Overview

HP 240 G8 Notebook PC

Left

1.	Webcam LED	7.	Hard drive indicator LED
2.	Webcam	8.	SD Card slot
3.	Internal dual digital microphone	9.	USB-C® 3.2 Gen1 port (Data Transfer Only)
4.	Touchpad	10.	Nano Security lock slot (Lock sold separately)
5.	Touchpad buttons	11.	Power button
6.	Power indicator LED		

Overview

Right

1. AC Smart Pin adapter plug
2. RJ-45 / Ethernet port
3. HDMI port (Cable not included)

4. USB-A 3.2 Gen 1 port
5. USB-A 3.2 Gen 1 port
6. Audio combo jack

Overview

At a Glance

- A new compact narrow bezel design with thinner & lighter chassis
- Preinstall with Windows 10 versions or FreeDOS
- Choice of 10th Generation Intel® Core™ i7, i5 and i3 processors and Intel® Pentium®, or Intel® Celeron® processors
- Choice of 35.56 cm (14") diagonal HD Anti-Glare WLED SVA or FHD Anti-Glare WLED IPS
- Choice of Integrated Intel® Iris® Plus graphics, UHD Graphics 620/605/600 or Switchable Discrete Graphics AMD Radeon™ 620
- Security features including Firmware TPM 2.0
- Weight starting at 3.25 lbs (1.47 kgs)
- MM18 Battery life Up to 9 Hours 25 mins ~~up to 8 hours~~ [1]
- Wireless LAN (WLAN) up to 802.11ac or 802.11ax to keep you connected
- One USB 3.2 Gen 1 Type-C® (Data Transfer Only), Two USB 3.2 Gen 1 Type-A
- Choice of Solid State Drives up to 1 TB and Hard Drive up to 1 TB
- Fast and upgradeable dual channel DDR4 SODIMM memory up to 16 GB
- HP webcam with dual digital microphone and HD (supporting WDR- Wide Dynamic Range) or VGA camera

1. Windows 10 MM18 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.

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

Technical Specifications

PRODUCT NAME

HP 240 G8 Notebook PC

OPERATING SYSTEMS

Preinstalled

Windows 10 Pro 64 - HP recommends Windows 10 Pro[1]
Windows 10 Pro 64 (National Academic only) [2]
Windows 10 Home 64 [1]
Windows 10 Home Single Language 64 [1]
FreeDOS

1. Not all features are available in all editions or versions of Windows. Systems may require upgraded and/or separately purchase
hardware, drivers, software or BIOS update to take full advantage of Windows functionality. Windows 10 is automatically updated
which is always enabled. ISP fees may apply and additional requirements may apply over time for updates. See
http://www.windows.com.

2. Some devices for academic use will automatically be updated to Windows 10 Pro Education with the Windows 10 Anniversary
Update. Features vary; see https://aka.ms/ProEducation for Windows 10 Pro Education feature information.

Supported Version

HP tested Windows 10, version 1809 on this platform For testing information on newer versions of Windows10, please see:
https://support.hp.com/document/c05195282.

PROCESSORS

Intel® Core™ i7-1065G7 with Intel® Iris® Plus graphics (1.3 GHz base frequency, up to 3.9 GHz with Intel® Turbo Boost Technology
8 MB cache, 4 cores) [3,4,5,6]
Intel® Core™ i5-1035G1 processor with Intel® UHD Graphics (1.0 GHz base frequency, up to 3.6 GHz with Intel® Turbo Boost
Technology, 6 MB cache, 4 cores) [3,4,5,6]
Intel® Core™ i3-1005G1 processor with Intel® UHD Graphics (1.2 GHz base frequency, up to 3.4GHz with Intel® Turbo Boost
Technology, 4 MB cache, 2 cores) [3,4,5,6]
Intel® Pentium® Silver N5030 Processor with Intel® UHD Graphics 605 (1.1 GHz base frequency, up to 3.1 GHz burst frequency, 4
MB cache, 4 cores) [3,4,6]
Intel® Celeron® N4020 Processor with Intel® UHD Graphics 600 (1.1 GHz base frequency, up to 2.8 GHz burst frequency, 4 MB
cache, 2 cores) [3,4,6]
Intel® Pentium® Gold 6805 Processor with Intel® UHD Graphics (1.10 GHz base frequency, up to 3.00 GHz Standard, 4 MB cache, 2
cores) [3,4,6]

Processors Family
10th Generation Intel® Core™ i7 processor (i7-1065G7) [6]
10th Generation Intel® Core™ i5 processor (i5-1035G1) [6]
10th Generation Intel® Core™ i3 processor (i5-1005G1) [6]
Intel® Pentium® Silver Processor (N5030) [6]
Intel® Pentium® Gold Processor (6805) [6]
Intel® Celeron® processor (N4020) [6]

3. Multicore is designed to improve performance of certain software products. Not all customers or software applications will

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Technical Specifications

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.

6. In accordance with Microsoft's support policy, HP does not support the Windows 8 or Windows 7 operating system on produc 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.

CHIPSET

Chipset is integrated with processor

GRAPHICS

Integrated
Intel® Iris® Plus graphics
Intel® UHD Graphics
Intel® UHD Graphics 605
Intel® UHD Graphics 600

Discrete
AMD Radeon™ 620 (2 GB GDDR5 dedicated) [8]

Supports
Support HD decode, DX12, HDMI 1.4b [7]

7. HD content required to view HD images.

8. AMD Dynamic Switchable Graphics technology requires an Intel processor, plus an AMD Radeon™ discrete graphics configuration and is not available on FreeDOS and Linux OS. With AMD Dynamic Switchable Graphics technology, full enablement of all discrete graphics video and display features may not be supported on all systems (e.g. OpenGL applications will run on the integrated GPU or the APU as the case may be).

DISPLAYS

Internal
Non-Touch
35.56 cm (14") diagonal, HD (1366 x 768), SVA , Anti-Glare WLED, 250nits, eDP micro-edge, 45% NTSC [7,9,10]
35.56 cm (14") diagonal, FHD (1920 x 1080), IPS, Anti-Glare WLED, 250nits eDP micro-edge, 45% NTSC [7,9,10]

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

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

Technical Specifications

STORAGE AND DRIVES

Primary Storage
1 TB 5400 rpm SATA [11]
500 GB 7200 rpm SATA [11]
500 GB 5400 rpm SATA [11]

Primary M.2 Storage
128 GB M.2 SATA-3 TLC Solid State Drive [11]
256 GB M.2 SATA-3 TLC Solid State Drive [11]
256 GB PCIe® NVMe™ M.2 Value Solid State Drive [11]
512 GB PCIe® NVMe™ M.2 Value Solid State Drive [11]
1 TB PCIe® NVMe™ M.2 Value Solid State Drive [11]
256 GB Intel® PCIe® NVMe™ QLC M.2 SSD with 16 GB Intel® Optane™ memory H10 [11,12,13]
512 GB Intel® PCIe® NVMe™ QLC M.2 SSD with 32 GB Intel® Optane™ memory H10 [11,12,13]
64 GB eMMC [11]

Dual Storage
128 GB M.2 SATA-3 TLC Solid State Drive + 1TB 5400rpm SATA [11]
256 GB PCIe® NVMe™ M.2 Value Solid State Drive + 1TB 5400rpm SATA [11]

11. For storage drives, GB = 1 billion bytes. TB = 1 trillion bytes. Actual formatted capacity is less. Up to 30 GB (for Windows 10) i reserved for system recovery software.
12. Intel® Optane™ memory system acceleration does not replace or increase the DRAM in your system. Requires 8th Gen or higher Intel® Core™ processor, BIOS version with Intel® Optane™ supported, Windows 10 64-bit, and an Intel® Rapid Storage Technology (Intel® RST) driver.
13. Intel® Optane™ memory H10 only for Intel® PCIe® NVMe™ QLC M.2 SSD.

MEMORY

Maximum Memory
16 GB DDR4-2666 SDRAM[14]

Memory
16 GB DDR4-2666 SDRAM (2 X 8 GB) [14]
12 GB DDR4-2666 SDRAM (4 GB (1 x 4GB) and 8 GB (1 x 8 GB)) [14]
8 GB DDR4-2666 SDRAM (1 x 8 GB) [14]
8 GB DDR4-2400 SDRAM (1 x 8 GB) [14]
8 GB DDR4-2666 SDRAM (2 x 4 GB) [14]
4 GB DDR4-2666 SDRAM (1 x 4 GB) [14]
4 GB DDR4-2400 SDRAM (1 x 4 GB) [14]

Memory Slots
2 SODIMM (10th Generation Intel® Core™)
All slots are customer non-accessible / non-upgradeable
Supports Dual Channel Memory
1 SODIMM (Intel® Pentium®, Celeron® processors)

NOTE: All slots are customer non-accessible / non-upgradeable

14. 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 RTL8822CE 802.11ac 2x2 Wi-Fi® + Bluetooth® 5 [29]
Realtek RTL8822CE 802.11a/b/g/n/ac (1x1) Wi-Fi® with Bluetooth® 4.2 Combo [29]
Intel® Dual Band Wi-Fi 6 AX201 802.11a/b/g/n/ac/ax (2x2) WLAN and Bluetooth® 5 Combo, non-vPro® [15]

Miracast
Compatible with Miracast-certified devices (For Win10) [16]

Ethernet
Realtek 10/100/1000 GbE NIC [17]

15. 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. The specifications for Wi-Fi 6 (802.11ax) are draft and are not final. If th final specifications differ from the draft specifications, it may affect the ability of the notebook to communicate with other 802.11ax devices.
16. Miracast is a wireless technology your PC can use to project your screen to TVs, projectors, and streaming.
17. 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.
29. Wi-Fi supporting gigabit speeds (802.11ac) is achievable when transferring files between two devices connected to the same router. Requires a wireless router, sold separately, that supports 160MHz channels.

AUDIO/MULTIMEDIA

Audio
2 Integrated stereo speakers
Integrated dual digital microphone

Camera
HP TrueVision HD Camera [7,9]

Webcam
VGA webcam [9]

7. HD content required to view HD images.
9. Sold separately or as an optional feature.

KEYBOARDS/POINTING DEVICES/BUTTONS & FUNCTION KEYS

Technical Specifications

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 10" 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
F11 - Next
F12 - Airplane mode

SOFTWARE AND SECURITY

Preinstalled Software
Software
McAfee LiveSafe™ [18]
HP Support Assistant [19]
Native Miracast Support [20]
HP documentation
HP Setup Integrated OOBE
HP SSRM
HP Audio Switch
HP JumpStarts
Xerox® DocuShare® 90 day free trial offer[28]

Security Management
Firmware TPM 2.0 [21]

18. 30 days free trial.
19. HP Support Assistant requires Windows and Internet access.
20. Miracast is a wireless technology your PC can use to project your screen to TVs, projectors, and streaming.
21. Firmware TPM is version 2.0. which is a subset of the TPM 2.0 specification version v0.89 as implemented by Intel Platform Trust Technology (PTT).32. Firmware TPM is version 2.0.
28. Simply sign up and start using Xerox® DocuShare® Go. No credit card. No obligation. Data will become unavailable unless a subscription is entered before the end of the 90 day free trial period. See visit www.xerox.com/docusharego for details.

POWER

Technical Specifications

Power Supply
HP Smart 65 W External AC power adapter [22]
HP Smart 65 W EM External AC power adapter [22]
HP Smart 45 W External AC power adapter [22]

Primary Battery
HP Long Life 3-cell, 41 Wh Li-ion [23]
HP Long Life 4-cell, 46 Wh Li-ion Battery (India only) [23]

Power Cord
1M (3.28 feet) length power cord

MM18 Battery life
Up to 9 Hours 25 mins ~~Battery life~~
~~Up to 8 hours~~ [24]

Battery Weight
0.18 kg
0.39 lb

22. Availability may vary by country.
23. Battery is internal and not replaceable by customer. Serviceable by warranty.
24. Windows 10 MM18 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 www.bapco.com for additional details.

WEIGHTS & DIMENSIONS

Product Weight [25]
Starting at 3.25 lb
Starting at 1.47 kg

Product Dimensions (w x d x h)
12.76 x 8.89 x 0.78 in
32.4 x 22.59 x 1.99 cm

25. Weight will vary by configuration.

PORTS/SLOTS

Technical Specifications

Ports
2 USB-A 3.2 Gen1
1 USB Type-C® 3.2 Gen1 (Data Transfer Only)~~(Data Transferring only)~~
1 HDMI v1.4b [26]
1 RJ-45
1 AC Power
1 Headphone/microphone combo jack

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

26. HDMI cable sold separately.

SERVICE AND SUPPORT

1-year limited 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 an 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. [27]

27. 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 indicate to Customer at the time of purchase. Customer may have additional statutory rights according to applicable local laws, and suc rights are not in any way affected by the HP terms and conditions of service or the HP Limited Warranty provided with your HP Product.

SYSTEM UNIT

Stand-Alone Power Requirements (AC Power)

Nominal Operating Voltage	19.5 V
Average Operating Power	TBD
Integrated graphics	6.37W
Discrete Graphics	N/A (Switchable graphics design)
Max Operating Power	Discrete < 65W UMA < 45W

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

Technical Specifications

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

Random Vibration

Operating	1.043 grms
Non-operating	3.5 grms

Altitude (unpressurized)

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

Planned Industry Standard Certifications

UL	Yes
CSA	No
FCC Compliance	Yes
ENERGY STAR®	Yes
EPEAT®	Yes
ICES	Yes
Australia /	No
NZ A - Tick Compliance	No
CCC	Yes
Japan VCCI Compliance	No
KC	No
BSMI	Yes
CE Marketing Compliance	Yes
BNCI or BELUS	No
CIT	No
GOST	No
Saudi Arabian Compliance (ICCP)	No
SABS	No
UKRSERTCOMPUTER	No

DISPLAYS

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

Technical Specifications

Panel LCD 14-in FHD (1920x1080) Anti-Glare WLED UWVA 45percent cg 250nits eDP NWBZ slim

Outline Dimensions (W x H x D)	316.11 x 198.07 max. (w/ PCB)(mm)
Active Area	309.31 x 173.99(mm)
Weight	285g max.
Diagonal Size	14.0"
Thickness	3.0mm max.
Interface	eDP 1.2
Surface Treatment	Anti-glare (AG)
Touch Enabled	None
Contrast Ratio	600:1 (typ)
Refresh Rate	60Hz
Brightness	250nit typ.
Pixel Resolution	1920 x 1080 (FHD)
Format	RGB
Backlight	LED
Color Gamut Coverage	45%
Color Depth	6bit
Viewing Angle	UWVA 85/85/85/85

Panel LCD 14.0 HD AG WLED SVA 45%cg 220nits eDP Slim

Outline Dimensions (W x H x D)	320.9x205.6 (max)
Active Area	309.4 x 173.95
Weight	280 max.
Diagonal Size	14.0"
Thickness	3.0mm max
Interface	VESA with EDID V3.1
Surface Treatment	Anti-glare (AG)
Touch Enabled	None
Contrast Ratio	300:1 (typ)
Refresh Rate	60Hz
Brightness	220 nit typ
Pixel Resolution	1366 x 768 (HD)
Format	RGB
Backlight	LED
Color Gamut Coverage	45%
Color Depth	6 bits
Viewing Angle	SVA 40/40/15/30

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) is reserved for system recovery software.

Technical Specifications

SSD 128GB 2280 M2 SATA-3 TLC (SSD 128GB 2280 M2 SATA-3 TLC)		
Drive Weight	0.01 lb (6 g) ~ 0.02 lb (10 g)	
Capacity	128 GB	
Height	0.09 in (2.3 mm)	
Width	0.87 in (22 mm)	
Interface	ATA-8, SATA 3.0	
Performance		
Maximum Sequential Read	Up To 560 MB/s	
Maximum Sequential Write	Up To 530 MB/s	
Logical Blocks	250,069,680	
Operating Temperature	32° to 158°F (0° to 70°C) [ambient temp]	

SSD 1TB 2280 PCIe NVMe Value (SSD 1TB 2280 PCIe NVMe Value)		
Drive Weight	0.01 lb (6 g) ~ 0.02 lb (10 g)	
Capacity	1 TB	
Height	0.09 in (2.3 mm)	
Width	0.87 in (22 mm)	
Interface	PCIe NVMe Gen3X4	
Performance		
Maximum Sequential Read	Up to 2400MB/s	
Maximum Sequential Write	Up to 1950MB/s	
Logical Blocks	2,000,409,264	
Operating Temperature	32° to 158°F (0° to 70°C) [ambient temp]	

SSD 256GB 2280 M2 SATA-3 TLC (SSD 256GB 2280 M2 SATA-3 Three Layer Cell)		
Drive Weight	0.01 lb (6 g) ~ 0.02 lb (10 g)	
Capacity	256 GB	
Height	0.09 in (2.3 mm)	
Width	0.87 in (22 mm)	
Interface	PCIe NVMe Gen3X4	
Performance		
Maximum Sequential Read	Up to 530MB/s	
Maximum Sequential Write	Up to 520MB/s	
Logical Blocks	500,118,192	
Operating Temperature	32° to 158°F (0° to 70°C) [ambient temp]	

Technical Specifications

SSD 256GB 2280 PCIe NVMe Value (SSD 256GB 2280 PCIe NVMe Value)	**Drive Weight**	0.01 lb (6 g) ~ 0.02 lb (10 g)
	Capacity	256GB
	Height	0.09 in (2.3 mm)
	Width	0.87 in (22 mm)
	Interface	PCIe NVMe Gen3X2
	Performance	
	Maximum Sequential Read	Up to 1500MB/s
	Maximum Sequential Write	Up to 750MB/s
	Logical Blocks	500,118,192
	Operating Temperature	32° to 158°F (0° to 70°C) [ambient temp]
	Features	TRIM, L1.2

SSD 512GB 2280 PCIe NVMe Value (SSD 512GB 2280 PCIe NVMe Value)	**Drive Weight**	0.01 lb (6 g) ~ 0.02 lb (10 g)
	Capacity	512GB
	Height	0.09 in (2.3 mm)
	Width	0.87 in (22 mm)
	Interface	PCIe NVMe Gen3X2
	Performance	
	Maximum Sequential Read	Up to 1500MB/s
	Maximum Sequential Write	Up to 750MB/s
	Logical Blocks	1,000,215,216
	Operating Temperature	32° to 158°F (0° to 70°C) [ambient temp]
	Features	TRIM, L1.2

SSD 16GB 2280 PCIe-3x2 NVMe 3D Xpoint (SSD 16GB 2280 PCIe-3x2 NVMe 3D Xpoint)	**Drive Weight**	0.01 lb (6 g) ~ 0.02 lb (10 g)
	Capacity	16 GB
	Height	0.09 in (2.3 mm)
	Width	0.87 in (22 mm)
	Interface	PCIe NVMe Gen3X2
	Performance	
	Maximum Sequential Read	Up to 900MB/s
	Maximum Sequential Write	Up to 145MB/s
	Logical Blocks	28,181,188
	Operating Temperature	32° to 158°F (0° to 70°C) [ambient temp]

Technical Specifications

SSD 256GB 2280 PCIe-3x2x2 NVMe+SSD 16GB 3D Xpoint (SSD 256GB 2280 PCIe-3x2x2 NVMe +SSD 16GB 3D Xpoint)	**Drive Weight**	0.01 lb (6 g) ~ 0.02 lb (10 g)
	Capacity	256 GB
	Height	0.09 in (2.3 mm)
	Width	0.87 in (22 mm)
	Interface	PCIe NVMe Gen3X2X2
	Performance	
	Maximum Sequential Read	Up to 1450MB/s
	Maximum Sequential Write	Up to 500MB/s
	Logical Blocks	500,118,192
	Operating Temperature	32° to 158°F (0° to 70°C) [ambient temp]

SSD 512GB 2280 PCIe-3x2x2 NVMe+SSD 32GB 3D Xpoint (SSD 512GB 2280 PCIe-3x2x2 NVMe +SSD 32GB 3D Xpoint)	**Drive Weight**	0.01 lb (6 g) ~ 0.02 lb (10 g)
	Capacity	512 GB
	Height	0.09 in (2.3 mm)
	Width	0.87 in (22 mm)
	Interface	PCIe NVMe Gen3X2X2
	Performance	
	Maximum Sequential Read	Up to 2400MB/s
	Maximum Sequential Write	Up to 1300MB/s
	Logical Blocks	1,000,215,215
	Operating Temperature	32° to 158°F (0° to 70°C) [ambient temp]

NETWORKING/COMMUNICATIONS

Intel® Wi-Fi 6 AX201 + Bluetooth® 5 (802.11ax 2x2, non-vPro®, supporting gigabit file transfer speeds) non-vPro®[1,2]	**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	Features Wi-Fi® 6 technology
	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

Technical Specifications

- 802.11a: 6, 9, 12, 18, 24, 36, 48, 54 Mbps
- 802.11n: MCS 0 ~ MCS 15, (20MHz, and 40MHz)
- 802.11ac: MCS0 ~ MCS9, (1SS, and 2SS) (20MHz, 40MHz, ,80MHz & 160MHz)
- 802.11ax: MCS0 ~ MCS11, (1SS and 2SS) (20MHz, 40MHz, ,80MHz & 160MHz)

Modulation
Direct Sequence Spread Spectrum
OFDM, BPSK, QPSK, CCK, 16-QAM, 64-QAM, 256-QAM, 1024QAM

Security[3]
- IEEE compliant 64 /128 bit WEP encryption for a/b/g mode only
- AES-CCMP: 128 bit in hardware
- 802.1x authentication
- WPA, WPA2: 802.1x. WPA-PSK, WPA2-PSK, TKIP, and AES.
- WPA2 certification
- IEEE 802.11i
- WAPI

Network Architecture Models
Ad-hoc (Peer to Peer)
Infrastructure (Access Point Required)

Roaming
IEEE 802.11 compliant roaming between access points

Output Power[4]
- 802.11b: +18.5dBm minimum
- 802.11g: +17.5dBm minimum
- 802.11a: +18.5dBm minimum
- 802.11n HT20(2.4GHz): +15.5dBm minimum
- 802.11n HT40(2.4GHz): +14.5dBm minimum
- 802.11n HT20(5GHz): +15.5dBm minimum
- 802.11n HT40(5GHz): +14.5dBm minimum
- 802.11ac VHT80(5GHz): +11.5dBm minimum
- 802.11ac VHT160(5GHz): +11.5dBm minimum
- 802.11ax HT40(2.4GHz): +10dBm minimum
- 802.11ax VHT160(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/Modern Standby: 10mW
- Radio disabled: 8 mW

Power Management
ACPI and PCI Express compliant power management 802.11 compliant power saving mode

Receiver Sensitivity[5]
- 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(HT40): -59dBm maximum
- 802.11ax, MCS11(VHT160): -58.5dBm 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

Technical Specifications

Form Factor	PCI-Express M.2 MiniCard with CNVi Interface	
Dimensions	1. Type 2230: 2.3 x 22.0 x 30.0 mm 2. Type 1216: 1.67 x 12.0 x 16.0 mm	
Weight	1. Type 2230: 2.8 g 2. Type 126: 1.3 g	
Operating Voltage	3.3v +/- 9%	
Temperature	**Operating** **Non-operating**	14° to 158° F (-10° to 70° C) -40° to 176° F (-40° to 80° C)
Humidity	**Operating** **Non-operating**	10% to 90% (non-condensing) 5% to 95% (non-condensing)
Altitude	**Operating** **Non-operating**	0 to 10,000 ft (3,048 m) 0 to 50,000 ft (15,240 m)
LED Activity	LED Amber - Radio OFF LED Off - Radio ON	

1. 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. The specifications for Wi-Fi 6 (802.11ax) are draft and are not final. If the final specifications differ from the draft specifications, it may affect the ability of the notebook to communicate with other 802.11ax devices.

2. Wi-Fi supporting gigabit speeds is achievable when transferring files between two devices connected to the same router. Requires a wireless router, sold separately, that supports 160MHz channels.

3. Check latest software/driver release for updates on supported security features.

4. 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.

5. 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).

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

Bluetooth Specification	4.0/4.1/4.2/5.0/5.1 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 signaling data rate[6] 2.17 Mbps BLE: 1 Mbps signaling data rate[6] 0.2 Mbps 6. Actual throughput may vary.
	Legacy: Synchronous Connection Oriented links up to 3, 64 kbps, voice channels Legacy: Asynchronous Connection Less links 2178.1 kbps/177.1 kbps

Technical Specifications

		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.

Realtek 802.11a/b/g/n/ac (1x1) Wi-Fi® and Bluetooth® 4.2 Combo[1]	**Wireless LAN Standards**	IEEE 802.11a IEEE 802.11b IEEE 802.11g IEEE 802.11n IEEE 802.11ac IEEE 802.11d IEEE 802.11e IEEE 802.11h IEEE 802.11i IEEE 802.11k IEEE 802.11r IEEE 802.11v
	Interoperability	Wi-Fi certified modules
	Frequency Band	802.11b/g/n • 2.402 - 2.482 GHz 802.11a/n/ac • 4.9 - 4.95 GHz (Japan) • 5.15 - 5.25 GHz • 5.25 - 5.35 GHz • 5.47 - 5.725 GHz • 5.825 - 5.850 GHz
	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: MCS 0 ~ MCS 15, (20MHz, and 40MHz) • 802.11ac : MCS0 ~ MCS9, (1SS, and 2SS) (20MHz, 40MHz, and 80MHz)
	Modulation	Direct Sequence Spread Spectrum BPSK, QPSK, CCK, 16-QAM, 64-QAM, 256-QAM
	Security[2]	• IEEE and WiFi compliant 64 / 128 bit WEP encryption for a/b/g mode only • AES-CCMP: 128 bit in hardware • 802.1x authentication • WPA, WPA2: 802.1x. WPA-PSK, WPA2-PSK, TKIP, and AES. • WPA2 certification • IEEE 802.11i • WAPI
	Network Architecture Models	Ad-hoc (Peer to Peer) Infrastructure (Access Point Required)
	Roaming	IEEE 802.11 compliant roaming between access points
	Output Power[3]	• 802.11b : +14dBm minimum • 802.11g : +12dBm minimum • 802.11a : +12dBm minimum • 802.11n HT20(2.4GHz) : +12dBm minimum

Technical Specifications

	• 802.11n HT40(2.4GHz) : +12dBm minimum • 802.11n HT20(5GHz) : +10dBm minimum • 802.11n HT40(5GHz) : +10dBm minimum • 802.11ac VHT80(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/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
Antenna type	High efficiency antenna with spatial diversity, mounted in the display enclosure Two embedded dual band 2.4/5 GHz antennas are provided to the card to support WLAN MIMO communications and Bluetooth communications
Form Factor	PCI-Express M.2 MiniCard
Dimensions	Type 2230 : 2.3 x 22.0 x 30.0 mm
Weight	Type 2230 : 2.8g
Operating Voltage	3.3v +/- 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	

1. Wireless access point and internet service required and sold separately. Availability of public wireless access points limited. Wi-Fi 5 (802.11 ac) is backwards compatible with prior 802.11 specs.

2. Check latest software/driver release for updates on supported security features.

3. 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.

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).

Technical Specifications

HP Integrated Module with Bluetooth 4.0/4.1/4.2 Wireless Technology

Bluetooth Specification	4.0/4.1/4.2 Compliant
Frequency Band	2402 to 2480 MHz
Number of Available Channels	Legacy : 0~79 (1 MHz/CH)BLE : 0~39 (2 MHz/CH)
Data Rates and Throughput	Legacy : 3 Mbps data rate; throughput up to 2.17 Mbps BLE : 1 Mbps data rate; throughput up to 0.2 Mbps Legacy : Synchronous Connection Oriented links up to 3, 64 kbps, voice channels Legacy : Asynchronous Connection Less links 2178.1 kbps/177.1 kbps asymmetric (3-DH5) or 864 kbps symmetric (3-EV5)
Transmit Power	The Bluetooth component shall operate as a Class II Bluetooth device with a maximum transmit power of + 4 dBm for BR and EDR.

Realtek RTL8822CE 802.11ac 2x2 Wi-Fi®+ Bluetooth® 5[1]	**Wireless LAN Standards**	IEEE 802.11a IEEE 802.11b IEEE 802.11g IEEE 802.11n IEEE 802.11ac IEEE 802.11d IEEE 802.11e IEEE 802.11h IEEE 802.11i IEEE 802.11k IEEE 802.11r IEEE 802.11v
	Interoperability	Wi-Fi certified modules
	Frequency Band	802.11b/g/n

802.11b/g/n

- 2.402 - 2.482 GHz

802.11a/n/ac

- 4.9 - 4.95 GHz (Japan)
- 5.15 - 5.25 GHz
- 5.25 - 5.35 GHz
- 5.47 - 5.725 GHz
- 5.825 - 5.850 GHz

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: MCS 0 ~ MCS 15, (20MHz, and 40MHz)
- 802.11ac : MCS0 ~ MCS9, (1SS, and 2SS) (20MHz, 40MHz, and 80MHz)

Modulation

Direct Sequence Spread Spectrum
BPSK, QPSK, CCK, 16-QAM, 64-QAM, 256-QAM

Security[2]

- IEEE and WiFi compliant 64 / 128 bit WEP encryption for a/b/g mode only
- AES-CCMP: 128 bit in hardware
- 802.1x authentication
- WPA, WPA2: 802.1x. WPA-PSK, WPA2-PSK, TKIP,

Technical Specifications

and AES.
- WPA2 certification
- IEEE 802.11i
- WAPI

Network Architecture Models	Ad-hoc (Peer to Peer) Infrastructure (Access Point Required)
Roaming	IEEE 802.11 compliant roaming between access points
Output Power[3]	802.11b : +18.5dBm minimum 802.11g : +17.5dBm minimum 802.11a : +18.5dBm minimum 802.11n HT20(2.4GHz) : +15.5dBm minimum 802.11n HT40(2.4GHz) : +14.5dBm minimum 802.11n HT20(5GHz) : +15.5dBm minimum 802.11n HT40(5GHz) : +14.5dBm minimum 802.11ac VHT80(5GHz) : +11.5dBm minimum
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/Modern Standby: 10mW - Radio disabled: 8 mW
Power Management	ACPI and PCI Express compliant power management 802.11 compliant power saving mode
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Antenna type	High efficiency antenna with spatial diversity, mounted in the display enclosure Two embedded dual band 2.4/5 GHz antennas are provided to the card to support WLAN MIMO communications and Bluetooth communications
Form Factor	PCI-Express M.2 MiniCard
Dimensions	1. Type 2230 : 2.3 x 22.0 x 30.0 mm 2. Type 1216: 1.67 x 12.0 x 16.0 mm
Weight	1. Type 2230 : 2.8g 2. Type 126: 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	

1. Wireless access point and internet service required and sold separately. Availability of public wireless

Technical Specifications

access points limited. Wi-Fi 5 (802.11 ac) is backwards compatible with prior 802.11 specs.

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Bluetooth Specification	4.0/4.1/4.2/5.0 Compliant
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Data Rates and Throughput	Legacy : 3 Mbps data rate; throughput up to 2.17 Mbps BLE : 1 Mbps data rate; throughput up to 0.2 Mbps Legacy : Synchronous Connection Oriented links up to 3, 64 kbps, voice channels Legacy : Asynchronous Connection Less links 2178.1 kbps/177.1 kbps asymmetric (3-DH5) or 864 kbps symmetric (3-EV5)
Transmit Power	The Bluetooth component shall operate as a Class II Bluetooth device with a maximum transmit power of + 4 dBm for BR and EDR.

POWER

AC Adapter 65 Watt Smart nPFC EM Barrel 4.5mm New EM	**Dimensions (H x W x D)**	102x55x30mm	
	Weight	unit: 250g +/- 10g	
	Input	**Input Efficiency**	88.0 % at 115 Vac and 89.0 % at 230Vac
		Input frequency range	47 ~ 63 Hz
		Input AC current	Max. 1.7 A at 90 Vac
	Output	**Output power**	65W
		DC output	19.5V
		Hold-up time	5ms at 115 Vac input
		Output current limit	<11.0A
	Connector	C6 (3pin/with grounded, with Smart ID DC connector)	
	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 5,000 m)
		Humidity	20% to 95%
		Storage Humidity	10% to 95%

QuickSpecs

Technical Specifications

	EMI and Safety Certifications	CE Mark - full compliance with LVD and EMC directives Worldwide safety standards - IEC60950, EN60950, UL60950, Class1, SELV; Agency approvals - C-UL-US, NORDICS, DENAN, EN55022 Class B, FCC Class B, CISPR22 Class B, CCC, NOM-1 NYCE. MTBF - over 200,000 hours at 25°C ambient condition.

AC Adapter 45 Watt Smart nPFC Standard Barrel 4.5mm Right Angle 1.8m	**Dimensions**	95 x 40 x 26.8 mm	
	Weight	200 g +/- 10 g	
	Input	**Input Efficiency**	87.74 % at 115 Vac and 88.4 % at 230Vac
		Input frequency range	47 ~ 63 Hz
		Input AC current	Max. 1.4 A at 90 Vac
	Output	**Output power**	45 W
		DC output	19.5 V
		Hold-up time	5 ms at 115 Vac input
		Output current limit	<8.0A
	Connector	C6 (3pin/with grounded, with Smart ID DC connector)	
	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, EN60950, UL60950, Class1, SELV; Agency approvals - C-UL-US, NORDICS, DENAN, EN55022 Class B, FCC Class B, CISPR22 Class B, CCC, NOM-1 NYCE. MTBF - over 200,000 hours at 25°C ambient condition.	

Country of Origin

China

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

Type	Description	Part Number
Cases	HP Prelude Pro Top Load	1X645AA
	HP Prelude Pro Backpack	1X644AA
	HP Prelude Top Load 15.6	1E7D7AA
	HP Prelude Backpack 15.6	1E7D6AA
Docking	HP USB-C®/A Universal Dock G2	5TW13AA
	HP 4.5 mm and USB-C® Dock Adapter G2	6LX61AA
Input/Output	HP USB Essential Keyboard/Mouse	H6L29AA
	HP Wired Desktop 320MK Mouse and Keyboard	9SR36AA
	HP Slim Wireless Keyboard & Mouse	T6L04AA
	HP Wired Desktop 320K Keyboard	9SR37AA
	HP Slim Wireless Keyboard (Link-5)	T6U20AA
	HP 3-Button USB Laser Mouse	H4B81AA
	HP Essential USB Mouse	2TX37AA
	HP USB Travel Mouse	G1K28AA
	HP Bluetooth Travel Mouse	6SP30AA
	HP Comfort Grip Wireless Mouse	H2L63AA
	HP Wired Desktop 320M Mouse	9VA80AA
	HP HDMI to VGA Adapter	H4F02AA
	HP HDMI to DVI	F5A28AA
Power	HP 45W Smart AC Adapter	H6Y88AA
	HP 65W Smart AC Adapter	H6Y89AA
	HP 65W Slim Adapters (w/ detachable DC cable + TIPS)	H6Y82AA
Storage	HP External USB Optical Drive	F2B56AA

Summary of Changes

Date of change:	Version History:		Description of change:
	V1 to V2		