

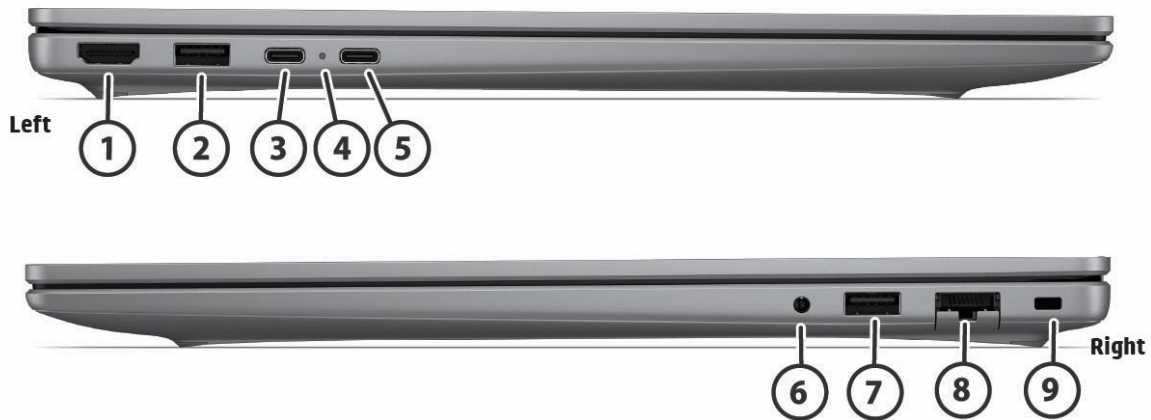
## HP 200 G2Ri 16 inch Notebook AI PC



### Front

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





Sides			
1	HDMI 1.4b	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)		

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**PRODUCT NAME**

HP 200 G2Ri 16 inch Notebook AI PC

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### OPERATING SYSTEM

#### Preinstalled

FreeDOS

Windows 11 Pro<sup>1</sup>

Windows 11 Home - HP recommends Windows 11 Pro for business<sup>1</sup>

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

Windows 11 Home Education

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>

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### PROCESSORS

Processor <sup>2,3,4,5,6</sup>	Cores	Number of P-cores	Number of E-cores	Number of LP E-cores	Threads	Smart Cache	Max Turbo Frequency		Intel SiPP/ vPro® Enterprise	Integrated Graphics	NPU
							P-cores	E-cores/ LP E-cores			
Intel® Core™ Ultra7 processor 255H	16 cores	6	8	2	16	24 MB	5.10 GHz	4.40 GHz		Intel® Arc™ 140T	13 TOPS
Intel® Core™ Ultra5 processor 225H	14 cores	4	8	2	14	18 MB	4.90 GHz	4.30 GHz		Intel® Arc™ 130T	13 TOPS
Intel® Core™ Ultra7 processor 255U	12 cores	2	8	2	14	12 MB	5.20 GHz	4.20 GHz		Intel® Graphics	12 TOPS
Intel® Core™ Ultra5 processor 235U	12 cores	2	8	2	14	12 MB	4.90 GHz	4.10 GHz	X	Intel® Graphics	12 TOPS
Intel® Core™ Ultra5 processor 225U	12 cores	2	8	2	14	12 MB	4.80 GHz	3.80 GHz		Intel® Graphics	12 TOPS
Intel® Core™ 7 Processor 350	6 cores	2	0	4	6	6 MB	4.70 GHz	3.60 GHz		Intel® Graphics	18 TOPS
Intel® Core™ 5 Processor 330	6 cores	2	0	4	6	6 MB	4.50 GHz	3.40 GHz	X	Intel® Graphics	18 TOPS
Intel® Core™ 5 Processor 320	6 cores	2	0	4	6	6 MB	4.50 GHz	3.40 GHz		Intel® Graphics	18 TOPS
Intel® Core™ 3 Processor 310	6 cores	2	0	4	6	6 MB	4.30 GHz	3.30 GHz		Intel® Graphics	18 TOPS

#### Processor Family

Intel® Core™ Ultra7 processor

Intel® Core™ Ultra5 processor



Intel® Core™ 7 processor

Intel® Core™ 5 processor

Intel® Core™ 3 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. Intel® numbering, branding, naming are not a measurement of clock speed.

3. Intel® Turbo Boost performance varies depending on hardware, software and overall system configuration.

4. For full Intel® vPro® functionality, Windows 10 Pro 64 bit, a vPro supported processor, vPro enabled chipset, vPro enabled wired LAN and/or WLAN card and TPM 2.0 are required. Some functionality requires additional 3rd party software in order to run. See <http://intel.com/vpro>

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.

6. 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>

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### GRAPHICS

#### Integrated

Intel® Graphics

Intel® Arc™ Graphics <sup>7</sup>

#### Supported protocols

Support HD Decode, DX12, and HDMI

Display supported (including internal display; dock may be required) up to 4

#### Codec

Hardware Acceleration HEVC (H.265) CODEC is an optional feature and must be configured at purchase.

7. Intel® ARC™ graphics only available on select Intel® Core™ Ultra H-series processor-powered systems with at least 16GB of system memory in dual channel configuration.

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### DISPLAY

Availability may vary by country.

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

#### Non-Touch

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") diagona, 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°

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### STORAGE AND DRIVES

#### Storage

1 TB PCIe® NVMe™ SSD Value <sup>8</sup>

512 GB PCIe® NVMe™ SSD Value <sup>8</sup>

256 GB PCIe® NVMe™ SSD Value <sup>8</sup>

<sup>8</sup> 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.

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### MEMORY

#### Maximum Memory

32GB DDR5-5600 MT/s (1 x 32GB)

#### Memory

32GB DDR5-5600 MT/s (1 x 32GB)

24GB DDR5-5600 MT/s (1 x 24GB)

16GB DDR5-5600 MT/s (2 x 8GB)

16GB DDR5-5600 MT/s (1 x 16GB)

8GB DDR5-5600 MT/s (1 x 8GB)

32GB LPDDR5X-7467 MT/s (onboard)<sup>9</sup>

16GB LPDDR5-7467 MT/s (onboard)<sup>9</sup>

8GB LPDDR5-7467 MT/s (onboard)<sup>9</sup>

12GB DDR5-5200 MT/s (1 x 12GB)<sup>9</sup>

#### Memory Slots

Onboard

System runs at 7467 MT/s

2 SODIMM

System runs at 5600 MT/s

Supports Dual Channel Memory.

Memory is non-accessible / non-upgradeable.

<sup>9</sup> 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.

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### NETWORKING /COMMUNICATIONS

Items below may be optional.

#### Ethernet

RTK GBE Ethernet Controller <sup>10</sup>

#### WLAN

Realtek 8852BE-VT Wi-Fi 6 Bluetooth® 5.4 WW WLAN <sup>11</sup>

Realtek 8922AE-VS Wi-Fi 7 Bluetooth® 6.0 WW WLAN <sup>12</sup>

#### Miracast<sup>13</sup>

Compatible with Miracast-certified devices (For Win11)

10. The term "10/100/1000" or "Gigabit" Ethernet indicates compatibility with IEEE standard 802.3ab for Gigabit Ethernet, and does not connote actual operating speed of 1 Gb/s. For high-speed transmission, connection to a Gigabit Ethernet server and network infrastructure is required.

11. Wi-Fi 6 is designed to support gigabit data rate when transferring files between two devices connected to the same router. Requires a wireless router, sold separately, that supports 80MHz and higher channels.

Wireless access point and Internet service required and sold separately. Availability of public wireless access points limited. Wi-Fi 6 (802.11ax) is backwards compatible with prior 802.11 specs.

12. 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.

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



### AUDIO/MULTIMEDIA

#### Audio

- 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 (optional)
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### 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

Microsoft Precision Touchpad Default Gestures Support

Multi-touch gesture support

Taps enabled as default

#### 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



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### SOFTWARE AND SECURITY

#### Application Software

Buy Microsoft Office (Sold Separately)

MS Windows DPK ReG - CPS

McAfee - MLS

McAfee Checkbox

McAfee LiveSafe Install Rules Configuration

MS Office WW Common

MS Office - Lang Packs

WPS Office CMIT

Dropbox Promotion

E-QR Code - UWP

Adobe offer

HP Documentation

HP app<sup>14</sup>

HP Privacy Settings

HP Support Assistant<sup>15</sup>

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)

WW-BTB Host and ISP Stub

Booking URL

Booking Edge Fav

Agoda URL

Agoda Edge Fav

HP System Event Utility - UWP

HSA Telemetry for Consumer

HSA fusion for Consumer



### Manageability Features

HP BIOS Recovery

Windows Cloud Bare Metal Recovery - CPS

### Security Features

Absolute Persistence Module <sup>16</sup>

### Security- TPM

### Model

Model: Nuvoton NPCT760HACYX

### Firmware Version

Firmware Version: 7.2.4.0

### FIPS 140-3 Compliant

FIPS 140-3 Compliant: Yes

### BIOS

HP Secure Erase <sup>17</sup>

### IPv6 Support

Yes

### FirstNet Certified

No

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

Yes

### UEFI version

2.8



**Class**

2 (RPL)

3 (TWL)

14. HP app with Multicamera support for Mini Desktop PC will only available on 13th processor and beyond.

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

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.

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### POWER

Power supply availability may vary by country.

Battery is internal and replaceable by customer. Serviceable by warranty.

Higher wattage adapter is recommended for best performance and fastest charging.

#### Power Supply

100W Wall Mount USB Type-C® GaN Halogen Free AC power adapter

65W Wall Mount USB Type-C® GaN Halogen Free AC power adapter

65W Standard USB Type-C® GaN AC power adapter

45W Standard USB Type-C® GaN AC power adapter

#### Battery

HP Long Life 4 cell, 68Wh Polymer

HP Long Life 3 cell, 41Wh Polymer

#### Battery Recharge Time

Supports battery HP Fast Charge: approximately 50% in 45 minutes<sup>18</sup>

#### Power Cord

3-wired plug- 1.0m for standard type adapter

#### Battery life

Up to 7 hours with 41 Wh battery (Intel Core 3, UMA graphic, brightness set to 250nits on a WUXGA 300nits LCD display, 1 x 8GB DDR5 memory, 256 GB SSD)<sup>19</sup>

Up to 12 hours and 30 minutes with 68 Wh battery (Intel Core 5, UMA graphic, brightness set to 250nits on a WUXGA 300nits LCD display, 1 x 8GB DDR5 memory, 256 GB SSD)<sup>19</sup>

18. Recharges your battery up to 50% within 30 minutes when the system is off or in standby mode. Power adapter minimum of 65 watts required for battery capacities 56Whr or less. Power adapter minimum of 100 watts required for battery capacities greater than 56Whr and less than 83Whr. Power adapter minimum of 120 watts required for battery capacities greater than 83Whr and less than 100Whr. After charging has reached 50% capacity, charging will return to normal. Charging time may vary +/-10% due to System tolerance.

19. Mobile Mark 30 battery life will vary depending on various factors including product model, configuration, loaded applications,



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features, use, wireless functionality, and power management settings. The maximum capacity of the battery will naturally decrease with time and usage. See [www.bapco.com](http://www.bapco.com) for additional details.

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### 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 1.72 kg (3.79 lb)

#### Product Dimensions (w x d x h)<sup>20</sup>

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](#).

<sup>20</sup>. Typical dimension. Actual dimension may vary +/- 0.5mm. Height may vary based on configuration. Maximum Height does not include Rubber feet.

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### 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 1.4b

#### 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

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### ENVIRONMENTAL DATA

<b>Environmental Data</b>	<b>Eco-Label Certifications &amp; Declarations</b>	<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"> <li>• IT ECO declaration</li> <li>• US ENERGY STAR®</li> <li>• US Federal Energy Management Program (FEMP)</li> <li>• EPEAT® Gold registered in the United States. See <a href="http://www.epeat.net">http://www.epeat.net</a> for registration status in your country.</li> <li>• TCO certified</li> <li>• China Energy Conservation Program (CECP)</li> <li>• China State Environmental Protection Administration (SEPA)</li> <li>• Taiwan Green Mark</li> <li>• Korea Eco-label</li> <li>• Japan PC Green label*</li> </ul>														
	<b>Sustainable Impact Specifications</b>	<ul style="list-style-type: none"> <li>• <a href="#">Product Carbon Footprint</a></li> <li>• At least 5% ocean bound plastic in the Speaker Parts<sup>1</sup></li> <li>• At least 20% post-consumer recycled plastic<sup>2</sup></li> <li>• At least 80% recycled metal<sup>3</sup></li> <li>• External Power Supply 90% Efficiency</li> <li>• Low Halogen<sup>4</sup></li> <li>• 100% of HP paper-based packaging is from recycled or certified sustainable sources<sup>5</sup></li> <li>• Bulk packaging available</li> <li>• Outside Box and corrugated cushions are 100% sustainably sourced and recyclable</li> <li>• Molded Paper Pulp Cushion inside box is 100% sustainably sourced and recyclable</li> </ul>														
	<b>System Configuration</b>  <b>Energy Consumption (in accordance with US ENERGY STAR® test method)</b>	<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 1602 1580 1829"> <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>4.884 W</td> <td>5.004 W</td> <td>4.920 W</td> </tr> <tr> <td>Normal Operation (Long idle)</td> <td>N/A</td> <td>N/A</td> <td>N/A</td> </tr> </tbody> </table>				115VAC, 60Hz	230VAC, 50Hz	100VAC, 50Hz	Normal Operation (Sort idle)	4.884 W	5.004 W	4.920 W	Normal Operation (Long idle)	N/A	N/A	N/A
	115VAC, 60Hz	230VAC, 50Hz	100VAC, 50Hz													
Normal Operation (Sort idle)	4.884 W	5.004 W	4.920 W													
Normal Operation (Long idle)	N/A	N/A	N/A													



Sleep	0.52 W	0.57 W	0.54 W
Off	0.30 W	0.32 W	0.30 W
	<p>Note: Energy efficiency data listed is for an ENERGY STAR® compliant product if offered within the model family. HP computers marked with the ENERGY STAR® Logo are compliant with the applicable U.S. Environmental Protection Agency (EPA) ENERGY STAR® specifications for computers. If a model family does not offer ENERGY STAR® compliant configurations, then energy efficiency data listed is for a typically configured PC featuring a hard disk drive, a high efficiency power supply, and a Microsoft Windows® operating system.</p>		
<b>Heat Dissipation*</b>	<b>115VAC, 60Hz</b>	<b>230VAC, 50Hz</b>	<b>100VAC, 50Hz</b>
Normal Operation (Short idle)	17 BTU/hr	17 BTU/hr	17 BTU/hr
Normal Operation (Long idle)	N/A	N/A	N/A
Sleep	2 BTU/hr	2 BTU/hr	2 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>		
<b>Declared Noise Emissions (in accordance with ISO 7779 and ISO 9296)</b>	<b>Sound Power (L<sub>WA,dB</sub>, bels)</b>	<b>Sound Pressure (L<sub>pA,mr</sub>, decibels)</b>	
Typically Configured - Idle	2.8	24	
Fixed Disk - Random writes	4.8	45	
Optical Drive - Sequential reads	N/A	N/A	
<b>Longevity and Upgrading</b>	<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>		



	<b>Additional Information</b>	<ul style="list-style-type: none"> <li>This product is in compliance with the Restrictions of Hazardous Substances (RoHS) directive - 2011/65/EC.</li> <li>This HP product is designed to comply with the Waste Electrical and Electronic Equipment (WEEE) Directive - 2002/96/EC.</li> <li>This product is in compliance with California Proposition 65 (State of California; Safe Drinking Water and Toxic Enforcement Act of 1986).</li> <li>This product is in compliance with the IEEE 1680 (EPEAT) standard at the Gold level, see <a href="http://www.epeat.net">www.epeat.net</a></li> <li>Plastics parts weighing over 25 grams used in the product are marked per ISO11469 and ISO1043.</li> <li>This product is 94.3% recycle-able when properly disposed of at end of life.</li> </ul>		
	<b>Packaging Materials</b>	<b>External:</b>	PAPER/Corrugated	280 g
			PAPER/Molded Pulp	196 g
			PAPER/Paper	11 g
		<b>Internal:</b>	PLASTIC/Polyethylene low density	10 g
		The plastic packaging material contains at least 100% recycled content.		
		The corrugated paper packaging materials contains at least 35% recycled content.		
	<b>RoHS Compliance</b>	<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 <a href="#">HP RoHS position statement</a>.</p>		



	<p><b>Material Usage</b></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 <a href="https://h20195.www2.hp.com/v2/GetDocument.aspx?docname=c05998906">https://h20195.www2.hp.com/v2/GetDocument.aspx?docname=c05998906</a>):</p> <ul style="list-style-type: none"> <li>• Asbestos</li> <li>• Certain Azo Colorants</li> <li>• Certain Brominated Flame Retardants - may not be used as flame retardants in plastics</li> <li>• Cadmium</li> <li>• Chlorinated Hydrocarbons</li> <li>• Chlorinated Paraffins</li> <li>• Bis(2-Ethylhexyl) phthalate (DEHP)</li> <li>• Benzyl butyl phthalate (BBP)</li> <li>• Dibutyl phthalate (DBP)</li> <li>• Diisobutyl phthalate (DIBP)</li> <li>• Formaldehyde</li> <li>• Halogenated Diphenyl Methanes</li> <li>• Lead carbonates and sulfates</li> <li>• Lead and Lead compounds</li> <li>• Mercuric Oxide Batteries</li> <li>• Nickel - finishes must not be used on the external surface designed to be frequently handled or carried by the user.</li> <li>• Ozone Depleting Substances</li> <li>• Polybrominated Biphenyls (PBBs)</li> <li>• Polybrominated Biphenyl Ethers (PBBEs)</li> <li>• Polybrominated Biphenyl Oxides (PBBOs)</li> <li>• Polychlorinated Biphenyl (PCB)</li> <li>• Polychlorinated Terphenyls (PCT)</li> <li>• Polyvinyl Chloride (PVC) - except for wires and cables, and certain retail packaging has been voluntarily removed from most applications.</li> <li>• Radioactive Substances</li> <li>• Tributyl Tin (TBT), Triphenyl Tin (TPT), Tributyl Tin Oxide (TBTO)</li> </ul>
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	<p><b>Packaging Usage</b></p>	<p>HP follows these guidelines to decrease the environmental impact of product packaging:</p> <ul style="list-style-type: none"> <li>• Eliminate the use of heavy metals such as lead, chromium, mercury and cadmium in packaging materials.</li> <li>• Eliminate the use of ozone-depleting substances (ODS) in packaging materials.</li> <li>• Design packaging materials for ease of disassembly.</li> <li>• Maximize the use of post-consumer recycled content materials in packaging materials.</li> <li>• Use readily recyclable packaging materials such as paper and corrugated materials.</li> <li>• Reduce size and weight of packages to improve transportation fuel efficiency.</li> <li>• Plastic packaging materials are marked according to ISO 11469 and DIN 6120 standards.</li> </ul>
	<p><b>End-of-life Management and Recycling</b></p>	<p>HP offers end-of-life HP product return and recycling programs in many geographic areas. To recycle your product, please go to: <a href="https://h20195.www2.hp.com/V2/GetDocument.aspx?docname=c05403198">https://h20195.www2.hp.com/V2/GetDocument.aspx?docname=c05403198</a> 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: <a href="#">HP Product Disassembly Instruction Website</a>. 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><b>HP, Inc. Corporate Environmental Information</b></p>	<p>For more information about HP's commitment to the environment:</p> <ul style="list-style-type: none"> <li>• Sustainable Impact Report             <ul style="list-style-type: none"> <li>○ <a href="https://h20195.www2.hp.com/v2/GetDocument.aspx?docname=c06040843">https://h20195.www2.hp.com/v2/GetDocument.aspx?docname=c06040843</a></li> </ul> </li> <li>• Eco-label certifications             <ul style="list-style-type: none"> <li>○ <a href="https://www.hp.com/us-en/sustainable-impact/document-reports.html#filters_documents_reports=-document_type-type_energy_star.type_epeat.type_tcoISO">https://www.hp.com/us-en/sustainable-impact/document-reports.html#filters_documents_reports=-document_type-type_energy_star.type_epeat.type_tcoISO</a></li> </ul> </li> <li>• ISO 14001 certificates             <ul style="list-style-type: none"> <li>○ <a href="https://h20195.www2.hp.com/v2/GetDocument.aspx?docname=c04777932">https://h20195.www2.hp.com/v2/GetDocument.aspx?docname=c04777932</a></li> </ul> </li> </ul>
	<p><b>Footnotes</b></p>	<ol style="list-style-type: none"> <li>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.</li> <li>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.</li> <li>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.</li> <li>4. External power supplies, WWAN modules, power cords, cables and peripherals excluded. Service parts obtained after purchase may not be Low Halogen.</li> <li>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 &gt;90% recycled plastic.</li> </ol>



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### SERVICE AND SUPPORT

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><sup>21</sup>

21. 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.

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### SYSTEM UNIT

#### Stand - Alone Power Requirements

##### (AC Power)

Nominal Operating Voltage	15V / 20V
Max Operating Power	UMA < 100W for H series CPU UMA < 45W for U/N series CPU

##### 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%

##### Shock

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

##### Random Vibration

Operating	1.043 grms
Non - operating	3.5 grms

##### Altitude(unpressurized)

Operating	-15 m to 3048 m (-50 ft to 10000 ft)
Non - operating	-15 m to 12192 m (-50 ft to 40000 ft)

##### Industry Standard Certifications

Regulatory Model Number	TPN-Q311
CSA/UL 62368-1	Yes, UL
ENERGY STAR® 22	Yes
FCC/ICES/CISPR/VCCI	Yes
CE MARKING	Yes
GS Mark	No
China CCC/SRRC/CEL	Yes
Taiwan BSMI/NCC	Yes
Korea KCC/KC/KES	Yes
Ukraine NSoC/TEC	Yes



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EAEU Compliance	Yes
Saudi Arabian Compliance	Yes
TCO	Yes
EPEAT Gold <sup>23</sup>	Yes, 2.0
Low Blue Light	No
WW RoHS	Yes
CECP	Government Purchase (TBC)
Medical EMC: IEC 60601-1-2:2014 EN60601-1-2: 2015	No
SEPA	Government Purchase (TBC)
MIL - STD Testing <sup>24</sup>	Yes

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

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

24. 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

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



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

<b>16.0" WQXGA (2560X1600) WLED AntiGlare flat UWVA, eDP, Narrow Bezel (500nits, 100% sRGB)</b>	<b>Active Area</b>	344.68x215.42
	<b>Dimensions (W x H)</b>	349.978(W) x 233.924 (H)(w/PCBA)
	<b>Weight</b>	330g
	<b>Diagonal Size</b>	16.0 inches
	<b>Surface Treatment</b>	AG
	<b>Touch Enabled</b>	NA
	<b>Contrast Ratio</b>	1200:1
	<b>Refresh Rate</b>	240Hz
	<b>Brightness</b>	500nits
	<b>Pixel Resolution - Format</b>	2560x1600
	<b>Aspect Ratio</b>	16:10
	<b>Backlight</b>	WLED
	<b>Color Gamut Coverage</b>	sRGB 100%
	<b>Color Depth</b>	8bits
	<b>Viewing Angle</b>	89/89/89/89
	<b>Low Blue Light</b>	Support
	<b>Power Consumption</b>	5.3W EBL@250nits



### STORAGE

<b>1 TB PCIe® NVMe™ M.2 SSD</b> <sup>25</sup>	<b>Form Factor</b>	M.2 2280
	<b>Capacity</b>	1TB
	<b>NAND Type</b>	TLC/QLC
	<b>Weight</b>	0 ~ 15.0 g (0 ~ 0.03 lb)
	<b>Interface</b>	PCIe NVMe
	<b>Sequential Read</b>	Up to 3500 MB/s
	<b>Sequential Write</b>	Up to 2700 MB/s
	<b>Logical Blocks</b>	2000409264
	<b>Features</b>	Pyrite 2.0; TRIM; L1.2
<b>512 GB PCIe® NVMe™ M.2 SSD</b> <sup>25</sup>	<b>Form Factor</b>	M.2 2280
	<b>Capacity</b>	512GB
	<b>NAND Type</b>	TLC/QLC
	<b>Weight</b>	0 ~ 15.0 g (0 ~ 0.03 lb)
	<b>Interface</b>	PCIe NVMe
	<b>Sequential Read</b>	Up to 3500 MB/s
	<b>Sequential Write</b>	Up to 1600 MB/s
	<b>Logical Blocks</b>	1000215216
	<b>Features</b>	Pyrite 2.0; TRIM; L1.2
<b>256 GB PCIe® NVMe™ M.2 SSD</b> <sup>25</sup>	<b>Form Factor</b>	M.2 2280
	<b>Capacity</b>	256GB
	<b>NAND Type</b>	TLC
	<b>Weight</b>	0 ~ 15.0 g (0 ~ 0.03 lb)
	<b>Interface</b>	PCIe NVMe
	<b>Sequential Read</b>	Up to 3100 MB/s
	<b>Sequential Write</b>	Up to 1200 MB/s
	<b>Logical Blocks</b>	500118192
	<b>Features</b>	Pyrite 2.0; TRIM; L1.2

25. 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.



### NETWORKING / COMMUNICATION

<p><b>Realtek 8852BE-VT Wi-Fi® 6</b></p> <p><b>Bluetooth® 5.4 WW WLAN <sup>26</sup></b></p>	<p><b>Wireless LAN Standards</b></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 802.11j</p> <p>IEEE 802.11k</p> <p>IEEE 802.11mc</p> <p>IEEE 802.11r</p> <p>IEEE 802.11v</p> <p>IEEE 802.11w</p>
	<p><b>Interoperability</b></p>	<p>Wi-Fi certified modules</p>
	<p><b>Frequency Band</b></p>	<p>802.11b/g/n/ax</p> <p>2.402 - 2.482 GHz</p> <p>802.11a/n/ac/ax</p> <p>4.9 - 4.95 GHz (Japan)</p> <p>5.15 - 5.25 GHz</p> <p>5.25 - 5.35 GHz</p> <p>5.47 - 5.725 GHz</p> <p>5.825 - 5.850 GHz</p>
	<p><b>Data Rates</b></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>



<b>Modulation</b>	Direct Sequence Spread Spectrum, OFDM, BPSK, QPSK, CCK, 16-QAM, 64-QAM, 256-QAM, 1024QAM
<b>Security</b>	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 (personal) certification IEEE 802.11i WAPI (by request) EAP
<b>Network Architecture</b>	Ad-hoc (Peer to Peer)
<b>Models</b>	Infrastructure (Access Point Required)
<b>Roaming</b>	IEEE 802.11 compliant roaming between access points
<b>Output Power</b>	802.11b: +20dBm 802.11g: +18dBm 802.11a: +18dBm 802.11n HT20(2.4GHz): +17dBm 802.11n HT40(2.4GHz): +17dBm 802.11n HT20(5GHz): +17dBm 802.11n HT40(5GHz): +17dBm 802.11ac VHT80(5GHz): +15dBm 802.11ax HE40(2.4GHz): +13dBm 802.11ax HE80(5GHz): +13dBm
<b>Power Consumption</b>	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 10mW Radio disabled 8 mW
<b>Power Management</b>	ACPI and PCI Express compliant power management 802.11 compliant power saving mode



<b>Receiver Sensitivity</b> <sup>27</sup>	<p>802.11b, 1Mbps : -93.5dBm maximum</p> <p>802.11b, 11Mbps : -85dBm maximum</p> <p>802.11a/g, 6Mbps : -90.5dBm maximum</p> <p>802.11a/g, 54Mbps : -72.5dBm maximum</p> <p>802.11n, MCS0(HT20) : -90dBm maximum</p> <p>802.11n, MCS7(HT20) : -71.5dBm maximum</p> <p>802.11n, MCS0(HT40) : -88.5dBm maximum</p> <p>802.11n, MCS7(HT40) : -68.5dBm maximum</p> <p>802.11ac, MCS9(VHT20) : -88.5dBm maximum</p> <p>802.11ac, MCS9(VHT40) : -65.5dBm maximum</p> <p>802.11ac, MCS9(VHT80) : -60.5dBm maximum</p> <p>802.11ac, MCS9(VHT160) : -58.5dBm maximum</p> <p>802.11ax, MCS11(HE20)(6GHz) : -59.5dBm maximum</p> <p>802.11ax, MCS11(HE40)(6GHz) : -56.5dBm maximum</p> <p>802.11ax, MCS11(HE80)(6GHz) : -53.5dBm maximum</p> <p>802.11ax, MCS11(HE160)(6GHz) : -51.5dBm maximum</p>
<b>Antenna Type</b>	<p>High efficiency antenna with spatial diversity.</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>
<b>Form Factor</b>	PCI-Express M.2
<b>Dimensions</b>	1. Type 2230 : 2.4 x 22.0 x 30.0 mm
<b>Weight</b>	1. Type 2230 : 2.8g
<b>Operating Voltage</b>	3.3v +/- 9%
	<b>Integrated Bluetooth® specifications</b>
<b>Bluetooth® Specification</b>	4.0/4.1/4.2/5.0/5.1/5.2/5.3/5.4 Compliant
<b>Frequency Band</b>	2402 to 2480 MHz
<b>Number of Available Channels</b>	Legacy : 0~79 (1 MHz/CH) BLE : 0~39 (2 MHz/CH)
<b>Data Rates and Throughput</b>	<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>



	Legacy : Asynchronous Connection Less links 2178.1 kbps/177.1 kbps asymmetric (3-DH5) or 864 kbps symmetric (3-EV5)
<b>Transmit Power</b>	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.
<b>Power Consumption</b>	Peak (Tx): 330 mW Peak (Rx): 230 mW Selective Suspend: 17 mW
<b>Bluetooth® Software</b>	Microsoft Windows Bluetooth Software
<b>Supported Link Topology</b>	
<b>Power Management</b>	Microsoft Windows ACPI, and USB Bus Support
<b>Certifications</b>	FCC (47 CFR) Part 15C/E, Section 15.247, 15.249 ETSI 300 328, ETSI 301 893
<b>Bluetooth® Profiles</b>	BT4.1-ESR 5/6/7 Compliance
<b>Supported</b>	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 spetion 12.3 of bluetooth  
 5.3 specification  
 ESR 9/10 compliance  
 Host to controller Encryption key control enhancements

**Realtek 8922AE-VS Wi-Fi 7  
 Bluetooth® 6.0 WW WLAN** <sup>28</sup>

**Wireless LAN Standards**

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  
 Wi-Fi certified  
 802.11b/g/n/ax  
 2.402 - 2.482 GHz  
 802.11a/n/ac/ax  
 4.9-4.95GHz(Japan)

**Interoperability  
 Frequency Band**



	5.15-5.25GHz
	5.25-5.35GHz
	5.47-5.725GHz
	5.825-5.850GHz
	5.955-6.415GHz
	6.435-6.515GHz
	6.535-6.875GHz
	6.895-7.115GHz
	5.925-7.125GHz
<b>Data Rates</b>	802.11b: 1, 2, 5.5, 11 Mbps
	802.11g: 6, 9, 12, 18, 24, 36, 48, 54 Mbps
	802.11a: 6, 9, 12, 18, 24, 36, 48, 54 Mbps
	802.11n: MCS 0 ~ MCS 15, (20MHz, and 40MHz)
	802.11ac : MCS0 ~ MCS9, (20MHz, 40MHz, ,80MHz & 160MHz)
	802.11ax : MCS0 ~ MCS11, (20MHz, 40MHz, ,80MHz & 160MHz)
	802.11be : MCS0 ~ MCS11, (20MHz, 40MHz, ,80MHz & 160MHz)
<b>Modulation</b>	Direct Sequence Spread Spectrum
	OFDM, BPSK, QPSK, CCK, 16-QAM, 64-QAM, 256-QAM, 1024QAM
<b>Security</b>	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 (personal) certification
	IEEE 802.11i
	WAPI (by request)
	EAP
<b>Network Architecture</b>	Infrastructure (Access Point Required)
<b>Models</b>	
<b>Roaming</b>	IEEE 802.11 compliant roaming between access points
<b>Output Power</b>	802.11b : +20dBm



	802.11g: +20dBm
	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
<b>Power Consumption</b>	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 10mW
	Radio disabled 8 mW
<b>Power Management</b>	ACPI and PCI Express compliant power management
	802.11 compliant power saving mode
<b>Receiver Sensitivity</b> <sup>27</sup>	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
<b>Antenna Type</b>	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
<b>Form Factor</b>	PCI-Express M.2
<b>Dimensions</b>	1. Type 2230 : 2.3 x 22.0 x 30.0 mm
<b>Weight</b>	1. Type 2230 : 2.8g
<b>Operating Voltage</b>	3.15 ~3.6V
	<b>Integrated Bluetooth® specifications</b>
<b>Bluetooth® Specification</b>	4.0/4.1/4.2/5.0/5.1/5.2/5.3/5.4/6 Compliant
<b>Frequency Band</b>	2402 to 2480 MHz
<b>Number of Available Channels</b>	Legacy : 0~79 (1 MHz/CH) BLE : 0~39 (2 MHz/CH)
<b>Data Rates and Throughput</b>	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)
<b>Transmit Power</b>	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.
<b>Power Consumption</b>	Peak (Tx): 330 mW Peak (Rx): 230 mW Selective Suspend: 17 mW



<b>Bluetooth® Software</b>	Microsoft Windows Bluetooth Software
<b>Supported Link Topology</b>	
<b>Power Management</b>	Microsoft Windows ACPI, and USB Bus Support compliant power management 802.11 compliant power saving mode
<b>Certifications</b>	FCC (47 CFR) Part 15C/E, Section 15.247, 15.249, 15.407 ETSI 300 328, ETSI 301 893, ETSI 303 687
<b>Bluetooth® Profiles Supported</b>	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 spetion 12.3 of bluetooth 5.3



		specification
		ESR 9/10 compliance
		Host to controller Encryption key control enhancements
<b>Realtek RTL8111HSH</b>	<b>Connector</b>	RJ-45
<b>10/100/1000 Integrated NIC</b>	<b>System Interface</b>	PCIe + SMBus
	<b>Data Rates Supported</b>	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
	<b>IEEE Compliance</b>	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)
		IEEE 802.3az EEE (Energy Efficient Ethernet)
	<b>Performance</b>	TCP/IP/UDP Checksum Offload (configurable)
		Protocol Offload (ARP & NS)
		Large send offload and Giant send offload
		Receiving Side Scaling
		Jumbo Frame 9K
	<b>Power Consumption</b>	Cable Disconnection: 25mW
		100Mbps Full Run: 450mW
		1000bp Full Run: 1000mW
		WoL Enable(S3/S4/S5): 50mW
		WoL Disable(S3/S4/S5): 25mW
	<b>Power Management</b>	ACPI compliant – multiple power modes
		Situation-sensitive features reduce power consumption
		Advanced link down power saving for reducing link down power



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<b>Management Interface</b>	consumption
<b>IT Manageability</b>	Auto MDI/MDIX Crossover cable detection
	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
<b>Security &amp; Manageability</b>	Non-support

26. Wi-Fi 6 is designed to support gigabit data rate when transferring files between two devices connected to the same router. Requires a wireless router, sold separately, that supports 80MHz and higher channels.

Wireless access point and Internet service required and sold separately. Availability of public wireless access points limited. Wi-Fi 6 (802.11ax) is backwards compatible with prior 802.11 specs.

27. 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).

28. Wi-Fi 7 requires a Wi-Fi 7 router, sold separately, to function in the 6GHz band. Availability of public wireless access points limited. Wi-Fi 7 is backwards compatible with prior 802.11 specs. And available in countries where Wi-Fi 7 is supported. Wi-Fi 7 is designed to support gigabit data rate when transferring files between two devices connected to the same router. Requires a wireless router, sold separately, that supports 80MHz and higher channels.



### POWER

Power supply availability may vary by country.

<b>CALI 45W</b>	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
	<b>Output</b>	
	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
	<b>Connector</b>	
	Connector	C6
	<b>Environmental Design</b>	
	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)
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### 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
<b>Output</b>	
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)
<b>Connector</b>	
Connector	USB type C
<b>Environmental Design</b>	
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)

### Connector

Connector	USB type C
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### 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

<b>HP 3-cell Long Life Li-Ion (41 WHr)</b>	Weight	0.175 kg (0.377 lb)
	Cells / Type	3cell Lithium-Ion Polymer cell / 515974
	<b>Energy</b>	
	Voltage	11.25V
	Amp - hour capacity	3.648Ah
	Watt - hour capacity	41WH
	<b>Temperature</b>	
	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

<b>HP 4-cell Long Life Li-Ion (68 WHr)</b>	Weight	0.255 kg / (0.55 lb)
	Cells / Type	4cell Lithium-Ion Polymer cell / 506473
	<b>Energy</b>	
	Voltage	7.72V
	Amp - hour capacity	8.81Ah
	Watt - hour capacity	68Wh
	<b>Temperature</b>	
	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



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### AUDIO

<b>Codec</b>	Realtek ALC3247-CG
<b>Audio I/O Ports</b>	One Headset Combo-Jack connector support CTIA spec.
<b>Internal Speaker Amplifier</b>	2W class D stereo amplifier for the internal speaker only. External speakers must be powered.
<b>Multi-streaming Capable</b>	Playback multi-streaming can be enabled in the audio control panel to allow independent audio streams to be sent to/from the Combo jack or integrated speaker.
<b>Sampling</b>	Independent sampling rates for DAC's and ADC's; supports resolutions from 16 to 24-bit; 44.1 kHz to 48 kHz for DAC and ADC.
<b>Wavetable Syntheses</b>	Yes - Uses OS soft wavetable
<b>Internal Speaker</b>	Yes.

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### FINGERPRINT READER

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

<b>Sensor vendor</b>	SYNAPTICS
<b>Sensor type</b>	Capacitive
<b>DPI resolution</b>	363 DPI
<b>Scan area</b>	104x86 pixels
<b>False Rejection Rate</b>	< 3%
<b>False Acceptance Rate</b>	< 1/100000 (0.001%)
<b>Mobile Voltage Operation</b>	2.7 V ~ 3.6 V
<b>Operating Temperature</b>	0 to 60° C
<b>Current Consumption Image</b>	100 mA max
<b>Low Latency Wait For Finger</b>	60 uA
<b>Capture Rate</b>	17ms/times (~58 frame/sec)
<b>ESD Resistance</b>	IEC 61000-4-2 4B (+15KV)
<b>Detection Matrix</b>	363 dpi / 7.4 x 6.0 mm sensor area



### CHANGELOG

Date of change	Version History		Description of change
April 29, 2026	V1 to V2	Updated	Environmental Data Section
May 14, 2026	V2 to V3	Updated	Processor Section

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