate (USB Power Delivery, DisplayPort™ 1.4)	8	RJ45 Ethernet port
4	Power Indicator LED	9	Nano Security Slot
5	USB Type-C® 10Gbps signaling rate (USB Power Delivery, DisplayPort™ 1.4)		

PRODUCT NAME

HP 200 G2a 16 inch Notebook PC



OPERATING SYSTEM

Preinstalled

FreeDOS

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

Windows 11 Home Education ¹

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

Windows 11 Pro¹

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>



PROCESSORS

Processor ^{2,3,4,5}	Cores	Threads	L3 Cache	Max Boost Frequency	Base Frequency	Integrated Graphics	NPU
AMD Ryzen™ 7 H processor 255	8 cores	16	16 MB	4.90 GHz	3.80 GHz	AMD Radeon™ 780M	N/A
AMD Ryzen™ 7 processor 250	8 cores	16	16 MB	5.10 GHz	3.30 GHz	AMD Radeon™ 780M	16 TOPS
AMD Ryzen™ 5 processor 220	6 cores	12	16 MB	4.90 GHz	3.20 GHz	AMD Radeon™ 740M	N/A
AMD Ryzen™ 3 processor 210	4 cores	8	8 MB	4.70 GHz	3.00 GHz	AMD Radeon™ 740M	N/A
AMD Ryzen™ 5 processor 40	4 cores	8	4 MB	4.30 GHz	2.80 GHz	AMD Radeon™ 740M	N/A
AMD Ryzen™ 3 processor 30	4 cores	8	4 MB	4.10 GHz	2.40 GHz	AMD Radeon™ 610M	N/A
AMD Athlon™ Gold processor 20	2 cores	4	4 MB	3.70 GHz	2.40 GHz	AMD Radeon™ 610M	N/A
AMD Athlon™ Silver processor 10	2 cores	2	2 MB	3.50 GHz	2.40 GHz	AMD Radeon™ 610M	N/A

Processor Family

- AMD Ryzen™ 7 H processor
- AMD Ryzen™ 7- processor
- AMD Ryzen™ 5- processor
- AMD Ryzen™ 3- processor
- AMD Athlon™ Gold processor
- AMD Athlon™ Silver processor

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.

3. AMD Max Boost frequency performance varies depending on hardware, software and overall system configuration.

4. 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>.



5. Features and software that require a NPU may require software purchase, subscription or enablement by a software or platform provider, and third party software may have specific configuration or compatibility requirements. Potential NPU inferencing performance varies by use, configuration, and other factors.



GRAPHICS

Integrated

AMD Radeon™ Graphics



DISPLAY

Availability may vary by country.

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

40.6 cm (16") diagonal, 2.5K (2560 x 1600), LCD, UWVA, Anti-Glare, Low Blue Light, 500 nits, sRGB 100%

40.6 cm (16") diagonal, WUXGA (1920 x 1200), LCD, UWVA, , Anti-Glare, WLED, 300 nits, sRGB 62.5%

40.6 cm (16") diagonal, WUXGA (1920 x 1200), OLED, UWVA, BrightView, OLED+ Low Blue Light, 300nit, DCI-P3 95%

Display Size (Diagonal)

40.6 cm (16.0")

Aspect Ratio

16:10

Screen to Body Ratio

Up to 88%

Max Hinge Open Angle

135°



STORAGE AND DRIVES

Storage

1 TB PCIe® NVMe™ SSD Value ⁶

512 GB PCIe® NVMe™ SSD Value ⁶

256 GB PCIe® NVMe™ SSD Value ⁶

6. For storage drives, GB = 1 billion bytes. TB = 1 trillion bytes. Actual formatted capacity is less. Up to 32 GB is reserved for system recovery software.



MEMORY

Only one memory type option can be selected in a single unit.

HP branded SODIMM memory is recommended to ensure compatibility. If two SODIMM memory modules with different speeds are installed, the system will perform at the lower memory speed.

Option	Option 1	Option 2
Memory slots	Two SODIMM slot	Onboard memory, no memory slots
Memory type	DDR5	LPDDR5x
Maximum supported memory	32GB DDR5-5600 MT/s	32GB LPDDR5x-7500 MT/s
Available memory configurations	8GB (1 x 8GB) DDR5-5600 MT/s 12GB (1 x 12GB) DDR5-5600 MT/s 16GB (1 x 16GB) DDR5-5600 MT/s 16GB (2 x 8GB) DDR5-5600 MT/s 24GB (1 x 24GB) DDR5-5600 MT/s 32GB (1 x 32GB) DDR5-5600 MT/s	8GB LPDDR5-5500 MT/s 8GB LPDDR5x-6400 MT/s 16GB LPDDR5x-7500 MT/s 32GB LPDDR5x-7500 MT/s
Notes	System runs at 5600 MT/s. Memory is non-accessible / non-upgradeable. Supports Dual Channel Memory.	System runs at 5500 MT/s Memory is non-accessible / non-upgradeable.



NETWORKING /COMMUNICATIONS

Items below may be optional.

Ethernet

RTK GBE Ethernet Controller ⁷

WLAN

Mediatek MT7920 Wi-Fi 6 Bluetooth® 5.4 WW WLAN ^{9,10}

Realtek 8922AE-VS Wi-Fi 7 Bluetooth® 6.0 WW WLAN ^{8,9}

Miracast ¹¹

Compatible with Miracast-certified devices (For Win11)

7. 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

8. Wireless access point and Internet service required and sold separately. Availability of public wireless access points limited. Wi-Fi 7 (802.11BE) functionality requires compatible Windows OS, select processor, and a Wi-Fi 7 router, sold separately. Wi-Fi 7 is backwards compatible with prior 802.11 specs. Available in countries where Wi-Fi 7 is supported. The specification for 802.11BE is a draft specification and is not final. If the final specification differs from the draft specification, it may affect the ability of the device to communicate with other 802.11BE devices.

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. Available in countries where Wi-Fi 6E is supported.

10. 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).

11. Miracast is a wireless technology your PC can use to project your screen to TVs, projectors, and streaming.



AUDIO/MULTIMEDIA

Privacy panel is only available on select models.

Audio

Audio by Poly Studio

2 Integrated stereo speakers

2 Integrated dual array microphone

AI noise reduction

Speaker Power

2W / 4 ohm per speaker

Camera

FHD HDR camera

FHD HDR camera, IR camera

Sensors

Fingerprint Sensor



KEYBOARDS/POINTING DEVICES/BUTTONS & FUNCTION KEYS

Keyboard

HP Standard Notebook Keyboard with numeric keypad, spill-resistant, backlit keyboard.

HP Standard Notebook Keyboard with numeric keypad, spill-resistant keyboard.

Pointing Device

Clickpad

Function Keys

F1 - Display Switching

F2 - Screenshot

F3 - Brightness Down

F4 - Brightness Up

F5 - Play and Pause

F6 - Audio Mute

F7 - Volume Down

F8 - Volume Up

F9 - Mic Mute

F10 - Blank or Backlit Toggle

F11 - Programmable Key

F12 - Settings

Hidden Function Keys

Fn+R - Break

Fn+S - Sys Rq

Fn+C - Scroll Lock



SOFTWARE AND SECURITY

Application Software

MS Office WW Common

MS Office - Lang Packs

WPS Office CMIT

Dropbox Promotion

Dropbox URL

E-QR Code - UWP

sMedio True DVD for HP

Adobe offer

Doubao

HP Documentation

Retail Demo -Video Attract Loop

HP app¹²

HP Privacy Settings

Windows Push Button Reset Recovery - CPS

Windows 10 HP Driver Reinstallation Support - CPS

HP SSRM

HP Support Assistant¹³

HP Connection Optimizer

ENERGY STAR UWP

HP PC Hardware Diagnostics Windows

Touchpoint Customizer for Consumer

HP PC Hardware Diagnostics UEFI

HP Setup Integrated OOBE (GDPR)

Bing Search for IE11

WW-BTB Host and ISP Stub

Audio Brand Logo Rules Configuration

Booking URL

Booking Edge Fav

Agoda URL

Agoda Edge Fav

HP Smart Support¹⁴



HP System Event Utility - UWP

HSA Telemetry for Consumer

HSA fusion

TCO E-Logo

Manageability Features

Windows Cloud Bare Metal Recovery - CPS

HP BIOS Recovery

Security Features

McAfee - MLS

McAfee Checkbox

McAfee LiveSafe Install Rules Configuration

McAfee URL

Security- TPM

Model

Model: Nuvoton NPCT760HACYX

Firmware Version

Firmware Version: 7.2.4.0

FIPS 140-2 Compliant

No. It is FIPS 140-3 Level 1 Compliant.

BIOS

Absolute Persistence Module ¹⁵

HP Secure Erase ¹⁶

HP Fingerprint Sensor

Does the BIOS implement the ISO/IEC 19678:2015 (formerly NIST 800-147) guidelines?

Yes



UEFI version

2.8B

Class

3

12. HP app requires Windows 10 or higher OS. Multicamera support for Mini Desktop PC only available on 13th processor and beyond.

13. HP Support Assistant is available on Windows. For more information, please visit <http://www.support.hp.com/help/hp-support-assistant>

14. 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>.

15. Absolute Persistence 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/>.

16. HP Secure Erase implements the methods outlined in the National Institute of Standards and Technology Special.



POWER

Power supply availability may vary by country.

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

Power Supply

100W Wall Mount USB Type-C® Gallium Nitride AC power adapter

65W Wall Mount USB Type-C® Gallium Nitride AC power adapter

65W Standard USB Type-C® Gallium Nitride AC power adapter

45W Standard USB Type-C® Gallium Nitride AC power adapter

Battery

HP Long Life 4 cell, 68Wh Polymer ¹⁷

HP Long Life 3 cell, 41Wh Polymer ¹⁷

Battery Recharge Time

Supports battery HP Fast Charge: approximately 50% in 45 minutes

Power Cord

3-wired plug- 1.0m

Battery life

Up to 9.20 hours with 41whr battery (HP Long Life 3-Cell, 41 Whr Polymer, UMA graphic, AMD HPT 15W, Display set to 300 nits display, 256GB SSD) Up to 16.81 hours with 68whr battery (HP Long Life 4-Cell, 68 Whr Polymer, UMA graphic, AMD HPT 15W, Display set to 300 nits display, 256GB SSD)

17. MobileMark 25 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.bqpc.com> for additional details.



WEIGHT & DIMENSIONS

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

Front height measurement is near the front edge where the mechanical chassis taper begins. Back height measurement is near the rear edge where the mechanical chassis taper ends.

Product Weight

Starting at 1.7 kg (3.75 lb)

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

Product Dimensions (w x d x h)¹⁸

358.6 mm (W) x 251.8 mm (D) x 11.2 mm (H front) / 15.35 mm (H rear)

(14.11 in (W) x 9.91 in (D) x 0.44 in (H front)/ 0.6 in (H rear))

Maximum height 18.90 mm (0.74 in)

Pallet Dimensions (w x d x h)

Product packaging size varies based on options chosen. Please contact your HP representative for your packaging size details. For detailed packaging information, access the [HP Commercial Notebooks Packaging Guide](#).

18. Typical dimension. Actual dimension may vary +/- 0.5mm. Height may vary based on configuration. Maximum Height does not include Rubber feet.



PORTS/SLOTS

Left side

- 2 x USB Type-C® 10Gbps signaling rate (USB Power Delivery, DisplayPort™ 1.4)
- 1 x USB Type-A 5Gbps signaling rate (Powered)
- 1 x HDMI 2.1

Right side

- 1 x USB Type-A 5Gbps signaling rate (Powered)
 - 1 x headphone/mic combo jack
 - 1 x Nano Security Slot
 - 1 x RJ45 Ethernet port
-



ENVIRONMENTAL DATA

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 • 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"> • Product Carbon Footprint • At least 5% ocean bound plastic in the Speaker Parts¹ • At least 20% post-consumer recycled plastic² • At least 80% recycled metal³ • External Power Supply 90% Efficiency • Low Halogen⁴ • 100% of HP paper-based packaging is from recycled or certified sustainable sources⁵ • Bulk packaging available • Outside Box and corrugated cushions are 100% sustainably sourced and recyclable • Molded Paper Pulp Cushion inside box is 100% sustainably sourced and recyclable 														
	System Configuration Energy Consumption (in accordance with US ENERGY STAR® test method)	<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> <table border="1" data-bbox="634 1583 1576 1806"> <thead> <tr> <th></th> <th>115VAC, 60Hz</th> <th>230VAC, 50Hz</th> <th>100VAC, 50Hz</th> </tr> </thead> <tbody> <tr> <td>Normal Operation (Sort idle)</td> <td>5.988 W</td> <td>6.084 W</td> <td>6.012 W</td> </tr> <tr> <td>Normal Operation (Long idle)</td> <td>0.708 W</td> <td>0.816 W</td> <td>0.732 W</td> </tr> </tbody> </table>				115VAC, 60Hz	230VAC, 50Hz	100VAC, 50Hz	Normal Operation (Sort idle)	5.988 W	6.084 W	6.012 W	Normal Operation (Long idle)	0.708 W	0.816 W	0.732 W
	115VAC, 60Hz	230VAC, 50Hz	100VAC, 50Hz													
Normal Operation (Sort idle)	5.988 W	6.084 W	6.012 W													
Normal Operation (Long idle)	0.708 W	0.816 W	0.732 W													



	Sleep	0.708 W	0.816 W	0.732 W
	Off	0.348 W	0.384 W	0.348 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>			
	Heat Dissipation*	115VAC, 60Hz	230VAC, 50Hz	100VAC, 50Hz
	Normal Operation (Short idle)	20 BTU/hr	21 BTU/hr	21 BTU/hr
	Normal Operation (Long idle)	2 BTU/hr	3 BTU/hr	3 BTU/hr
	Sleep	2 BTU/hr	3 BTU/hr	3 BTU/hr
	Off	1 BTU/hr	1 BTU/hr	1 BTU/hr
	<p>*NOTE: Heat dissipation is calculated based on the measured watts, assuming the service level is attained for one hour.</p>			
	Declared Noise Emissions (in accordance with ISO 7779 and ISO 9296)	Sound Power (L_{WA}, bels)		Sound Pressure (L_{pAm}, decibels)
	Typically Configured - Idle	2.5		25
	Fixed Disk - Random writes	4.5		45
	Optical Drive - Sequential reads	N/A		N/A
	Longevity and Upgrading	<p>This product can be upgraded, possibly extending its useful life by several years. Upgradeable features and/or components contained in the</p> <p>Spare parts are available throughout the warranty period and or for up to "5" years after the end of production.</p>		



	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 94.6% recycle-able when properly disposed of at end of life. 									
	Packaging Materials	External:	<table border="1"> <tr> <td>PAPER/Corrugated</td> <td>280 g</td> </tr> <tr> <td>PAPER/Molded Pulp</td> <td>196 g</td> </tr> <tr> <td>PAPER/Paper</td> <td>11 g</td> </tr> <tr> <td>Internal: PLASTIC/Polyethylene low density</td> <td>10 g</td> </tr> </table> <p>The plastic packaging material contains at least 100% recycled content.</p> <p>The corrugated paper packaging materials contains at least 35% recycled content.</p>	PAPER/Corrugated	280 g	PAPER/Molded Pulp	196 g	PAPER/Paper	11 g	Internal: PLASTIC/Polyethylene low density	10 g
PAPER/Corrugated	280 g										
PAPER/Molded Pulp	196 g										
PAPER/Paper	11 g										
Internal: PLASTIC/Polyethylene low density	10 g										
	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>									



	<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 https://h20195.www2.hp.com/v2/GetDocument.aspx?docname=c05998906):</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)
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	<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: https://h20195.www2.hp.com/V2/GetDocument.aspx?docname=c05403198 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: HP Product Disassembly Instruction Website. 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> <ul style="list-style-type: none"> • Sustainable Impact Report <ul style="list-style-type: none"> ○ https://h20195.www2.hp.com/v2/GetDocument.aspx?docname=c06040843 • Eco-label certifications <ul style="list-style-type: none"> ○ https://www.hp.com/us-en/sustainable-impact/document-reports.html#filters_documents_reports=-document_type-type_energy_star,type_epeat,type_tcoISO • ISO 14001 certificates <ul style="list-style-type: none"> ○ https://h20195.www2.hp.com/v2/GetDocument.aspx?docname=c04777932
	<p>Footnotes</p>	<ol style="list-style-type: none"> 1. Percentage of ocean-bound plastic contained in each component varies by product. Ocean Bound plastic is expressed as a percentage of the total weight plastic. Ocean Bound plastic is based on the definition set by the UL2809 standard. 2. Recycled plastic is expressed as a percentage of the total weight plastic. Post-consumer recycled is based on the definition set in the EPEAT standard for computers, IEEE 1680.1-2018 standard. 3. Recycled metal is expressed as a percentage of the total weight of the metal according to ISO 14021 definitions for metal parts over 25 grams. 4. External power supplies, WWAN modules, power cords, cables and peripherals excluded. Service parts obtained after purchase may not be Low Halogen. 5. HP paper and fiber-based packaging for PCs, displays, home and office print, and supplies is reported by suppliers as recycled or certified, with a minimum of 97% by volume verified by HP. Packaging is the box that comes with the product and all paper-based materials inside the box. Packaging for personal systems accessories and spare parts is not included. Plastic cushions are made from >90% recycled plastic.



SERVICE AND SUPPORT

Warranty

1-year warranty and 90 day software limited warranty options depending on country. Batteries have a default one year limited warranty. 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>¹⁹

19. 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	15V/20V
Max Operating Power	UMA < 45W for 15W TDP UMA < 100W for 45W TDP

Temperature

Operating	32° to 95° F (0° to 35° C) (not writing optical) 41° to 95° F (5° to 35° C) (writing optical)
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	1.043 grms
Non - operating	3.5 grms

Altitude(unpressurized)

Operating	-50 to 10,000 ft (-15.24 to 3,048 m)
Non - operating	-50 to 40,000 ft (-15.24 to 12,192 m)

Industry Standard Certifications

Regulatory Model Number	TPN-Q312
CSA/UL 62368-1	Yes
ENERGY STAR®	Yes ¹
FCC/ICES/CISPR/VCCI	Yes, EMI
CE MARKING	Yes
GS Mark	No
China CCC/SRRC/CEL	Yes
Taiwan BSMI/NCC	Yes, BSMI
Korea KCC/KC/KES	Yes, EMI(KCC), Safety (KC)
Ukraine NSoC/TEC	Yes



EAEU Compliance	Yes
Saudi Arabian Compliance	No
TCO	Yes (TCO 10)
EPEAT Gold	Yes (EPEAT 2 Gold)
Low Blue Light	Yes
WW RoHS	Yes (UAE RoHS, Ukraine RoHS)
CECP	No
Medical EMC: IEC 60601-1-2:2014 EN60601-1-2: 2015	No
SEPA	No
MIL - STD Testing	Yes, entry level ²

1. Configurations that are ENERGY STAR® qualified are identified as ENERGY STAR on HP websites and on <http://www.energystar.gov>

2. MIL STD testing is not intended to demonstrate fitness for U.S. Department of Defense 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.



DISPLAYS

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

Availability may vary by country

16.0" WUXGA (1920 X 1200) OLED BrightView bent UWVA, eDP, Narrow Bezel, 60Hz, Low Blue Light (300nits, 95% DCI-P3)	Active Area	344.448 (H) x 215.28 (V) mm
	Dimensions (W x H)	348.15 (W) x 224.76 (H) x 3.005 (D) mm
	Weight	216 g
	Diagonal Size	16.0 inch
	Surface Treatment	Glare (BV)
	Touch Enabled	Not specified
	Contrast Ratio	1,000,000:1
	Refresh Rate	60 Hz
	Brightness	300nits
	Pixel Resolution - Format	RGB Stripe Type
	Aspect Ratio	16:10
	Backlight	OLED (self-emissive, no separate backlight)
	Color Gamut Coverage	DCI-P3: 95% (typ), 90% (min)
	Color Depth	1.074 billion colors (RGB 8bit + 2FRC)
	Viewing Angle	89/89/89/89
Low Blue Light	Support	
Power Consumption	8.0W (BL + Logic @ Mosaic)	
16.0" WUXGA (1920X1200) WLED AntiGlare flat UWVA, eDP, Narrow Bezel (300nits, 62.5% sRGB)	Active Area	344.6784 x 215.424 mm
	Dimensions (W x H)	350.68 x 233.77 mm
	Weight	380g
	Diagonal Size	16 inch
	Surface Treatment	AG
	Touch Enabled	NA
	Contrast Ratio	1200:1
	Refresh Rate	60Hz
	Brightness	300nits
	Pixel Resolution - Format	1920 x 1200
	Aspect Ratio	16:10
	Backlight	WLED



Color Gamut Coverage	sRGB62.5%
Color Depth	8bits
Viewing Angle	89/89/89/89
Low Blue Light	NA
Power Consumption	4.1W (BL + Logic @ Mosaic)

16.0" WQXGA (2560X1600) WLED AntiGlare flat UWVA, eDP, Narrow Bezel (500nits, 100% sRGB)	Active Area	344.68 x 215.42
	Dimensions (W x H)	349.978(W) x 233.924 (H)(w/PCBA)
	Weight	330g
	Diagonal Size	16 inch
	Surface Treatment	AG
	Touch Enabled	NA
	Contrast Ratio	1200:1
	Refresh Rate	240Hz
	Brightness	500nits
	Pixel Resolution - Format	2560x1600
	Aspect Ratio	16:10
	Backlight	WLED
	Color Gamut Coverage	sRGB 100%
	Color Depth	8bits
	Viewing Angle	89/89/89/89
	Low Blue Light	Support
Power Consumption	5.3W EBL@250nits	



STORAGE

1 TB PCIe® NVMe™ M.2 SSD	Form Factor	M.2 2280
	Capacity	1TB
	NAND Type	TLC/QLC
	Weight	0 ~ 15.0 g (0 ~ 0.03 lb)
	Interface	PCIe NVMe
	Sequential Read	Up to 3500 MB/s
	Sequential Write	Up to 2700 MB/s
	Logical Blocks	2000409264
	Features	Pyrite 2.0; TRIM; L1.2

512 GB PCIe® NVMe™ M.2 SSD	Form Factor	M.2 2280
	Capacity	512GB
	NAND Type	TLC/QLC
	Weight	0 ~ 15.0 g (0 ~ 0.03 lb)
	Interface	PCIe NVMe
	Sequential Read	Up to 3500 MB/s
	Sequential Write	Up to 1600 MB/s
	Logical Blocks	1000215216
	Features	Pyrite 2.0; TRIM; L1.2

256 GB PCIe® NVMe™ M.2 SSD	Form Factor	M.2 2280
	Capacity	256GB
	NAND Type	TLC
	Weight	0 ~ 15.0 g (0 ~ 0.03 lb)
	Interface	PCIe NVMe
	Sequential Read	Up to 3100 MB/s
	Sequential Write	Up to 1200 MB/s
	Logical Blocks	500118192
	Features	Pyrite 2.0; TRIM; L1.2



NETWORKING / COMMUNICATION

<p>Mediatek MT7920 Wi-Fi® 6</p> <p>Bluetooth® 5.4 WW WLAN</p>	<p>Wireless LAN Standards</p>	<p>IEEE 802.11a</p> <p>IEEE 802.11b</p> <p>IEEE 802.11g</p> <p>IEEE 802.11n</p> <p>IEEE 802.11ac</p> <p>IEEE 802.11ax</p> <p>IEEE 802.11d</p> <p>IEEE 802.11e</p> <p>IEEE 802.11h</p> <p>IEEE 802.11i</p> <p>IEEE 802.11k</p>
	<p>Interoperability</p>	<p>Wi-Fi certified modules</p>
	<p>Frequency Band</p>	<p>802.11b/g/n/ax</p> <ul style="list-style-type: none"> ▪ 2.402 - 2.482 GHz <p>802.11a/n/ac/ax</p> <ul style="list-style-type: none"> ▪ 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>	<p>802.11b: 1, 2, 5.5, 11 Mbps</p> <p>802.11g: 6, 9, 12, 18, 24, 36, 48, 54 Mbps</p> <p>802.11a: 6, 9, 12, 18, 24, 36, 48, 54 Mbps</p> <p>802.11n: max 300Mbps</p> <p>802.11ac : max 866.7Mbps</p> <p>802.11ax : max 1201Mbps</p>
	<p>Modulation</p>	<p>Direct Sequence Spread Spectrum</p> <p>BPSK, QPSK, CCK, 16-QAM, 64-QAM, 256-QAM, 1024QAM</p>



Security	IEEE and WiFi certified 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 EAP
Network Architecture Models	Ad-hoc (Peer to Peer) Infrastructure (Access Point Required)
Roaming	IEEE 802.11 compliant roaming between access points
Output Power	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 802.11ax HE40(2.4GHz) : +12dBm minimum 802.11ax HE80(5GHz) : +10dBm minimum
Power Consumption	Transmit mode: 2.5 W Receive mode: 2 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 Sensitivity	802.11b, 1Mbps : -93.5dBm maximum 802.11b, 11Mbps : -84dBm maximum 802.11a/g, 6Mbps : -86dBm maximum 802.11a/g, 54Mbps : -72dBm maximum 802.11n, MCS07 : -67dBm maximum 802.11n, MCS15 : -64dBm maximum 802.11ac, MCS0 : -84dBm maximum 802.11ac, MCS9 : -59dBm maximum 802.11ax, MCS11(HE40): -57dBm maximum 802.11ax, MCS11(HE80): -54dBm maximum
Antenna Type	High efficiency antenna. One embedded dual band 2.4/5 GHz antenna is 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 : 2.8g
Operating Voltage	3.3v +/- 9%
Bluetooth® Specification	Integrated Bluetooth® specifications 4.0/4.1/4.2/5.0/5.1 Compliant/5.2 Compliant/5.3 Compliant /5.4 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 II Bluetooth device with a maximum transmit power of + 4 dBm for BR and EDR.
Power Consumption	Peak (Tx): 330 mW Peak (Rx): 230 mW Selective Suspend: 17 mW
Bluetooth® Software Supported Link Topology	Microsoft Windows Bluetooth Software
Power Management	Microsoft Windows ACPI, and USB Bus Support
Certifications	FCC (47 CFR) Part 15C/E, Section 15.247, 15.249 ETSI 300 328, ETSI 301 893
Bluetooth® Profiles Supported	BT4.1-ESR 5/6/7 Compliance LE Link Layer Ping LE Dual Mode LE Link Layer LE Low Duty Cycle Directed Advertising LE L2CAP Connection Oriented Channels Train Nudging & Interlaced Scan



BT4.2 ESR08 Compliance
LE Secure Connection- Basic/Full
LE Privacy 1.2 -Link Layer Privacy
LE Privacy 1.2 -Extended Scanner Filter Policies
LE Data Packet Length Extension
FAX Profile (FAX)
Basic Imaging Profile (BIP)2
Headset Profile (HSP)
Hands Free Profile (HFP)
Advanced Audio Distribution Profile (A2DP)
BT5.2
ESR9/10 Compliance
LE Advertisement Extensions
Channel Selection Algo
Limited High Duty Cycle Non-Connectable Advertising
2Mbps LE
LE Long Range
Windows BT profiles support
BT5.3
Encryption key size control enhancements

Realtek 8852BE-VT Wi-Fi® 6 **Wireless LAN Standards**
Bluetooth® 5.4 WW WLAN

IEEE 802.11a
IEEE 802.11b
IEEE 802.11g
IEEE 802.11n
IEEE 802.11ac
IEEE 802.11ax
IEEE 802.11d
IEEE 802.11e
IEEE 802.11h
IEEE 802.11i
IEEE 802.11k
IEEE 802.11r
IEEE 802.11v



Interoperability	Wi-Fi certified modules
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
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 866.7Mbps 802.11ax : max 1201Mbps
Modulation	Direct Sequence Spread Spectrum, OFDM, BPSK, QPSK, CCK, 16-QAM, 64-QAM, 256-QAM, 1024QAM
Security	IEEE and WiFi certified 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 Power	<p>802.11b: +18.5dBm minimum</p> <p>802.11g: +17.5dBm minimum</p> <p>802.11a: +18.5dBm minimum</p> <p>802.11n HT20(2.4GHz): +15.5dBm minimum</p> <p>802.11n HT40(2.4GHz): +14.5dBm minimum</p> <p>802.11n HT20(5GHz): +15.5dBm minimum</p> <p>802.11n HT40(5GHz): +14.5dBm minimum</p> <p>802.11ac VHT80(5GHz): +11.5dBm minimum</p> <p>802.11ax HE40(2.4GHz): +10dBm minimum</p> <p>802.11ax HE80(5GHz): +10dBm minimum</p>
Power Consumption	<p>Transmit mode:2.5 W</p> <p>Receive mode:2 W</p> <p>Idle mode (PSP)180 mW(WLAN Associated)</p> <p>Idle mode:50 mW(WLAN unassociated)</p> <p>Connected Standby/Modern Standby: 10mW</p> <p>Radio disabled: 8 mW</p>
Power Management	<p>ACPI and PCI Express compliant power management</p> <p>802.11 compliant power saving mode</p>
Receiver Sensitivity	<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> <p>802.11ax, MCS11(HE40): -57dBm maximum</p> <p>802.11ax, MCS11(HE80): -54dBm maximum</p>



Antenna Type	High efficiency antenna with spatial diversity. Two embedded dual band 2.4/5 GHz antennas are provided to the card to support WLAN MIMO communications and Bluetooth communications
Form Factor	PCI-Express M.2 MiniCard
Dimensions	Type 2230 : 2.4 x 22.0 x 30.0 mm
Weight	Type 2230 : 2.8g
Operating Voltage	3.3v +/- 9%
Bluetooth® Specification	Integrated Bluetooth® specifications 4.0/4.1/4.2/5.0/5.1/5.2/5.3/5.4 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 II Bluetooth device with a maximum transmit power of + 4 dBm for BR and EDR.



Power Consumption	Peak (Tx): 330 mW Peak (Rx): 230 mW Selective Suspend: 17 mW
Bluetooth® Software Supported Link Topology	Microsoft Windows Bluetooth Software
Power Management	Microsoft Windows ACPI, and USB Bus Support
Certifications	FCC (47 CFR) Part 15C/E, Section 15.247, 15.249 ETSI 300 328, ETSI 301 893
Bluetooth® Profiles Supported	BT4.1-ESR 5/6/7 Compliance LE Link Layer Ping LE Dual Mode LE Link Layer LE Low Duty Cycle Directed Advertising LE L2CAP Connection Oriented Channels Train Nudging & Interlaced Scan BT4.2 ESR08 Compliance LE Secure Connection- Basic/Full LE Privacy 1.2 -Link Layer Privacy LE Privacy 1.2 -Extended Scanner Filter Policies LE Data Packet Length Extension FAX Profile (FAX) Basic Imaging Profile (BIP)2 Headset Profile (HSP) Hands Free Profile (HFP) Advanced Audio Distribution Profile (A2DP) BT5.1 ESR9/10 Compliance LE Advertisement Extensions Channel Selection Algo Limited High Duty Cycle Non-Connectable Advertising



		2Mbps LE
		LE Long Range
Realtek 8922AE-VS Wi-Fi 7	Wireless LAN Standards	IEEE 802.11a
Bluetooth® 6.0 WW WLAN		IEEE 802.11b
		IEEE 802.11g
		IEEE 802.11n
		IEEE 802.11ac
		IEEE 802.11ax
		IEEE 802.11be
		IEEE 802.11d
		IEEE 802.11e
		IEEE 802.11h
		IEEE 802.11i
		IEEE 802.11j
		IEEE 802.11k
		IEEE 802.11mc
		IEEE 802.11r
		IEEE 802.11v
		IEEE 802.11w
	Interoperability	Wi-Fi certified modules
	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
		5.955-6.415GHz
		6.435-6.515GHz
		6.535-6.875GHz



	6.895-7.115GHz 5.925-7.125GHz
Data Rates	<p>802.11b: 1, 2, 5.5, 11 Mbps</p> <p>802.11g: 6, 9, 12, 18, 24, 36, 48, 54 Mbps</p> <p>802.11a: 6, 9, 12, 18, 24, 36, 48, 54 Mbps</p> <ul style="list-style-type: none"> ▪ 802.11n: MCS 0 ~ MCS 15, (20MHz, and 40MHz) ▪ 802.11ac : MCS0 ~ MCS9, (20MHz, 40MHz, ,80MHz & 160MHz) ▪ 802.11ax : MCS0 ~ MCS11, (20MHz, 40MHz, ,80MHz & 160MHz) ▪ 802.11be : MCS0 ~ MCS11, (20MHz, 40MHz, ,80MHz & 160MHz)
Modulation	Direct Sequence Spread Spectrum, OFDM, BPSK, QPSK, CCK, 16-QAM, 64-QAM, 256-QAM, 1024QAM
Security	<p>IEEE and WiFi certified 64 / 128 bit WEP encryption for a/b/g mode only</p> <p>AES-CCMP: 128 bit in hardware</p> <p>802.1x authentication</p> <p>WPA, WPA2: 802.1x. WPA-PSK, WPA2-PSK, TKIP, and AES.</p> <p>WPA2 certification</p> <p>WPA3 certification</p> <p>IEEE 802.11i</p> <p>WAPI</p> <p>EAP</p>
Network Architecture Models	Infrastructure (Access Point Required)
Roaming	IEEE 802.11 compliant roaming between access points
Output Power	<p>802.11b : +20dBm</p> <p>802.11g : +20dBm</p>



802.11a: +18dBm
802.11n HT20(2.4GHz): +20dBm
802.11n HT40(2.4GHz): +20dBm
802.11n HT20(5GHz): +18dBm
802.11n HT40(5GHz): +17dBm
802.11ac VHT80(5GHz): +16dBm
802.11ac VHT160(5GHz): +15dBm
802.11ax HE40(2.4GHz): +17dBm
802.11ax HE80(5GHz): +14dBm
802.11ax HE160(5GHz): +13dBm
802.11ax HE80(6GHz): +13dBm
802.11ax HE160(6GHz): +12dBm

Power Consumption

Transmit mode:3.1 W
Receive mode:1.8 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 Sensitivity

- 802.11b, 1Mbps : -93.5dBm maximum
- 802.11b, 11Mbps : -85dBm maximum
- 802.11a/g, 6Mbps : -90.5dBm maximum
- 802.11a/g, 54Mbps : -72.5dBm maximum
- 802.11n, MCS0(HT20) : -90dBm maximum
- 802.11n, MCS7(HT20) : -71.5dBm maximum
- 802.11n, MCS0(HT40) : -88.5dBm maximum
- 802.11n, MCS7(HT40) : -68.5dBm maximum
- 802.11ac, MCS9(VHT20) : -88.5dBm maximum
- 802.11ac, MCS9(VHT40) : -65.5dBm maximum
- 802.11ac, MCS9(VHT80) : -60.5dBm maximum



- 802.11ac, MCS9(VHT160) : -58.5dBm maximum
- 802.11ax, MCS11(HE20)(6GHz) : -59.5dBm maximum
- 802.11ax, MCS11(HE40)(6GHz) : -56.5dBm maximum
- 802.11ax, MCS11(HE80)(6GHz) : -53.5dBm maximum
- 802.11ax, MCS11(HE160)(6GHz) : -51.5dBm 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	Type 2230 : 2.3 x 22.0 x 30.0 mm
Weight	Type 2230 : 2.8g
Operating Voltage	3.15 ~3.6V
Bluetooth® Specification	Integrated Bluetooth® specifications 4.0/4.1/4.2/5.0/5.1/5.2/5.3/5.4/6.0 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 I Bluetooth device with a maximum transmit power of +15.5 dBm for BR and +13dBm for EDR.
Power Consumption	Peak (Tx): 330 mW Peak (Rx): 230 mW Selective Suspend: 17 mW
Bluetooth® Software Supported Link Topology	Microsoft Windows Bluetooth Software
Power Management	Microsoft Windows ACPI, and USB Bus Support compliant power management 802.11 compliant power saving mode
Certifications	FCC (47 CFR) Part 15C/E, Section 15.247, 15.249, 15.407 ETSI 300 328, ETSI 301 893, ETSI 303 687
Bluetooth® Profiles Supported	BT4.1-ESR 5/6/7 Compliance LE Link Layer Ping LE Dual Mode LE Link Layer LE Low Duty Cycle Directed Advertising LE L2CAP Connection Oriented Channels Train Nudging & Interlaced Scan BT4.2 ESR08 Compliance LE Secure Connection- Basic/Full LE Privacy 1.2 -Link Layer Privacy LE Privacy 1.2 -Extended Scanner Filter Policies LE Data Packet Length Extension FAX Profile (FAX) Basic Imaging Profile (BIP)2 Headset Profile (HSP)



Hands Free Profile (HFP)
 Advanced Audio Distribution Profile (A2DP)
 BT5.2
 ESR9/10 Compliance
 LE Advertisement Extensions
 Channel Selection Algo
 Limited High Duty Cycle Non-Connectable Advertising
 2Mbps LE
 LE Long Range
 Windows BT profiles support
 BT5.3
 Compliance to the latest errata spetipn 12.3 of bluetooth 5.3 specification
 ESR 9/10 compliance
 Host to controller Encryption key control enhancements

RTK GBE Ethernet Controller	Connector	RJ-45
	System Interface	PCIe + SMBus
	Data Rates Supported	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
	IEEE Compliance	IEEE 802.1p QoS (Quality of Service) Support IEEE 802.1q VLAN support IEEE 802.3x Flow Control (IEEE 802.3 clauses 31-32; configurable)



Performance	IEEE 802.3az EEE (Energy Efficient Ethernet) TCP/IP/UDP Checksum Offload (configurable) Protocol Offload (ARP & NS) Large send offload and Giant send offload Receiving Side Scaling Jumbo Frame 9K
Power Consumption	Cable Disconnection: 25mW 100Mbps Full Run: 450mW 1000bp Full Run: 1000mW WoL Enable(S3/S4/S5): 50mW WoL Disable(S3/S4/S5): 25mW
Power Management	ACPI compliant - multiple power modes Situation-sensitive features reduce power consumption Advanced link down power saving for reducing link down power consumption
Management Interface	Auto MDI/MDIX Crossover cable detection
IT 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



POWER

Power supply availability may vary by country.

CALI 45W	Weight (DC Cable Included)	185g(+/-5g) (Not including power cord. Power cord varies by country.)
	Input	100-240Vac
	Input Efficiency	81.76% min at 115 Vac/ 230 Vac @5.00V 87.3% min at 115 Vac/ 230 Vac @9.00V 88.85% min at 115 Vac/ 230 Vac @15.00V 88.85% min at 115 Vac/ 230 Vac @20.00V
	Input frequency range	47-63Hz
	Input AC current	Max. 1.4 A at 90 Vac
	Output	
	Output power	5V/15W 9V/27W 15V/45W 20V/2.25A
	DC output	5V/9V/15V/20V
	Hold - up time	100% load 5ms at 115 Vac input
	Output Over Current	< 5.0A
	Protection	
	AC Inlet Type	C6
	DC Cable Connector	USB type C
	DC Cable Material	PVC
	Connector	
	Connector	C6
	Environmental Design	
	Operating temperature	32°F to 95°F (0°to 35°C)
	Non - operating(storage) temperature	-4°F to 185°F (-20°to 85°C)
	Altitude	0 to 16,400 ft (0 to 5000m)
	Humidity	20% to 95%
	Storage Humidity	10% to 95%
	EMI and Safety Certifications	CE Mark - full compliance with LVD and EMC directives



Worldwide safety standards - IEC60950-1 and IEC62368-1 :

2018, EN62368-1:2014+A11, UL62368-1

Agency approvals - C-UL-US, TUV/GS, TUV/PSE, EN55032 Class B, FCC Class B, CISPR32 Class B, CCC and CECP, CU(EAC),

EAEU, KCC(Safety+EMC) and K-MEPS, NOM-001 and 029 NYCE,

NRcan, NRCS, ISC, SEC, PSB, Argentina S-mark, Australia RCM,

BIS, BSMI, UAE, UKCA DoC, USB-IF,

Ukraine(CoC+DoC+RoHS+ECO)

Luna 65W

Weight (DC Cable Included)	220g(+/-10g) (Not including power cord. Power cord varies by country.)
Input	100-240Vac
Input Efficiency	81.84% min at 115 Vac/ 230 Vac @5.00V 87.3% min at 115 Vac/ 230 Vac @9.00V 88.85% min at 115 Vac/ 230 Vac @15.00V 89.00% min at 115 Vac/ 230 Vac @20.00V
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/65W 20V/65W
DC output	5V/9V/15V/20V
Hold - up time	100% load 5ms at 115 Vac input
Output Over Current	< 8.0A
Protection	
AC Inlet Type	C6
DC Cable Connector	USB type C
DC Cable Material	PVC
Connector	
Connector	C6



Environmental Design

Operating temperature	32°F to 95°F (0° to 35°C)
Non - operating(storage) temperature	-4°F to 185°F (-20° to 85°C)
Altitude	0 to 16,400 ft (0 to 5000m)
Humidity	20% to 95%
Storage Humidity	10% to 95%
EMI and Safety Certifications	CE Mark - full compliance with LVD and EMC directives Worldwide safety standards - IEC60950-1 and IEC62368-1 : 2018, EN62368-1:2014+A11, UL 62368-1 Agency approvals - C-UL-US, TUV/GS, TUV/PSE, EN55032 Class B, FCC Class B, CISPR32 Class B, CCC and CECP, CU(EAC), EAEU, KCC(Safety+EMC) and K-MEPS, NOM-001 and 029 NYCE, NRcan, NRCS, ISC, SEC, PSB, Argentina S-mark, Australia RCM, BIS, BSMI, UAE, UKCA DoC

Kinopio 65W

Weight (DC Cable Included)	180g(+/-10g) (Not including Duck Head. Duck Head varies by country.)
Input	100-240Vac
Input Efficiency	81.84% min at 115 Vac/ 230 Vac @5.00V 87.3% min at 115 Vac/ 230 Vac @9.00V 88.85% min at 115 Vac/ 230 Vac @15.00V 89.00% min at 115 Vac/ 230 Vac @20.00V
Input frequency range	47-63Hz
Input AC current	Max. 1.6 A at 90 Vac
Output	
Output power	5V/15W 9V/27W 15V/65W 20V/65W
DC output	5V/9V/15V/20V
Hold - up time	100% load 5ms at 115 Vac input
Output Over Current	115%-135%
Protection	



AC Inlet Type	Foldable or Fixed type
DC Cable Connector	USB type C
DC Cable Material	Halogen Free (2.0 Meters)
Environmental Design	
Operating temperature	32°F to 95°F (0°to 35°C)
Non - operating(storage) temperature	-4°F to 185°F (-20°to 85°C)
Altitude	0 to 16,400 ft (0 to 5000m)
Humidity	20% to 95%
Storage Humidity	10% to 95%
EMI and Safety Certifications	CE Mark - full compliance with LVD and EMC directives Worldwide safety standards - IEC60950-1 and IEC62368-1 : 2018, EN62368-1:2014+A11, UL 62368-1 Agency approvals - C-UL-US, TUV/GS, TUV/PSE, EN55032 Class B, FCC Class B, CISPR32 Class B, CCC and CECP, CU(EAC), EAEU, KCC(Safety+EMC) and K-MEPS, NOM-001 and 029 NYCE, NRcan, NRCS, ISC, SEC, PSB, Argentina S-mark, Australia RCM, BIS, BSMI, UAE, UKCA DoC

Koopa 100W

Weight (DC Cable Included)	255g(+/-5g) (Not including power cord. Power cord varies by country.)
Input	100-240Vac
Input Efficiency	81.76% min at 115 Vac/ 230 Vac @5.00V 87.3% min at 115 Vac/ 230 Vac @9.00V 89.00% min at 115 Vac/ 230 Vac @15.00V 89.00% min at 115 Vac/ 230 Vac @20.00V
Input frequency range	47-63Hz
Input AC current	Max. 1.6 A at 90 Vac
Output	
Output power	5V/15W 9V/27W 15V/75W 20V/100W
DC output	5V/9V/15V/20V



Hold - up time	100% load 5ms at 115 Vac input/80% load 10ms at 115 Vac input
Output Over Current Protection	5V/9V : 125%~135% ; 15V/20V: 5.4A
AC Inlet Type	Foldable or Fixed type
DC Cable Connector	USB type C
DC Cable Material	Halogen Free (2M)
Environmental Design	
Operating temperature	32°F to 95°F (0°to 35°C)
Non - operating(storage) temperature	-4°F to 185°F (-20°to 85°C)
Altitude	0 to 16,400 ft (0 to 5000m)
Humidity	20% to 95%
Storage Humidity	10% to 95%
EMI and Safety Certifications	CE Mark - full compliance with LVD and EMC directives Worldwide safety standards - IEC60950-1, IEC 62368-1:2014 and IEC62368-1 : 2018, EN62368-1:2020+A11, UL 62368-1 Agency approvals - C-UL-US, TUV/GS, TUV/PSE, EN55032 Class B, FCC Class B, CISPR32 Class B, CCC, CU(EAC), KCC(Safety+EMC), NOM-001 NYCE, NRcan, NRCS, ISC, SEC, PSB, Argentina S-mark, Australia RCM, BIS, BSMI, UAE, UKCA DoC, Ukraine(CoC+DoC+RoHS+ECO)



Battery

HP 3-cell Long Life Li-Ion (41 WHr)

Weight	0.175 kg (0.377 lb)
Cells / Type	3cell Lithium-Ion Polymer cell / 515974
Energy	
Voltage	11.25V
Amp - hour capacity	3.648Ah
Watt - hour capacity	41WH
Temperature	
Operating (Charging)	32° to 113° F (0° to 45° C)
Operating (Discharging)	14° to 122° F (-10° to 60° C)
Optional Travel Battery Available	No

HP 4-cell Long Life Li-Ion (68 WHr)

Weight	0.255 kg / (0.55 lb)
Cells / Type	4cell Lithium-Ion Polymer cell / 506473
Energy	
Voltage	7.72V
Amp - hour capacity	8.81Ah
Watt - hour capacity	68Wh
Temperature	
Operating (Charging)	32° to 113° F (0° to 45° C)
Operating (Discharging)	14° to 122° F (-10° to 60° C)
Optional Travel Battery Available	No



AUDIO

Privacy panel is only available on select models.

Codec	Realtek ALC3247
Audio I/O Ports	3.5mm Headset: CTIA only; Headphone-out
Multi-streaming Capable	Playback multi-streaming can be enabled in the audio control panel to allow independent audio streams to be sent to/from the front jacks or integrated speaker., Following Microsoft behavior.
Sampling	DAC: Supports resolutions from 16-bit to 24-bit;48.0 kHz to 48.0 kHz ADC: Supports resolutions from 16-bit to 24-bit;44.1 kHz to 48.0 kHz
Internal Speaker	Yes



FINGERPRINT READER

Sensor vendor	ELAN
Sensor type	Capacitive
DPI resolution	508 DPI
Scan area	80 x 80 pixels
False Rejection Rate	< 3%
False Acceptance Rate	< 0.001%
Mobile Voltage Operation	3 V ~ 3.6 V
Operating Temperature	-20°C ~ 80°C (-4°F ~ 176°F)
Current Consumption Image	120mA max
Low Latency Wait For Finger	300 uA
Capture Rate	50 frames/sec
ESD Resistance	IEC 61000-4-2 4B (+15KV)
Detection Matrix	508 dpi / 4.0 x 4.0 mm sensor area

Sensor vendor	SYNAPTICS
Sensor type	Capacitive
DPI resolution	363 DPI
Scan area	104 x 86 pixels
False Rejection Rate	< 3%
False Acceptance Rate	< 0.001%
Mobile Voltage Operation	2.7 V ~ 3.6 V
Operating Temperature	0°C ~ 60°C (32°F ~ 140°F)
Current Consumption Image	100 mA max
Low Latency Wait For Finger	60 uA
Capture Rate	17ms/times (~58 frame/sec)
ESD Resistance	IEC 61000-4-2 4B (+15KV)
Detection Matrix	363 dpi / 7.4 x 6.0 mm sensor area



CHANGELOG

Date of change	Version History		Description of change
February 9, 2026	V1 to V2	Updated	Battery Life
February 12, 2026	V2 to V3	Updated	Software and Security Section
February 25, 2026	V3 to V4	Added Updated	Environmental Data Section Memory Section
March 24, 2026	V4 to V5	Updated	Software and Security Section
April 14, 2026	V5 to V6	Updated	Ports / Slots
May 14, 2026	V6 to V7	Updated	Processor Section
June 5, 2026	V7 to V8	Updated	Memory Section

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