Overview

HP 250R 15.6 inch G9 Notebook PC

Front

1. Internal Dual Digital Microphone
2. Webcam LED
3. Webcam
4. Touchpad
5. Touchpad Buttons
6. Fingerprint Reader (Selected models)

Overview

Sides

1. RJ-45 / Ethernet Port
2. HDMI Port (Cable Sold Separately)
3. SuperSpeed USB Type-C® 10 Gbps signaling rate (USB Power Delivery, DisplayPort 1.4)
4. Storage Indicator LED
5. Power Indicator LED
6. Audio Combo Jack
7. SD Card Slot
8. SuperSpeed USB Type-A 5Gbps signaling rate1 port (USB 3.2 Gen 1)
9. SuperSpeed USB Type-A 5Gbps signaling rate1 port (USB 3.2 Gen 1)
10. Power Connector

Technical Specifications

PRODUCT NAME

HP 250R 15.6 inch G9 Notebook PC

OPERATING SYSTEMS

Preinstalled

Windows 11 Pro – HP recommends Windows 11 Pro for business
Windows11 Home 64 [1]
Windows11 Home 64 Plus [1]
Windows 11 Home 64 Plus Single Language [1,2]
Windows 11 Pro Education [1]
FreeDOS

1. Not all features are available in all editions or versions of Windows. Systems may require upgraded and/or separately purchased hardware, drivers, software or BIOS update to take full advantage of Windows functionality. Windows is automatically updated and enabled. High speed internet and Microsoft account required. ISP fees may apply and additional requirements may apply over time for updates. See http://www.windows.com.
2. This computer is preinstalled with Windows 11 Home Single Language.

PROCESSORS

Processor 3,4,5,6,7,8	Cores	Number of P-cores	Number of E-cores	Threads	L3 Cache	Max Turbo Frequency [5]		Base Frequency		Intel SIPP/vPro® Enterprise
						P-cores	E-cores	P-cores	E-cores	
Intel Core i5-1345U	10 cores	2	8	12	12MB	4.7 GHz	3.5 GHz	1.6 GHz	1.2 GHz	X
Intel Core i5-1335U	10 cores	2	8	12	12MB	4.6 GHz	3.4 GHz	1.3 GHz	0.9 GHz	
Intel Core i5-1334U	10 cores	2	8	12	12MB	4.6 GHz	3.4 GHz	1.3 GHz	0.9 GHz	
Intel Core i3-1315U	6 cores	2	4	8	10MB	4.5 GHz	3.3 GHz	1.2 GHz	0.9 GHz	
Intel Core 7 150U	10 cores	2	8	12	12MB	5.4 GHz	4 GHz	1.8 GHz	1.2 GHz	
Intel Core 5 120U	10 cores	2	8	12	12MB	5 GHz	3.8 GHz	1.4 GHz	0.9 GHz	
Intel Core 5 220U	10 cores	2	8	12	12MB	5 GHz	3.8 GHz	1.4 GHz	0.9 GHz	X
Intel Core 3 100U	6 cores	2	4	8	10MB	4.7 GHz	3.3 GHz	1.2 GHz	0.9 GHz	

3. Multicore is designed to improve performance of certain software products. Not all customers or software applications will necessarily benefit from use of this technology. Performance and clock frequency will vary depending on application workload and your hardware and software configurations. Intel's numbering, branding and/or naming is not a measurement of higher performance.
4. Processor speed denotes maximum performance mode; processors will run at lower speeds in battery optimization mode.
5. Intel® Turbo Boost performance varies depending on hardware, software and overall system configuration. See http://www.intel.com/technology/turboboost for more information.

Technical Specifications

6. Max Boost clock frequency performance varies depending on hardware, software and overall system configuration.
7. 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.
8. 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. Performance varies by use, configuration, and other factors.

CHIPSET

Chipset is integrated with processor.

GRAPHICS

Integrated
Intel® Iris® Xᵉ Graphics [9]
Intel® UHD Graphics

Supports
Support HD decode, DX12, HDMI 1.4b [10]

Hardware acceleration for CODEC H.265/HEVC (High Efficiency Video Coding) is disabled on this platform.

9. Intel® Iris® Xᵉ Graphics capabilities require system to be configured with Intel® Core™ i5 or i7 processors and dual channel memory. Intel® Iris® Xᵉ Graphics with Intel® Core™ i5 or 7 processors and single channel memory will only function as UHD graphics.
10. HD content required to view HD images.

DISPLAY

Non-Touch
39.6 cm (15.6") diagonal, FHD (1920 x 1080), anti-glare, UWVA, micro-edge, 300 nits, 45% NTSC eDP 1.2 [11,12,13]
39.6 cm (15.6") diagonal, FHD (1920 x 1080), anti-glare, SVA, micro-edge, 250 nits, 45% NTSC eDP 1.2 [11,12,13]
39.6 cm (15.6") diagonal, HD (1366x768), anti-glare, SVA, micro-edge, 250 nits, 45% NTSC eDP 1.2 [11,12,13]

HDMI
Supports resolutions up to 1920 x 1080 external resolution @60 Hz

Display Size
15.6" diagonal
39.6 cm (15.6") diagonal

Screen to Body Ratio
80.69%

Aspect Ratio
16.9

Technical Specifications

11. HD content required to view HD images.
12. Sold separately or as an optional feature.
13. Resolutions are dependent upon monitor capability, and resolution and color depth settings.

Technical Specifications

DOCKING (SOLD SEPARATELY)

Docking station model #1	HP USB-C Dock G5
Docking station model #2	HP USB-C/A G2 Universal Dock

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

STORAGE AND DRIVES

Primary Storage
1 TB PCIe® NVMe™ M.2 Value Solid State Drive [14]
512 GB PCIe® NVMe™ M.2 Value Solid State Drive [14]
256 GB PCIe® NVMe™ M.2 Value Solid State Drive [14]
128 GB PCIe® NVMe™ M.2 Value Solid State Drive [14]

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

MEMORY

Maximum Memory
32 GB DDR4-3200 MHz SDRAM (2 x 16 GB) [15,16]

Memory
32 GB DDR4-3200 MHz SDRAM (2 x 16 GB) [15,16]
16 GB DDR4-3200 MHz SDRAM (1 x 16 GB) [15,16]
16 GB DDR4-3200 MHz SDRAM (2 x 8 GB) [15,16]
8 GB DDR4-3200 MHz SDRAM (1 x 8 GB) [15,16]
8 GB DDR4-3200 MHz SDRAM (2 x 4 GB) [15,16]
4 GB DDR4-3200 MHz SDRAM (1 x 4 GB) [15,16]

Memory Slots
2 SODIMM (select models) [15,16]
All slots are customer non-accessible / non-upgradeable
Supports Dual Channel Memory[16]

15. All slots are non-accessible / non-upgradeable.
16. 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.

Technical Specifications

NETWORKING/COMMUNICATIONS

WLAN
Realtek 8852BE-VS (1X1) Wi-Fi® 6 Bluetooth® 5.3 Wireless Card WLAN [17]
Intel® Dual Band Wi-Fi 6 AX201 802.11a/b/g/n/ac/ax (2x2) WLAN and Bluetooth® 5.2 Wireless Card, non-vPro® [17]

Miracast
Compatible with Miracast-certified devices (For Windows11) [18]

Ethernet
Realtek RTL8111HSH-CG Integrated 10/100/1000 NIC[19]

17. Wireless access point and internet service required and sold separately. Availability of public wireless access points limited. Wi-Fi 6 is backwards compatible with prior 802.11 specs.
18. Miracast is a wireless technology your PC can use to project your screen to TVs, projectors, and streaming.
19. The term "10/100/1000" or "Gigabit" Ethernet indicates compatibility with IEEE standard 802.3ab for Gigabit Ethernet, and does not connote actual operating speed of 1 Gb/s. For high-speed transmission, connection to a Gigabit Ethernet server and network infrastructure is required.

AUDIO/MULTIMEDIA

Audio
2 Integrated stereo speakers
Integrated dual array microphone

Speaker Power
2W/4ohm

Camera
720p HD camera with Temporal Noise Reduction [10]

10. HD content required to view HD images.

KEYBOARDS/POINTING DEVICES/BUTTONS & FUNCTION KEYS

Keyboard
Full size textured island-style keyboard

Pointing Device
Touchpad with multi-touch gesture support (PTP certified)

Function Keys
F1 - Open " How to get help in Windows 11" webpage
F2 - Brightness Down
F3 - Brightness Up
F4 - Display Switching
F5 - Blank
F6 - Mute
F7 - Volume Down
F8 -Volume Up
F9 - Previous
F10 - Play/Pause

Technical Specifications

F11 - Next
F12 - Airplane mode
Microsoft Copilot Key [20]

20. Requires Windows 11 and an NPU. Timing of feature delivery and availability varies by market and device. Requires Microsoft account to log in. Where Copilot in Windows is not available, the Copilot key will lead to the Bing search engine. See http://aka.ms/WindowsAIFeatures

SOFTWARE AND SECURITY

Software
HP Connection Optimizer
HP Privacy Settings
HP Smart Support [21]
MyHP
Buy Microsoft Office (Sold separately)

Manageability Features
Touchpoint Customizer for Consumer

Security Management
McAfee Security (30 days free trial as default)[22]
Express VPN (30 days free trial)
LastPass password manager
Discrete TPM 2.0
Fingerprint Reader

21. HP Smart Support requires the HP agent to be installed. For more information about how to enable or to download HP Smart Support, please visit http://www.hp.com/smart-support. HP Services Scan is provided thru Windows Update and will check entitlement on each hardware device to determine if an HP agent-enabled service has been purchased, and will download applicable software automatically. The HP agent is a telemetry and analytics platform that provides critical data around devices and applications and is not sold as a standalone service. HP follows stringent GDPR privacy regulations and is ISO27001, ISO27701, ISO27017 and SOC2 Type2 certified for Information Security. Internet access is required. For full system requirements or to disable this feature, please visit http://www.hpdaas.com/requirements.
22. 30-day McAfee® LiveSafe™ trial included. Internet access required and not included. Subscription required after expiration. See http://www.McAfee.com for more details

Technical Specifications

POWER

Power Supply
HP Smart 65 W EM External AC power adapter [23]
HP Smart 45 W External AC power adapter [23]
HP Smart 65 W USB Type-C® adapter[23]

Battery
HP Long Life 3 cell 41Whr Polymer [24,25]

Power Cord
1M (3.28 feet) length power cord

Battery Life
Up to 7hours 15 minutes with 41Whr battery[26]

Battery Weight
0.42 lb
0.19 kg

23. Availability may vary by country.
24. Battery is internal and not replaceable by customer. Serviceable by warranty.
25. Actual battery Watt-hours (Wh) will vary from design capacity. Battery capacity will naturally decrease with shelf life, time, usage, environment, temperature, system configuration, loaded apps, features, power management settings and other factors.
26. 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.

Technical Specifications

WEIGHTS & DIMENSIONS

Product Weight
Starting at 3.84 lb [27]
Starting at 1.74 kg [27]

Product Dimensions (W x D x H) [28]
358 mm (W) x 242 mm (D) x 9.2mm (front)/ 14.8mm (rear)
Maximum height 19.9 (mm)
14.09 in (W) x 9.53 in (D) x 0.36 in (front)/ 0.58 in (rear)
Maximum height 0.78 (in)

Package Dimensions (W x D x H)[29]
12-15" boxes (305mm height): 1200mm x 1000mm x 1080mm

27. Weight will vary by configuration.
28. Front height measurement is near the front edge where the chassis bottom cover taper begins. Back height measurement is near the back edge where the chassis bottom cover taper ends.
29. 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.

PORTS/SLOTS

2 SuperSpeed USB Type-A 5Gbps signaling rate
1 SuperSpeed USB Type-C® 10Gbps signaling rate (USB Power Delivery, DisplayPort™ 1.4)
1 HDMI v1.4b [30]
1 RJ-45
1 AC Power
1 Headphone/mic combo jack

Expansion Slots
Support SD/SDHC/SDXC
1 multi-format digital media reader

30. HDMI cable sold separately.

Technical Specifications

ENVIRONMENTAL DATA

Eco-Label Certifications & declarations	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: • IT ECO declaration • US ENERGY STAR® • US Federal Energy Management Program (FEMP) • EPEAT® Gold registered in the United States. See http://www.epeat.net for registration status in your country. • TCO Certified • China Energy Conservation Program (CECP) • China State Environmental Protection Administration (SEPA) • Taiwan Green Mark • Korea Eco-label • Japan PC Green label*
Sustainable Impact Specifications	• Product Carbon Footprint • 2.5% post-consumer recycled plastic • Low halogen • Outside Box and corrugated cushions are 100% sustainably sourced and recyclable • Molded Paper Pulp Cushion inside box is 100% sustainably sourced and recyclable. • Bulk packaging available
System Configuration	The configuration used for the Energy Consumption and Declared Noise Emissions data for the Notebook model is based on a “Typically Configured Notebook”.

Energy Consumption (in accordance with US ENERGY STAR® test method)	**115VAC, 60Hz**	**230VAC, 50Hz**	**100VAC, 50Hz**
Normal Operation (Short idle)	4.96 W	4.96 W	5.00 W
Normal Operation (Long idle)	2.40 W	2.58 W	2.36 W
Sleep	1.16 W	1.22 W	1.13 W
Off	0.20 W	0.24 W	0.20 W

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.

Heat Dissipation*	**115VAC, 60Hz**	**230VAC, 50Hz**	**100VAC, 50Hz**
Normal Operation (Short idle)	17 BTU/hr	17 BTU/hr	17 BTU/hr
Normal Operation (Long idle)	8 BTU/hr	9 BTU/hr	8 BTU/hr
Sleep	4 BTU/hr	4 BTU/hr	4 BTU/hr
Off	1 BTU/hr	1 BTU/hr	1 BTU/hr

***NOTE:** Heat dissipation is calculated based on the measured watts, assuming the service level is attained for one hour.

Declared Noise Emissions (in accordance with ISO 7779 and ISO 9296)	**Sound Power (L_{WAd}, bels)**	**Sound Pressure (L_{pAm}, decibels)**
Typically Configured – Idle	2.6	26
Fixed Disk – Random writes	2.9	29
Optical Drive – Sequential reads	N/A	42

Longevity and Upgrading	This product can be upgraded, possibly extending its useful life by several years. Upgradeable features and/or components contained in the

Technical Specifications

	Spare parts are available throughout the warranty period and or for up to “5” years after the end of production.		
Additional Information	• This product is in compliance with the Restrictions of Hazardous Substances (RoHS) directive - 2011/65/EC. • This HP product is designed to comply with the Waste Electrical and Electronic Equipment (WEEE) Directive – 2002/96/EC. • This product is in compliance with California Proposition 65 (State of California; Safe Drinking Water and Toxic Enforcement Act of 1986). • This product is in compliance with the IEEE 1680 (EPEAT) standard at the Gold level, see www.epeat.net • Plastics parts weighing over 25 grams used in the product are marked per ISO11469 and ISO1043. • This product is 94.4% recycle-able when properly disposed of at end of life.		
Packaging Materials	**External:**	PAPER/Corrugated	293 g
		PAPER/Molded Pulp	148 g
	Internal:	PLASTIC/Polyethylene low density – LDPE	10 g
		PLASTIC/Polypropylene – PP	4 g
	The plastic packaging material contains at least 0.00% recycled content.		
	The corrugated paper packaging materials contains at least 57.0% recycled content.		
RoHS Compliance	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. 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. 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. To obtain a copy of the HP RoHS Compliance Statement, see HP RoHS position statement.		
Material Usage	This product does not contain any of the following substances in excess of regulatory limits (refer to the HP General Specification for the Environment at https://h20195.www2.hp.com/v2/GetDocument.aspx?docname=c05998906): • Asbestos • Certain Azo Colorants • Certain Brominated Flame Retardants – may not be used as flame retardants in plastics • Cadmium • Chlorinated Hydrocarbons • Chlorinated Paraffins • Bis(2-Ethylhexyl) phthalate (DEHP) • Benzyl butyl phthalate (BBP) • Dibutyl phthalate (DBP) • Diisobutyl phthalate (DIBP) • Formaldehyde		

Technical Specifications

	• Halogenated Diphenyl Methanes • Lead carbonates and sulfates • Lead and Lead compounds • Mercuric Oxide Batteries • Nickel – finishes must not be used on the external surface designed to be frequently handled or carried by the user. • Ozone Depleting Substances • Polybrominated Biphenyls (PBBs) • Polybrominated Biphenyl Ethers (PBBEs) • Polybrominated Biphenyl Oxides (PBBOs) • Polychlorinated Biphenyl (PCB) • Polychlorinated Terphenyls (PCT) • Polyvinyl Chloride (PVC) – except for wires and cables, and certain retail packaging has been voluntarily removed from most applications. • Radioactive Substances • Tributyl Tin (TBT), Triphenyl Tin (TPT), Tributyl Tin Oxide (TBTO)
Packaging Usage	HP follows these guidelines to decrease the environmental impact of product packaging: • Eliminate the use of heavy metals such as lead, chromium, mercury and cadmium in packaging materials. • Eliminate the use of ozone-depleting substances (ODS) in packaging materials. • Design packaging materials for ease of disassembly. • Maximize the use of post-consumer recycled content materials in packaging materials. • Use readily recyclable packaging materials such as paper and corrugated materials. • Reduce size and weight of packages to improve transportation fuel efficiency. • Plastic packaging materials are marked according to ISO 11469 and DIN 6120 standards.
End-of-life Management and Recycling	HP offers end-of-life HP product return and recycling programs in many geographic areas. To recycle your product, please go to: https://h20195.www2.hp.com/V2/GetDocument.aspx?docname=c05403198 or contact your nearest HP sales office. Products returned to HP will be recycled, recovered or disposed of in a responsible manner. The EU WEEE directive (2002/95/EC) requires manufacturers to provide treatment information for each product type for use by treatment facilities. This information (product disassembly instructions) is posted on the Hewlett Packard web site at: HP Product Disassembly Instruction Website. These instructions may be used by recyclers and other WEEE treatment facilities as well as HP OEM customers who integrate and re-sell HP equipment.
HP, Inc. Corporate Environmental Information	For more information about HP's commitment to the environment: Sustainable Impact Report https://h20195.www2.hp.com/v2/GetDocument.aspx?docname=c06040843 Eco-label certifications https://www.hp.com/us-en/sustainable-impact/document-reports.html#filters_documents_reports-=document_type-type_energy_star,type_epeat,type_tcoISO ISO 14001 certificates: https://h20195.www2.hp.com/v2/GetDocument.aspx?docname=c04777932

Technical Specifications

footnotes	• Percentage of ocean-bound plastic contained in each component varies by product • Recycled plastic content percentage is based on the definition set in the IEEE 1680.1-2018 standard. • External power supplies, WWAN modules, power cords, cables and peripherals excluded. • 100% outer box packaging and corrugated cushions made from sustainably sourced certified and recycled fibers. • Fiber cushions made from 100% recycled wood fiber and organic materials. Disclaimer: 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.

Technical Specifications

SERVICE AND SUPPORT

1-year warranty and 90 day software limited warranty options depending on country. Batteries have a default one year limited warranty. Refer to http://www.hp.com/support/batterywarranty/ for additional battery information. On-site service and extended coverage is also available. HP Care Pack Services are optional extended service contracts that go beyond the standard limited warranties. To choose the right level of service for your HP product, use the HP Care Pack Services Lookup Tool at: http://www.hp.com/go/cpc. [31]

31. 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.

Technical Specifications

SYSTEM UNIT

Stand-Alone Power Requirements (AC Power)	
Nominal Operating Voltage	19.5V
Average Operating Power	6.3W
Integrated graphics	Yes
Max Operating Power	UMA<45W
Temperature	
Operating	0° to 35° C (32° to 95° F)
Non-operating	5° to 35° C (41° to 95° F)
Relative Humidity	
Operating	10% to 90 % (non-condensing)
Non-operating	5% to 95 %, 38.7° C (101.6° F) maximum wet bulb temperature
Shock	
Operating	40 G, 2 ms, half-sine
Non-operating	200 G, 2 ms, half-sine
Random Vibration	
Operating	0.75 grams
Non-operating	1.50 grams
Altitude (unpressurized)	
Operating	-15.24 to 3,048 m (-50 to 10,000 ft)
Non-operating	-15.24 to 12,192 m (-50 to 40,000 ft)
Planned Industry Standard Certifications	Yes
Regulatory Model Number	TPN-C139
CSA/UL 62368-1	Yes
ENERGY STAR®	Yes
EPEAT®	EPEAT® Gold in the United States [32]
FCC/ICES/CISPR/VCCI	Yes
CE MARKING	Yes
MIL-STD 810H Testing	Yes[33]

32. 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.
33. MIL STD 810H 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.

Technical Specifications

DISPLAYS

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

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

15.6 in FHD (1920 x 1080) Anti-Glare UWVA LED NTSC 45 NWBZ 300 eDP 1.2 w/o PSR flat LCD Panel	**Outline Dimensions (W x H)**	350.96 x 216.75 (max)
	Active Area	344.16 x 193.59 (typ)
	Weight	370 (max)
	Diagonal Size	15.6 (inch)
	Surface Treatment	Anti-Glare
	Touch Enabled	No
	Contrast Ratio	1000:1 (typ)
	Refresh Rate	60Hz
	Brightness	300 nits (typ.)
	Pixel Resolution - Format	1920 x 1080 (FHD)
	Backlight	WLED
	Pixel Resolution	RGB
	Color Gamut Coverage	NTSC 45%
	Color Depth	6+2 FRC
	Viewing Angle	UWVA 89/89/89/89
	Low Blue Light	No
	Power Consumption (W, EBL@ 150nits max/ 200nits max))	2.71 (max) / 3.4 (max)

Panel LCD 15.6-in FHD (1920x1080) Anti-Glare WLED SVA 45percent cg 250nits eDP 1.2 w/o PSR NWBZ ultraslim	**Outline Dimensions (W x H)**	350.96 x 216.75 (max)
	Active Area	344.16 x 193.59 (typ)
	Weight	360 (max)
	Diagonal Size	15.6 (inch)
	Surface Treatment	Anti-Glare
	Touch Enabled	No
	Contrast Ratio	300: 1 (typ)
	Refresh Rate	60Hz
	Brightness	250 nits (typ.)
	Pixel Resolution - Format	1920 x 1080 (FHD)
	Backlight	WLED
	Pixel Resolution	RGB
	Color Gamut Coverage	NTSC 45%
	Color Depth	6
	Viewing Angle	SVA 45/45/15/30
	Low Blue Light	No
	Power Consumption (W, EBL@ 150nits max/ 200nits max))	2.67 (max) / 3.33 (max)

Technical Specifications

Panel LCD 15.6-in HD (1366x768) Anti-Glare WLED SVA 45percent cg 250nits eDP 1.2 w/o PSR NWBZ ultraslim	**Outline Dimensions (W x H)**	351.03 x 216.75 (max)
	Active Area	344.23 x 193.54 (typ)
	Weight	370 (max)
	Diagonal Size	15.6 (inch)
	Surface Treatment	Anti-Glare
	Touch Enabled	No
	Contrast Ratio	300: 1 (typ)
	Refresh Rate	60Hz
	Brightness	250 nits (typ.)
	Pixel Resolution - Format	1366 x 768 (HD)
	Backlight	WLED
	Pixel Resolution	RGB
	Color Gamut Coverage	NTSC 45%
	Color Depth	6
	Viewing Angle	SVA 45/45/15/30
	Low Blue Light	No
	Power Consumption (W, EBL@ 150nits max/ 200nits max))	2.49 (max) / 2.78 (max)

Technical Specifications

STORAGE AND DRIVES

For storage drives, GB = 1 billion bytes. TB = 1 trillion bytes. Actual formatted capacity is less. Up to 30 GB (for Windows 10 and11) is reserved for system recovery software.

SSD 256GB 2280 PCIe NVMe Value	**Form Factor**	M.2 2280
	Capacity	256 GB
	NAND Type	TLC
	Height	0.09 in (2.3 mm)
	Width	0.87 in (22 mm)
	Weight	0.02 lb (10 g)
	Interface	PCIe NVMe Gen4X4
	Maximum Sequential Read	2000 MB/s ±20%
	Maximum Sequential Write	900 MB/s ±20%
	Logical Blocks	500,118,192
	Operating Temperature	32° to 158°F (0° to 70°C) [ambient temp]
	Features	Pyrite 2.0; TRIM; L1.2

SSD 512GB 2280 PCIe NVMe Value	**Form Factor**	M.2 2280
	Capacity	512 GB
	NAND Type	TLC
	Height	0.09 in (2.3 mm)
	Width	0.87 in (22 mm)
	Interface	PCIe NVMe Gen4X4
	Maximum Sequential Read	2200 MB/s ±20%
	Maximum Sequential Write	1000 MB/s ±20%
	Logical Blocks	1,000,215,215
	Operating Temperature	32° to 158°F (0° to 70°C) [ambient temp]
	Features	Pyrite 2.0; TRIM; L1.2

SSD 1TB 2280 PCIe NVMe Value	**Form Factor**	M.2 2280
	Capacity	1TB
	NAND Type	TLC
	Height	0.09 in (2.3 mm)
	Width	0.87 in (22 mm)
	Interface	PCIe NVMe Gen4X4
	Maximum Sequential Read	2200 MB/s ±20%
	Maximum Sequential Write	1600 MB/s ±20%
	Logical Blocks	2,000,409,264
	Operating Temperature	32° to 158°F (0° to 70°C) [ambient temp]
	Features	Pyrite 2.0; TRIM; L1.2

Technical Specifications

SSD 128GB 2230 PCIe NVMe Value	**Form Factor**	M.2 2230
	Capacity	128GB
	NAND Type	TLC
	Height	0.09 in (2.3 mm)
	Width	0.87 in (22 mm)
	Interface	PCIe NVMe Gen4X4
	Maximum Sequential Read	1800 MB/s ±20%
	Maximum Sequential Write	800 MB/s ±20%
	Logical Blocks	250,069,680
	Operating Temperature	32° to 158°F (0° to 70°C) [ambient temp]
	Features	Pyrite 2.0; TRIM; L1.2

Technical Specifications

NETWORKING/COMMUNICATIONS

Realtek RTL8852BE-VS 802.11ax 1x1 Wi-Fi 6+ Bluetooth5.3 Wireless Card (802.11ax 1x1) [1]	**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
	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 150Mbps • 802.11ac : max 433Mbps • 802.11ax : max 600Mbps
	Modulation	Direct Sequence Spread Spectrum BPSK, QPSK, CCK, 16-QAM, 64-QAM, 256-QAM, 1024QAM
	Security[2]	• 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	Ad-hoc (Peer to Peer)
	Models	Infrastructure (Access Point Required)
	Roaming	IEEE 802.11 compliant roaming between access points
	Output Power[3]	• 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

Technical Specifications

	• 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[4]	• 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%
Temperature	**Operating** 14° to 158° F (–10° to 70° C) **Non-operating** –40° to 176° F (–40° to 80° C)
Humidity	**Operating** 10% to 90% (non-condensing) **Non-operating** 5% to 95% (non-condensing)
Altitude	**Operating** 0 to 10,000 ft (3,048 m) **Non-operating** 0 to 50,000 ft (15,240 m)
LED Activity	LED Amber – Radio OFF; LED OFF – Radio ON

HP Integrated Module with Bluetooth 4.0/4.1/4.2/5.0/5.1/5.2/5.3 Wireless Card Technology

Bluetooth Specification	4.0/4.1/4.2/5.0/5.1/5.2/5.3 Compliant
Frequency Band	2402 to 2480 MHz
Number of Available Channels	Legacy: 0~79 (1 MHz/CH) BLE: 0~39 (2 MHz/CH)
Signaling Data Rate	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

Technical Specifications

		Legacy: Asynchronous Connection Less links 2178.1 kbps/177.1 kbps asymmetric (3-DH5) or 864 kbps symmetric (3-EV5)
	Transmit Power	The Bluetooth component shall operate as a Class II Bluetooth device with a maximum transmit power of + 4 dBm for BR and EDR.

1. Wi-Fi 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.
2. The FCC has declared as of September 1, 2014 products that utilize passive scanning on channel 12/13 and are capable of transmitting must fully comply with requirements of 15.247 or otherwise disable those channels.
3. Check latest software/driver release for updates on supported security features.
4. Receiver sensitivity is measured at a packet error rate of 8% for 802.11b (CKK modulation) and a packet error rate of 10% for 802.11a/g (OFDM modulation).

Intel Wi-Fi 6 AX201 + Bluetooth5.2 Wireless Card (802.11ax 2x2, non-vPro, supporting gigabit file transfer speeds) non-vPro	**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 IEEE 802.11r IEEE 802.11v
	Interoperability	Wi-Fi certified
	Frequency Band	• 802.11b/g/n/ax 2.402 – 2.482 GHz • 802.11a/n/ac/ax 4.9 – 4.95 GHz (Japan) 5.15 – 5.25 GHz 5.25 – 5.35 GHz 5.47 – 5.725 GHz 5.825 – 5.850 GHz
	Data Rates	• 802.11b: 1, 2, 5.5, 11 Mbps • 802.11g: 6, 9, 12, 18, 24, 36, 48, 54 Mbps • 802.11a: 6, 9, 12, 18, 24, 36, 48, 54 Mbps • 802.11n: max 300Mbps • 802.11ac : 1733Mbps • 802.11ax : max 2.4Gbps
	Modulation	Direct Sequence Spread Spectrum OFDM, BPSK, QPSK, CCK, 16-QAM, 64-QAM, 256-QAM, 1024QAM
	Security[2]	• IEEE and WiFi compliant 64 / 128 bit WEP encryption for a/b/g mode only • AES-CCMP: 128 bit in hardware

Technical Specifications

	• 802.1x authentication • WPA, WPA2: 802.1x. WPA-PSK, WPA2-PSK, TKIP, and AES. • WPA2 certification • WPA3 certification • IEEE 802.11i • WAPI
Network Architecture	Ad-hoc (Peer to Peer)
Models	Infrastructure (Access Point Required)
Roaming	IEEE 802.11 compliant roaming between access points
Output Power[3]	• 802.11b : +17dBm minimum • 802.11g : +16dBm minimum • 802.11a : +17dBm minimum • 802.11n HT20(2.4GHz) : +14dBm minimum • 802.11n HT40(2.4GHz) : +13dBm minimum • 802.11n HT20(5GHz) : +14dBm minimum • 802.11n HT40(5GHz) : +13dBm minimum • 802.11ac VHT80(5GHz) : +10dBm minimum • 802.11ac VHT160(5GHz) : +10dBm minimum • 802.11ax HE40(2.4GHz) : +12dBm minimum • 802.11ax HE80(5GHz) : +10dBm minimum • 802.11ax HE160(5GHz) : +10dBm minimum
Power Consumption	• Transmit mode 2.0 W • Receive mode 1.6 W • Idle mode (PSP) 180 mW (WLAN Associated) • Idle mode 50 mW (WLAN unassociated) • Connected Standby - 10mW • Radio disabled 8 mW
Power Management	ACPI and PCI Express compliant power management 802.11 compliant power saving mode
Receiver Sensitivity[4]	• 802.11b, 1Mbps : -93.5dBm maximum • 802.11b, 11Mbps : -84dBm maximum • 802.11a/g, 6Mbps : -86dBm maximum • 802.11a/g, 54Mbps : -72dBm maximum • 802.11n, MCS07 : -67dBm maximum • 802.11n, MCS15 : -64dBm maximum • 802.11ac, MCS0(VHT80) : -84dBm maximum • 802.11ac, MCS9(VHT80) : -59dBm maximum • 802.11ac, MCS9(VHT160) : -58.5dBm maximum • 802.11ax, MCS11(HE40): -57dBm maximum • 802.11ax, MCS11(HE80): -54dBm maximum • 802.11ax, MCS11(HE160): -53.5dBm maximum
Antenna type	High efficiency antenna with spatial diversity, mounted in the display enclosure Two embedded dual band 2.4/5 GHz antennas are provided to the card to support WLAN MIMO communications and Bluetooth communications
Form Factor	PCI-Express M.2 MiniCard with CNVi Interface
Dimensions	1. Type 2230 : 2.3 x 22.0 x 30.0 mm

Technical Specifications

	2. Type 1216: 1.67 x 12.0 x 16.0 mm	
Weight	1. Type 2230 : 2.8g 2. Type 1216: 1.3g	
Operating Voltage	3.3v +/- 9%	
Temperature	**Operating**	14° to 158° F (–10° to 70° C)
	Non-operating	–40° to 176° F (–40° to 80° C)
Humidity	**Operating**	10% to 90% (non-condensing)
	Non-operating	5% to 95% (non-condensing)
Altitude	**Operating**	0 to 10,000 ft (3,048 m)
	Non-operating	0 to 50,000 ft (15,240 m)
LED Activity	LED Amber – Radio OFF; LED OFF – Radio ON	

HP Integrated Module with Bluetooth 4.0/4.1/4.2/5.0/5.1/5.2 Wireless Card Technology

Bluetooth Specification	4.0/4.1/4.2/5.0/5.1/5.2 Compliant
Frequency Band	2402 to 2480 MHz
Number of Available Channels	Legacy: 0~79 (1 MHz/CH) BLE: 0~39 (2 MHz/CH)
Signaling Data Rate	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 + 9.5 dBm for BR and EDR.

Technical Specifications

Realtek RTL8111HSH 10/100/1000 Integrated NIC	**Data rates supported**	10 Mbit/s operation (10BASE-T; IEEE 802.3i; IEEE 802.3 clauses 13-14) 100 Mbit/s operation (100BASE-TX; IEEE 802.3u; IEEE 802.3 clauses 21-30) 1000 Mbit/s operation (1000BASE-T; IEEE 802.3ab; IEEE 8023 clauses 40) Auto-Negotiation (Automatic Speed Selection) Full Duplex Operation at all Speeds, Half Duplex operation at 10 and 100 Mbit/s
	Power Management	ACPI compliant – multiple power modes Situation-sensitive features reduce power consumption Advanced link down power saving for reducing link down power consumption
	Performance Features	TCP/IP/UDP Checksum Offload (configurable) Protocol Offload (ARP & NS) Large send offload and Giant send offload Receiving Side Scaling Jumbo Frame 9K
	Manageability	Wake-on-LAN from standby and hibernation (Magic Packet and Microsoft Wake-Up Frame); Wake-on-LAN from off (Magic Packet only) PXE 2.1 Remote Boot Statistics Gathering (SNMP MIB II, Ethernet-like MIB, Ethernet MIB (802.3x, clause 30)) Comprehensive diagnostic and configuration software suite Virtual Cable Doctor for Ethernet cable status
	Management Interface	Auto MDI/MDIX Crossover cable detection

Technical Specifications

POWER

1. Actual battery Watt-hours (Wh) will vary from design capacity. Battery capacity will naturally decrease with shelf life, time, usage, environment, temperature, system configuration, loaded apps, features, power management settings and other factors

HP 45W 4.5 mm nPFC Right Angle Smart (3-pin) AC Power Adapter Cupid II	**Dimensions**	3.74 x 1.772 x 1.043 in (9.5x4.5x2.65cm)	
	Weight	170g(+/-10g)	
	Input	100 to 240 VAC	
		Input Efficiency	87.74 % at 115 Vac and 88.4 % at 230Vac
		Input frequency range	47 ~ 63Hz
		Input AC current	Max. 1.4 A at 90 Vac
	Output	**Output power**	45W
		DC output	5V/9V/12V/15V
		Hold-up time	100% load 5ms at 115 Vac input/80% load 10ms at 115 Vac input
		Output current limit	< 8.0A
	Connector	4.5mm Barrel Type	
	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, EN55032 Class B, FCC Class B, CISPR32 Class B, CCC and CECP, BIS, UKCA DoC	

Technical Specifications

HP 65W 4.5 mm nPFC Right Angle Smart (3-pin) AC Power Adapter EM II	**Dimensions**	4.016 x 2.165 x 1.181 in (10.2x5.5x3cm)	
	Weight	250g(+/-10g)	
	Input	100 to 240 VAC	
		Input Efficiency	88 % at 115 Vac and 89 % at 230Vac
		Input frequency range	47-63Hz
		Input AC current	Max. 1.7 A at 90 Vac
	Output	**Output power**	65W
		DC output	19.5V
		Hold-up time	100% load 5ms at 115 Vac input/80% load 10ms at 115 Vac input
		Output current limit	<11.0A
	Connector	4.5mm Barrel Type	
	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, EN55032 Class B, FCC Class B, CISPR32 Class B, CCC and CECP, BIS, UKCA DoC	

AC Adapter 65 Watt nPFC Standard USB type C Straight 1.8m	**Weight**	220g(+/-10g) (Not including power cord. Power cord varies by country.)	
	Input	100-240Vac	
		Input Efficiency	81.50% min at 115 Vac/ 230 Vac @5.00V 86.70% min at 115 Vac/ 230 Vac @9.00V 88.00% min at 115 Vac/ 230 Vac @12.00V 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 12V/60W 15V/65W 20V/65W
		DC output	5V/9V/12V/15V/20V
		Hold-up time	100% load 5ms at 115 Vac input
		Output current limit	< 8.0A
		AC Inlet Type	C6
		DC Cable Connector	USB type C

Technical Specifications

		DC Cable Material	PVC
	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	

HP 65W Standard USB-C Halogen Free Straight AC Power Adapter Ceto+	**Weight**	220g(+/-10g) (Not including power cord. Power cord varies by country.)	
	Input	100-240Vac	
		Input Efficiency	81.50% min at 115 Vac/ 230 Vac @5.00V 86.70% min at 115 Vac/ 230 Vac @9.00V 88.00% min at 115 Vac/ 230 Vac @12.00V 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 12V/60W 15V/65W 20V/65W
		DC output	5V/9V/12V/15V/20V
		Hold-up time	100% load 5ms at 115 Vac input
		Output current limit	< 8.0A
		AC Inlet Type	C6
		DC Cable Connector	USB type C
		DC Cable Material	Halogen Free
	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%

Technical Specifications

		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

Battery HW 3 Cell WHr 41 Long Life -PR+PL Fast Charge	**Weight**		175g
	Cells/Type		3S1P / Polymer cell
	Energy	**Voltage**	11.34V / 11.28V
		Amp-hour capacity	3620mAh / 4635mAh
		Watt-hour capacity[1]	41Whr
	Temperature	**Operating (Charging)**	32˚ to 113˚ F (0˚ to 45˚ C) (Charge Initial Temperature) 32˚ to 122˚ F (0˚ to 50˚ C) (Continuous Charging)
		Operating (Discharging)	14˚ to 140˚ F (-10˚ to 60˚ C)
		Optional Travel Battery Available	No

Technical Specifications

AUDIO

HD Stereo Codec	Realtek ALC3247
Audio I/O Ports	One Headset Combo-Jack connector support CTIA spec
Internal Speaker Amplifier	2W class D stereo amplifier for the internal speaker only
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 Combo jack or integrated speaker.
Sampling	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.
Wavetable Syntheses	Yes - Uses OS soft wavetable
Analog Audio	Yes
# of Channels on Line-Out	0
Internal Speaker	Yes

FINGERPRINT READER

Sensor vendor	Elan CP1515B-HP015U
Sensor type	Capacitive
DPI resolution	508 DPI
Scan area	80 x 80 pixels
False Rejection Rate	RR=≤ 2% @ 1:50K FAR
Mobile Voltage Operation	2.7V to 3.6V
Operating Temperature	-4° – 176°F (-20°C~ 80°C)
Current Consumption Image	50mA peak
Low Latency Wait For Finger	900 uA
Capture Rate	Capture Rate: 20 cm/sec
ESD Resistance	IEC 61000-4-2 4B (+15KV)
Detection Matrix	508 dpi / 4 x 4 mm sensor area

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

DOCKING (Sold Separately)

Docking station model #1	HP USB-C Dock G5
Total number of supported displays (incl. the notebook display)	3
Max. resolutions supported	Multi-Function Mode: (2) 5k @ 30Hz and (1) 4k UHD @ 30Hz on any port High-Resolution Mode: (2) 5k @ 60Hz on DisplayPort ports and (1) 4k UHD @ 60Hz on HDMI port
Dock Connectors	1x HDMI 2.0, 2x DisplayPort 1.4
Technical limitations	**Maximum resolution and display support is dependent on the maximum capability of the notebook.** **Highest resolution with dual displays is two 8K@ 60Hz host in High Resolution mode.** Three maximum displays supported are two 5K@ 30 Hz on DP ports plus one 4K UHD@ 30 Hz on HDMI in Multi-function mode The highest resolution for a non-Thunderbolt host in Multi-function mode is a single 5K dual cable (using both DP ports) + (1) 4K on HDMI port
Docking station model #2	HP USB-C/A G2 Universal Dock
Total number of supported displays (incl. the notebook display)	3
Max. resolutions supported	Multi-Function Mode: (3) 4K DCI @ 30Hz on any port High-Resolution Mode: (3) 4K DCI @ 30Hz on any port
Dock Connectors	1x HDMI 2.0, 2x DisplayPort 1.2
Technical limitations	**Maximum resolution and display support is dependent on the maximum capability of the notebook.** The best resolution for dual or triple displays is 4K UHD@ 60Hz. For use with the USB-A adapter that comes in the box the maximum number of displays supported is (2) 4k x 60 Hz on the Type-A Gen 1 connection from the host.

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

Type	Description	Part Number
Cases	HP Prelude 15.6 Backpack (Bulk 15) (Edo) - New AMO	1E7D6A6
	HP Prelude Pro Recycled 15.6 Backpack (Montrose) - New AMO	1X644AA,1X644ET, 1X644UT
	HP Prelude Pro Recycled 15.6 Top Load (Midtown) - New AMO	1X645AA,1X645ET, 1X645UT
	HP Prelude G2 15.6 Top Load (Gulfton) - New AMO	1E7D7AA,2Z8P4AA, 50P31AA
	HP Prelude G2 15.6 Backpack (Edo) - New AMO	1E7D6AA,2Z8P3AA, 50P32AA
	HP Renew Business 17.3 Laptop Backpack (Negotium 17" BP) - New AMO	3E2U5AA,3E2U5ET, 3E2U5UT
	HP Renew Business 17.3 Laptop Bag (Negotium 17" TL) - New AMO	3E2U6AA,3E2U6UT
	HP Renew Business 15.6 Laptop Bag (Negotium 15" TL) - New AMO	3E5F8AA,3E5F8ET, 3E5F8UT
	HP Renew Executive 16 Laptop Backpack (Exsequi - Bezo) - New AMO	6B8Y1AA
	HP Renew Executive 16 Laptop Bag (Exsequi-Musk) - New AMO	6B8Y2AA
	HP Travel 25L 15.6 Iron Gray Laptop Backpack (Patty) - New AMO	6B8U4AA,6H2D8AA
	HP Travel 18L 15.6 Iron Gray Laptop Backpack (Lucile) - New AMO	6B8U6AA,6H2D9AA
	HP 215 15.6 Laptop Backpack (Tyranno) - New AMO	35L98AA#ACJ
	HP 315 15.6 Laptop Backpack (Brachio) - New AMO	35L97AA#ACJ
	HP 235 15.6 Laptop Backpack (Dilopho) - New AMO	35M00AA#ACJ
	HP 225 15.6 Laptop Backpack (Spino) - New AMO	2P7U6AA#ACJ
	HP 115 15.6 Laptop Backpack (Stego) - New AMO	8DV45AA#ACJ
	HP Campus Green Backpack (Patrick) - New AMO	7J595AA,7K0E4AA
	HP Campus Blue Backpack (Patrick) - New AMO	7J596AA,7K0E5AA
Docking	HP USB-C G5 Dock	5TW10AA
	HP USB-C/A G2 Universal Dock	5TW13AA

Change Log

Date of change:	Version History:		Description of change:
19 April, 2024	V1 to V2	Updated	Display Section
24 April, 2024	V2 to V3	Updated	Display Section
10 May, 2024	V3 to V4	Added	Environmental Section
June 10, 2024	V4 to V5	Added	System unit Section
June 11, 2024	V5 to V6	Added	Display Section
June 17, 2024	V6 to V7	Added	Graphics Section
August 9, 2024	V7 to V8	Updated	Weights & Dimensions Section
January 9, 2025	V8 to V9	Updated	Storage and Drives Section
January 22, 2025	V9 to V10	Updated	Battery Life Section Disclaimer
February 19, 2025	V10 to V11	Added	Processor Section
March 20, 2025	V11 to V12	Added	Processor Section