

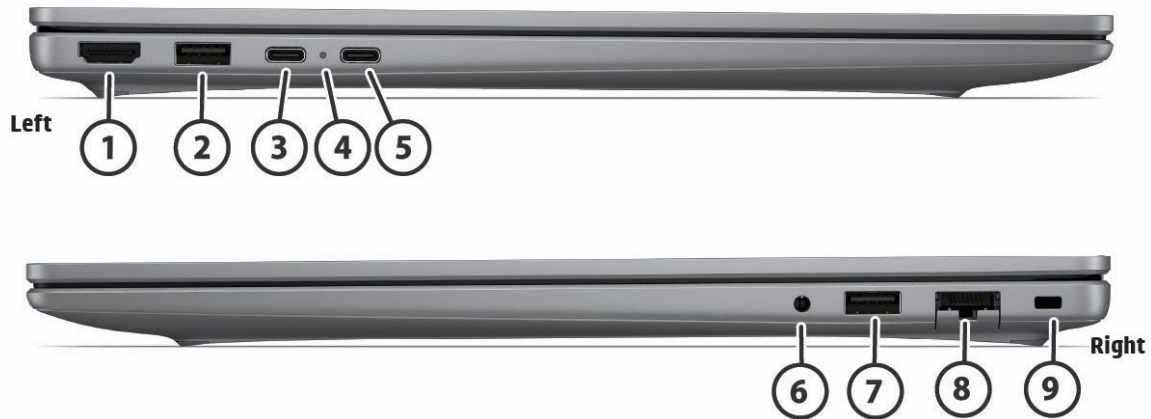
HP 200 G2a 16 inch Notebook PC



Front

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





- | | |
|---|--|
| 1 | HDMI 2.1 |
| 2 | USB Type-A 5Gbps signaling rate (Powered) |
| 3 | USB Type-C® 10Gbps signaling rate (USB Power Delivery, DisplayPort™ 1.4) |
| 4 | Power Indicator LED |
| 5 | USB Type-C® 10Gbps signaling rate (USB Power Delivery, DisplayPort™ 1.4) |

Sides

- | | |
|---|---|
| 6 | Headphone/mic combo jack |
| 7 | USB Type-A 5Gbps signaling rate (Powered) |
| 8 | RJ45 Ethernet port |
| 9 | Kensington Mini Security slot™ |

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°



DOCKING (SOLD SEPARATELY)



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

Maximum Memory

32GB DDR5-5600 MT/s (1 x 32GB) ⁷

Memory

32GB DDR5-5600 MT/s (1 x 32GB) ⁷

24GB DDR5-5600 MT/s (1 x 24GB) ⁷

16GB DDR5-5600 MT/s (2 x 8GB) ⁷

16GB DDR5-5600 MT/s (1 x 16GB) ⁷

8GB DDR5-5600 MT/s (1 x 8GB) ⁷

8GB LPDDR5-5500 MT/s (onboard) ⁷

Memory Slots

Onboard

System runs at 5500 MT/s

Memory is non-accessible / non-upgradeable.

2 SODIMM

System runs at 5600 MT/s

Supports Dual Channel Memory.

Memory is non-accessible / non-upgradeable.

⁷. 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

Items below may be optional.

Ethernet

RTK GBE Ethernet Controller ⁸

WLAN

Mediatek MT7920 Wi-Fi 6 Bluetooth® 5.4 WW WLAN ^{10,11}

Realtek 8922AE-VS Wi-Fi 7 Bluetooth® 6.0 WW WLAN ^{9,10}

Miracast ¹²

Compatible with Miracast-certified devices (For Win11)

8. 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

9. 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.

10. 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.

11. 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).

12. 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

myHP¹³

HP Privacy Settings

Windows Push Button Reset Recovery - CPS

Windows 10 HP Driver Reinstallation Support - CPS

HP SSRM

HP Support Assistant ¹⁴

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 Support ¹⁵

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

BIOS

Absolute Persistence Module ¹⁶

HP Secure Erase ¹⁷

HP Fingerprint Sensor

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

Yes

UEFI version

2.8B

Class

3

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

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

15. 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>.

16. 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/>.

17. 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 Polymer¹⁸

HP Long Life 3 cell, 41Wh Polymer¹⁸

Battery Recharge Time

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

Power Cord

3-wired plug- 1.0m

Battery life

Up to 8 hours and 30 minutes with 41 Wh battery (AMD Ryzen 3, UMA graphic, brightness set to 250nits on a WUXGA 300nits LCD display, 1 x 8GB DDR5 memory, 256 GB SSD)

Up to 14 hours and 30 minutes with 68 Wh battery (AMD Ryzen 3, UMA graphic, brightness set to 250nits on a WUXGA 300nits LCD display, 1 x 8GB DDR5 memory, 256 GB SSD)

18. 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.bapco.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)¹⁹

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](#).

¹⁹. 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 Kensington Mini Security slot™

1 x RJ45 Ethernet port



SERVICE AND SUPPORT ²⁰

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>

²⁰. 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.
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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

Mediatek MT7920 Wi-Fi® 6	Wireless LAN Standards	IEEE 802.11a IEEE 802.11b IEEE 802.11g IEEE 802.11n IEEE 802.11ac IEEE 802.11ax IEEE 802.11d IEEE 802.11e IEEE 802.11h IEEE 802.11i IEEE 802.11k
Bluetooth® 5.4 WW WLAN		
	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 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 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	Legacy : 0~79 (1 MHz/CH)



Channels	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	<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
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> <p>802.11n: max 300Mbps</p> <p>802.11ac : max 866.7Mbps</p> <p>802.11ax : max 1201Mbps</p>
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>
Network Architecture	Ad-hoc (Peer to Peer)
Models	Infrastructure (Access Point Required)



Roaming	IEEE 802.11 compliant roaming between access points
Output Power	802.11b: +18.5dBm minimum 802.11g: +17.5dBm minimum 802.11a: +18.5dBm minimum 802.11n HT20(2.4GHz): +15.5dBm minimum 802.11n HT40(2.4GHz): +14.5dBm minimum 802.11n HT20(5GHz): +15.5dBm minimum 802.11n HT40(5GHz): +14.5dBm minimum 802.11ac VHT80(5GHz): +11.5dBm minimum 802.11ax HE40(2.4GHz): +10dBm 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 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	Microsoft Windows Bluetooth Software
Supported Link Topology	
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	BT4.1-ESR 5/6/7 Compliance
Supported	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



Realtek 8922AE-VS Wi-Fi 7 Bluetooth® 6.0 WW WLAN	Wireless LAN Standards	LE Long Range IEEE 802.11a 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	<p>Direct Sequence Spread Spectrum, OFDM,</p> <p>BPSK, QPSK, CCK, 16-QAM, 64-QAM, 256-QAM, 1024QAM</p>
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	<p>Infrastructure (Access Point Required)</p>
Roaming	<p>IEEE 802.11 compliant roaming between access points</p>
Output Power	<p>802.11b: +20dBm</p> <p>802.11g: +20dBm</p> <p>802.11a: +18dBm</p>



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



	<ul style="list-style-type: none"> ▪ 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	<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>
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	<p>Integrated Bluetooth® specifications</p> <p>4.0/4.1/4.2/5.0/5.1/5.2/5.3/5.4/6.0 Compliant</p>
Frequency Band	2402 to 2480 MHz
Number of Available Channels	<p>Legacy : 0~79 (1 MHz/CH)</p> <p>BLE : 0~39 (2 MHz/CH)</p>
Data Rates and Throughput	<p>Legacy : 3 Mbps data rate; throughput up to 2.17 Mbps</p> <p>BLE : 1 Mbps data rate; throughput up to 0.2 Mbps</p> <p>Legacy : Synchronous Connection Oriented links up to 3, 64 kbps, voice channels</p> <p>Legacy : Asynchronous Connection Less links 2178.1 kbps/177.1 kbps asymmetric (3-DH5) or 864 kbps symmetric (3-EV5)</p>



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)



		<p>Advanced Audio Distribution Profile (A2DP)</p> <p>BT5.2</p> <p>ESR9/10 Compliance</p> <p>LE Advertisement Extensions</p> <p>Channel Selection Algo</p> <p>Limited High Duty Cycle Non-Connectable Advertising</p> <p>2Mbps LE</p> <p>LE Long Range</p> <p>Windows BT profiles support</p> <p>BT5.3</p> <p>Compliance to the latest errata spetipn 12.3 of bluetooth 5.3 specification</p> <p>ESR 9/10 compliance</p> <p>Host to controller Encryption key control enhancements</p>
RTK GBE Ethernet Controller	Connector	RJ-45
	System Interface	PCIe + SMBus
	Data Rates Supported	<p>10 Mbit/s operation (10BASE-T; IEEE 802.3i; IEEE 802.3 clauses 13-14)</p> <p>100 Mbit/s operation (100BASE-TX; IEEE 802.3u; IEEE 802.3 clauses 21-30)</p> <p>1000 Mbit/s operation (1000BASE-T; IEEE 802.3ab; IEEE 802.3 clauses 40)</p> <p>Auto-Negotiation (Automatic Speed Selection)</p> <p>Full Duplex Operation at all Speeds, Half Duplex operation at 10 and 100 Mbit/s</p>
	IEEE Compliance	<p>IEEE 802.1p QoS (Quality of Service) Support</p> <p>IEEE 802.1q VLAN support</p> <p>IEEE 802.3x Flow Control (IEEE 802.3 clauses 31-32; configurable)</p>



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%
EML 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

V1

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