Overview

HP 470 G9 17 inch Notebook PC

Left

1.	Internal Microphone (2)	**5.**	Headphone/microphone combo jack
2.	Webcam LED	**6.**	SuperSpeed USB Type-C® 5Gbps signaling rate (Data Transfer Only)
3.	Webcam	**7.**	HDMI 1.4 (Cable sold separately)
4.	Clickpad	**8.**	SuperSpeed USB Type-A 5Gbps signaling rate (USB 3.2 Gen 1)

Overview

Right

1. Power Button
2. Power Connector
3. Super Speed USB Type- A 5Gbps signaling rate (USB 3.2 Gen 1)
4. Hard Drive LED

5. Power LED
6. Fingerprint Sensor

AT A GLANCE

Overview

- Preinstalled with Windows 11 Pro, Windows Home or FreeDOS
- Choice of 12th generation Intel® Core™ i7, i5 and i3 processors
- NVIDIA® GeForce® MX550 (2 GB GDDR6 dedicated) (Optional)
- Fast dual channel DDR4 SODIMM memory up to 32 GB
- Choice of 17.3" diagonal HD, Ultra Wide Viewing Angle FHD, Non-Touch screen
- Full size, optional backlit keyboard and clickpad with Precision Touchpad Supported certified
- Choice of solid state drives up to 1TB
- TPM2.0, Touch Fingerprint reader
- Supports wireless options for connectivity on the go including gigabit-data rate Wi-Fi 6
- Optimize your video calls with an HD camera and temporal noise reduction that adjusts the lighting to your environment.

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

Technical Specifications

PRODUCT NAME

HP 470 G9 17 inch Notebook PC

OPERATING SYSTEM

Preinstalled   Windows 11 Pro [1]
Windows 11 Pro Education [1]
Windows11 Home - HP recommends Windows 11 Pro for business [1]
Windows 11 Home Single Language - HP recommends Windows 11 Pro for business [1,2]
Windows 11 Home Education - HP recommends Windows 11 Pro for business [1]
FreeDOS3.0

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 is automatically updated an
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]	Cores	Number of P-cores	Number of E-cores	Threads	L3 Cache	Max Turbo Frequency		Base Frequency	
						P-cores	E-cores	P-cores	E-cores
Intel® Core™ i7-1255U	10	2	8	12	12MB	4.7 GHz	3.5 GHz	1.7 GHz	1.2 GHz
Intel® Core™ i5-1235U	10	2	8	12	12MB	4.4 GHz	3.3 GHz	1.3 GHz	0.9 GHz
Intel® Core™ i3-1215U	6	2	4	8	10MB	4.4 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.

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 driver
on http://www.support.hp.com.

CHIPSET

Chipset is integrated with processor.

Technical Specifications

GRAPHICS

Integrated
Intel® UHD Graphics [7]
Intel® Iris® X? Graphics [7,8]

Discrete
NVIDIA® GeForce® MX550 (2 GB DDR6 dedicated) [9]

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

7. HD content required to view HD images.
8. 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.
9. Integrated graphics depends on processor. NVIDIA® Optimus™ technology requires an Intel processor, plus an NVIDIA® GeForce discrete graphics configuration and is available on Windows 10 Pro OS. With NVIDIA® Optimus™ 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).

DISPLAY

Non-Touch
43.9 cm (17.3") diagonal, HD+ (1600 x 900), Anti-Glare LED SVA, 250 nits, 60% NTSC, eDP 1.2 w/o PSR [7,10]
43.9 cm (17.3") diagonal, FHD (1920 x 1080), Anti-Glare LED UWVA, 250 nits, 45% NTSC, eDP 1.2 w/o PSR [7,10]

43.9 cm (17.3") diagonal FHD (1920 x 1080), Anti-Glare WLED UWVA, 300 nits, 72% UWVA eDP 1.4+PSR2 slim 60Hz Narrow Bezel [7,10]

Displays support

HDMI v1.4b up to 1920x1080 60Hz

Display Size (Diagonal)

17.3"
43.9 cm (17.3")

7. HD content required to view HD images.
10. Resolutions are dependent upon monitor capability, and resolution and color depth settings.

STORAGE AND DRIVES

Technical Specifications

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

Primary M.2 Storage
1 TB PCIe® NVMe™ M.2 SSD [11]
512 GB PCIe® NVMe™ M.2 SSD [11]
256 GB PCIe® NVMe™ M.2 SSD [11]
128 GB PCIe® NVMe™ M.2 SSD [11]

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

MEMORY

Maximum Memory
32 GB DDR4-3200 SDRAM [12]

Memory
32 GB DDR4-3200 SDRAM (2 x 16 GB) [12]
16 GB DDR4-3200 SDRAM (1 x 16 GB) [12]
16 GB DDR4-3200 SDRAM (2 x 8 GB) [12]
12 GB DDR4-3200 SDRAM (1 x 8 + 1 x 4GB) [12]
8 GB DDR4-3200 SDRAM (1 x 8 GB) [12]
8 GB DDR4-3200 SDRAM (2 x 4 GB) [12]
4 GB DDR4-3200 SDRAM (1 x 4 GB) [12]

Memory Slots [13]
2 SODIMM
Both slots are customer non-accessible / non-upgradeable
Supports Dual Channel Memory

12. Due to the non-industry standard nature of some third-party memory modules, we recommend HP branded memory to ensur compatibility. If you mix memory speeds, the system will perform at the lower memory speed.
13. All slots are non-accessible / non-upgradeable.

NETWORKING/COMMUNICATIONS

WLAN
Realtek 8852BE Wi-Fi® 6 Bluetooth® 5.2 WLAN [14]
Realtek 802.11b/g/n/a/ac (2x2) MU-MIMO supported and Bluetooth® 5 [15]

14. 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.
15. 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.

Technical Specifications

AUDIO/MULTIMEDIA

Audio
Dual Speakers
Integrated dual array microphone

Speaker Power
2W/4ohm Per speaker

Camera
720p HD camera with Temporal Noise Reduction [7]

7. HD content required to view HD images.

KEYBOARDS/POINTING DEVICES/BUTTONS & FUNCTION KEYS

Keyboard
Island-style ash silver backlit keyboard with numeric keypad and touchpad with image sensor [16]
Island-style ash silver keyboard with numeric keypad and Touchpad with image sensor

Pointing Device
Touchpad with multi-touch gesture support

Function Keys
ESC
F1 - help
F2 - Brightness Down
F3 - Brightness Up
F4 - Backlight Toggle
F5 - Audio Mute
F6 - Volume Down
F7 - Volume Up
F8 - Plays the previous track of an audio CD or the previous section of a DVD or a Blu-ray Disc (BD).
F9 - Starts, pauses, or resumes playback of an audio CD, a DVD, or a BD
F10 - Plays the next track of an audio CD or the next section of a DVD or a BD
F11 - Display Switching
F12 - Insert

16. Backlit keyboard is an optional feature.

SOFTWARE AND SECURITY

Technical Specifications

Software
Microsoft Office 2019 and Office 365
WPS Office CMIT
Dropbox Promotion
HP QuickDrop [17]
MYOfficesMedio True DVD for HP
Adobe offer
MyHP
HP Privacy Settings
HP SUPPORT ASSISTANT [18]
HP Audio Switch
HP Connection Optimizer
ENERGY STAR® UWP
HP PC Hardware Diagnostics Windows
HP PC Hardware Diagnostics UEFI
HP Smart Health
HP Smart

Manageability Features
Touchpoint Customizer for Consumer

NOTE: To enhance brightness, level go to the Intel® Graphics Command Center app, click on System and turn off the Display Power Savings function.

Security Management
McAfee Security (30 days free trial as default) [19]
Express VPN (30 days free trial)
LastPass password manager
TPM2.0 (select model) / TPM 1.4 [20]
Fingerprint Reader [21]

Security
TPM
fTPM 2.0 support

IPv6 Support
Yes

FirstNet Certified
No

Is the BIOS on this notebook ISO/IEC 19678:2015 (formerly NIST 800-147) compliant?: Yes
UEFI version: 2.8B
Class: 3

17. HP Quick Drop requires Internet access and Windows 10 or higher PC preinstalled with HP QuickDrop app and either an Android device (phone or tablet) running Android 7 or higher with the Android HP QuickDrop app, and /or an iOS device (phone or tablet) running iOS 12 or higher with the iOS HP QuickDrop app.
18. HP Support Assistant requires Windows and Internet access.
19. 30-day McAfee® LiveSafe[TM] trial included. Internet access required and not included. Subscription required after expiration. See www.McAfee.com for more details.
20 Firmware TPM is version 2.0. Hardware TPM is v1.2, which is a subset of the TPM 2.0 specification version v0.89 as implemented by Intel Platform Trust Technology (PTT).
21. HP Fingerprint sensor is an optional feature that must be configured at purchase.

Technical Specifications

POWER

Power Supply
HP Smart 65 W External AC power adapter [22]
HP Smart 45 W External AC power adapter [22]
Compliant with UL 1642 Standard

Battery
HP Long Life 3-cell, 41 Wh Li-ion [23][25]
Compliant with UL 1642 Standard

Power Cord
1M length Power Cord

Battery Life
Up to 7 hours 5 minutes [26]
Battery Weight
175g +/-10g

22. Availability may vary by country.
23. 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. 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.

WEIGHTS & DIMENSIONS

Product Weight [27]
Starting at 4.6 lb
Starting at 2.08 kg

Product Dimensions (w x d x h)
15.77 x 10.14 x 0.78 in
40.07 x 25.78 x 1.99 cm

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

PORTS/SLOTS

Ports
2 SuperSpeed USB Type-A 5Gbps signaling rate (USB 3.2 Gen 1)
1 HDMI 1.4 [28]
1 SuperSpeed USB Type-C® 5Gbps signaling rate (Data Transfer Only)
1 AC power
1 Headphone/microphone combo jack

Expansion Slots
Push-Pull Insertion/Removal

28. HDMI cable sold separately.

Technical Specifications

SERVICE AND SUPPORT

HP Services offers 1-year limited warranties and 90-day software support 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.[29]

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

SYSTEM UNIT

Stand-Alone Power Requirements (AC Power)

Nominal Operating Voltage	19.5 V
Average Operating Power	7.69W (TBC)
Integrated graphics	Yes
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

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

Random Vibration

Operating	1.043 grams
Non-operating	3.5 grams

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

Regulatory Model Number	TPN-I139
UL	Yes
CSA	No
FCC Compliance	Yes
ENERGY STAR®	Yes[30]
EPEAT	Yes, Gold in United States [31]

Technical Specifications

ICES	Yes
Australia / NZ A-Tick Compliance	No
	No
CCC	Yes
Japan VCCI Compliance	No
KC	No
BSMI	Yes
CE Marking Compliance	Yes
BNCI or BELUS	No
CIT	No
GOST	No
Saudi Arabian Compliance (ICCP)	No
SABS	No
UKRSERTCOMPUTER	No

30. Configurations of the HP 470 G9 17 inch Notebook PC that are ENERGY STAR® certified are identified as HP 470 G9 17 inch Notebook PC ENERGY STAR on HP websites and on http://www.energystar.gov.
31. 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.

DISPLAYS

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

17.3 inch FHD (1920x1080) Anti-Glare WLED UWVA 72percent cg 300nits eDP 1.2 w/o PSR slim 60Hz NWBZ

Outline Dimensions (W x H x D)	390.190 x 238.810 (max.)
Active Area	381.888 x 214.812 (typ.)
Weight	510 g(max)
Diagonal Size	17.3 (inch)
Thickness	3.5mm max.
Interface	eDP 1.2
Surface Treatment	Anti-Glare
Touch Enabled	No
Contrast Ratio	1000:1 (typ)
Refresh Rate	60Hz
Brightness	300nits typ.
Pixel Resolution - Format	1920 x 1080 (FHD)
Backlight	WLED
Pixel Resolution	RGB
Color Gamut Coverage	NTSC72%
Color Depth	8bits
Viewing Angle	UWVA 85/85/85/85
Low Blue Light	No
Power Consumption (W, EBL@ 150nits max/ 200nits max)	3.2 (max)/3.64 (max)

Technical Specifications

17.3 in HD+ (1600 x 900) Anti-Glare LED SVA NTSC 60 250 eDP 1.2 w/o PSR NWBZ flat Panel

Outline Dimensions (W x H x D)	390.180 x 237.020 (max)
Active Area	382.080 x 214.920 mm(typ.)
Weight	480 g(max)
Diagonal Size	17.3 (inch)
Thickness	3.5mm (max)
Interface	eDP 1.2
Surface Treatment	Anti-Glare
Touch Enabled	No
Contrast Ratio	500:1 (typ)
Refresh Rate	60Hz
Brightness	250nits typ.
Pixel Resolution - Format	1600x900 (HD+)
Backlight	WLED
Pixel Resolution	RGB
Color Gamut Coverage	NTSC60%
Color Depth	6 bits
Viewing Angle	45/45/20/40
Low Blue Light	No
Power Consumption (W, EBL@ 150nits max/ 200nits max)	2.74 (max)/ 3.42(max)

17.3 in FHD (1920 x 1080) Anti-Glare LED UWVA NTSC 45 250 eDP 1.2 w/o PSR NWBZ flat Panel

Outline Dimensions (W x H x D)	390.190 x 238.810 (max)
Active Area	381.890 x 214.810 mm (typ.)
Weight	500 g (max)
Diagonal Size	17.3
Thickness	3.5 (max)
Interface	eDP 1.2
Surface Treatment	Anti-Glare
Touch Enabled	No
Contrast Ratio	800:1 (typ)
Refresh Rate	60Hz
Brightness	250 nits (typ.)
Pixel Resolution - Format	1920 x 1080 (FHD)
Backlight	WLED
Pixel Resolution	RGB
Color Gamut Coverage	NTSC45%
Color Depth	8 bits
Viewing Angle	UWVA 85/85/85/85
Low Blue Light	No
Power Consumption (W, EBL@ 150nits max/ 200nits max)	2.9W/3.5W

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) is reserved fo system recovery software.

Technical Specifications

24528 - HDD 1TB 5400RPM 7mm SATA (HDD 1TB 5400RPM 2.5in)		
Drive Weight	0.21 lbs (95 g)	
Rotation speed	5400rpm	
Cache Buffer	Up to 128MB	
Height	0.28 in (7 mm)	
Width	2.75 in (69.85 mm)	
Interface	ATA-8, SATA 3.0	
Transfer Rate	600 MB/s	
Seek Time	Single Track: 2 ~ 1.5 ms; Average: 11 ~ 13 ms; Maximum: 18 ~ 22 ms	
Logical Blocks	1,953,525,168	
Operating Temperature	32° to 140° F (0° to 60° C) [case temp]	
Security Features	ATA Security	
Features	S.M.A.R.T., NCQ, Ultra DMA	

16930 - HDD 500GB 5400RPM 7mm SATA		
Drive Weight	0.21 lbs (95 g)	
Rotation speed	5400rpm	
Cache Buffer	Up to 128MB	
Height	0.28 in (7 mm)	
Width	2.75 in (69.85 mm)	
Interface	ATA-8, SATA 3.0	
Transfer Rate	600 MB/s	
Seek Time	Single Track: 2 ~ 1.5 ms; Average: 11 ~ 13 ms; Maximum: 18 ~ 22 ms	
Logical Blocks	976,773,168	
Operating Temperature	32° to 140° F (0° to 60° C) [case temp]	
Security Features	ATA Security	
Features	S.M.A.R.T., NCQ, Ultra DMA	

50209 - SSD 128GB 2230 PCIe NVMe Value (SSD 128GB 2230 PCIe NVMe Value)		
Form Factor	M.2 2230	
Capacity	128GB	
NAND Type	value	
Height	0.09 in (2.3 mm)	
Width	0.87 in (22 mm)	
Interface	PCIe NVMe	
Maximum Sequential Read		
Maximum Sequential Write		
Logical Blocks	250.069.680	
Operating Temperature	32° to 158°F (0° to 70°C) [ambient temp]	
Features	Pyrite	

Technical Specifications

57426 - SSD 128GB 2280 PCIe-3x2 Three Layer Cell (SSD 128GB 2280 PCIe-3x2 Three Layer Cell)

Form Factor	M.2 2280
Capacity	128GB
NAND Type	TLC
Height	0.09 in (2.3 mm)
Width	0.87 in (22 mm)
Interface	PCIe NVMe Gen3X4
Maximum Sequential Read	
Maximum Sequential Write	
Logical Blocks	250.069.680
Operating Temperature	32° to 158°F (0° to 70°C) [ambient temp]
Features	Pyrite
Form Factor	M.2 2280

61597 - SSD 1TB 2280 PCIe NVMe Value (1TB 2280 PCIe NVMe Value 2nd Solid State Drive)

Form Factor	M.2 2280
Capacity	1TB
NAND Type	value
Height	0.09 in (2.3 mm)
Width	0.87 in (22 mm)
Weight	
Interface	PCIe NVMe
Maximum Sequential Read	
Maximum Sequential Write	
Logical Blocks	2.000.409.264
Operating Temperature	32° to 158°F (0° to 70°C) [ambient temp]
Features	Pyrite

47267 - SSD 256GB 2280 PCIe NVMe Value (SSD 256GB 2280 PCIe NVMe Value)

Form Factor	M.2 2280
Capacity	256GB
NAND Type	value
Height	0.09 in (2.3 mm)
Width	0.87 in (22 mm)
Interface	PCIe NVMe
Maximum Sequential Read	
Maximum Sequential Write	
Logical Blocks	500.118.192
Operating Temperature	32° to 158°F (0° to 70°C) [ambient temp]
Features	Pyrite

Technical Specifications

47268 - SSD 512GB 2280 PCIe NVMe Value

Form Factor	M.2 2280
Capacity	512GB
NAND Type	value
Height	0.09 in (2.3 mm)
Width	0.87 in (22 mm)
Interface	PCIe NVMe
Maximum Sequential Read	
Maximum Sequential Write	
Logical Blocks	1.000.215.216
Operating Temperature	32° to 158°F (0° to 70°C) [ambient temp]
Features	Pyrite

NETWORKING/COMMUNICATIONS

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
	  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: max 300Mbps • 802.11ac : max 866.7Mbps
Modulation	Direct Sequence Spread Spectrum BPSK, QPSK, CCK, 16-QAM, 64-QAM, 256-QAM
Security[3]	IEEE and WiFi certified 64 / 128 bit WEP encryption for a/b/g mode only AES-CCMP: 128 bit in hardware 802.1x authentication WPA, WPA2: 802.1x. WPA-PSK, WPA2-PSK, TKIP, and AES. WPA2 certification WPA3 certification IEEE 802.11i WAPI
Network Architecture Models	Ad-hoc (Peer to Peer) Infrastructure (Access Point Required)

Technical Specifications

Roaming	IEEE 802.11 compliant roaming between access points
Output Power[2]	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
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	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

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

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

Technical Specifications

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.

1. Wi-Fi 5 is designed to support gigabit data rate when transferring files between two devices connected to the same router. Requires 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 5 (802.11 ac) 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).

Realtek RTL8852BE 802.11ax 2x2 Wi-Fi® + Bluetooth® 5.2 (802.11ax 2x2, supporting gigabit data rate)[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 IEEE 802.11r IEEE 802.11v
	Interoperability	Wi-Fi certified modules

	Frequency Band	• 802.11b/g/n/ax
		   2.402 - 2.482 GHz
		• 802.11a/n/ac/ax
		   4.9 - 4.95 GHz (Japan)
		   5.15 - 5.25 GHz
		   5.25 - 5.35 GHz
		   5.47 - 5.725 GHz
		   5.825 - 5.850 GHz

	Data Rates	• 802.11b: 1, 2, 5.5, 11 Mbps • 802.11g: 6, 9, 12, 18, 24, 36, 48, 54 Mbps • 802.11a: 6, 9, 12, 18, 24, 36, 48, 54 Mbps • 802.11n: max 300Mbps • 802.11ac: max 866.7Mbps • 802.11ax : max 1201Mbps
	Modulation	Direct Sequence Spread Spectrum BPSK, QPSK, CCK, 16-QAM, 64-QAM, 256-QAM, 1024QAM
	Security[3]	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

Technical Specifications

	WPA3 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[2]	802.11b : +18.5dBm minimum 802.11g : +17.5dBm minimum 802.11a : +18.5dBm minimum 802.11n HT20(2.4GHz) : +15.5dBm minimum 802.11n HT40(2.4GHz) : +14.5dBm minimum 802.11n HT20(5GHz) : +15.5dBm minimum 802.11n HT40(5GHz) : +14.5dBm minimum 802.11ac VHT80(5GHz) : +11.5dBm minimum 802.11ax HE40(2.4GHz) : +10dBm minimum 802.11ax HE80(5GHz) : +10dBm minimum	
Power Consumption	Transmit mode :2.5 W Receive mode :2 W Idle mode (PSP) 180 mW (WLAN Associated) Idle mode :50 mW (WLAN unassociated) Connected Standby/Modern Standby: 10mW Radio disabled: 8 mW	
Power Management	ACPI and PCI Express compliant power management 802.11 compliant power saving mode	
Receiver Sensitivity[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 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** **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	

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

Technical Specifications

Bluetooth Specification	4.0/4.1/4.2/5.0/5.1 Compliant/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)
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.

1. Wi-Fi 6 is designed to support gigabit data rate when transferring files between two devices connected to the same router. Requires 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).

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 65W Smart AC adapter			
	Dimensions (H x W x D)	3.54 x 2.0 x 1.122 in (9.0x5.1x2.85 cm)	
	Weight	0.5 lb (230 g) max (Not including power cord. Power cord varies by country)	
	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 Over voltage protection– 29V max automatic shutdown
	Connector	4.5mm Barrel Type, 3 pin/grounded, mates with interchangeable cords	
	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	1 to 16,400 ft (0 to 5,000m)
		Humidity	20% to 95%
		Storage Humidity	10% to 95%
	EMI and Safety Certifications	Eg: *CE Mark - full compliance with LVD and EMC directives * Worldwide safety standards - IEC60950, IEC-62368, 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.	

Technical Specifications

HP 45W Smart AC adapter			
	Dimensions	3.74x1.77x1.04in(9.5x4.5.2.65cm)	
	Weight	0.44 lb (200g) max (Not including power cord. Power cord varies by country)	
	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**	45W
		DC output	19.5V
		Hold-up time	5ms at 115 Vac input
		Output current limit	<8.0A
	Connector	4.5mm Barrel Type, 3 pin/grounded, mates with interchangeable cords	
	Environmental Design	**Operating temperature**	32^0F to 95^0F ($0^0$to 35^0C)
		Non-operating (storage) temperature	-4^0F to 185^0F ($-20^0$to 85^0C)
		Altitude	1 to 16,400 ft (0 to 5,000m)
		Humidity	20% to 95%
		Storage Humidity	10% to 95%
	EMI and Safety Certifications	Eg: *CE Mark - full compliance with LVD and EMC directives * Worldwide safety standards - IEC60950, IEC-62368, 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.	

HP 3-cell Long Life Li-Ion (41 Wh[1])		
	Dimensions (H x W x L)	6.0 x 186.85 x 90.2 mm (0.234 x 7.35 x 3.55 inch)
	Weight	0.175 kg (0.385 lb)
	Cells/Type	3cell Lithium-Ion Polymer cell / 515974
	Energy	
	Voltage	11.34V / 11.28V
	Amp-hour capacity	3.62Ah / 3.635Ah
	Watt-hour capacity	41Wh
	Temperature	
	Operating (Charging)	32° to 113° F (0° to 45° C)
	Operating (Discharging)	14° to 122° F (-10° to 60° C)
	Fuel Gauge LED	N/A
	Warranty	1-year
	Optional Travel Battery Available	No

AUDIO

Technical Specifications

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. External speakers must be powered.
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	1
Internal Speaker	Yes

FINGERPRINT READER

Sensor vendor	Elan eFSA80ST touch sensor
Sensor type	Capacitive
DPI resolution	508 DPI
Scan area	80 x 80 pixels array
False Rejection Rate	FRR (False Reject Rate) / FAR (False Acceptance Rate): FRR ~ 2% @ 1:50K FAR
False Acceptance Rate	
Mobile Voltage Operation	Mobile Voltage Operation: 2.65V to 3.6V
Operating Temperature	Operating Temperature: 32° to 95° F (0° to 35° C)
Current Consumption Image	Current Consumption Image: 50mA peak
Low Latency Wait For Finger	Low Latency Wait For Finger: <900 uA
Capture Rate	Capture Rate: 20cm/sec
ESD Resistance	ESD Resistance: IEC 61000-4-2 (+15KV)
Detection Matrix	Detection Matrix: 508 dpi / 4x4mm sensor area

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. • China Energy Conservation Program (CECP) • China State Environmental Protection Administration (SEPA) • Taiwan Green Mark • Korea Eco-label • Japan PC Green label*
Sustainable Impact Specifications	• Ocean Bound Plastic(s) in Speaker, Bezel and Cover • 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

Technical Specifications

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 (Sort idle)	9.5 W	9.47 W	10.85 W
Normal Operation (Long idle)	0.93 W	1.09 W	0.94 W
Sleep	0.93 W	1.09 W	0.94 W
Off	0.32 W	0.34 W	0.3 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)	32.5 BTU/hr	32.4 BTU/hr	37.1 BTU/hr
Normal Operation (Long idle)	3.2 BTU/hr	3.7 BTU/hr	3.2 BTU/hr
Sleep	3.2 BTU/hr	3.7 BTU/hr	3.2 BTU/hr
Off	1.1 BTU/hr	1.2 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	1.8		17.5
Fixed Disk – Random writes	1.8		17.7
Optical Drive – Sequential reads	1.8		21.0
Longevity and Upgrading	This product can be upgraded, possibly extending its useful life by several years. Upgradeable features and/or components contained in the 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 96.6% recycle-able when properly disposed of at end of life.		

Technical Specifications

Packaging Materials	External:	PAPER/Corrugated	326 g
		PAPER/Molded Pulp	201 g
	Internal:	PLASTIC/Polyethylene low density - LDPE	17 g
		PLASTIC/Polypropylene - PP	5 g
	The plastic packaging material contains at least 0.0% recycled content.		
	The corrugated paper packaging materials contains at least 55.6% 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 http://www.hp.com/hpinfo/globalcitizenship/environment/supplychain/gen_specifications.html): *Asbestos* - Certain Azo Colorants - Certain Brominated Flame Retardants - may not be used as flame retardants in plastics - Cadmium - Chlorinated Hydrocarbons - Chlorinated Paraffins - Bis(2-Ethylhexyl) phthalate (DEHP) - Benzyl butyl phthalate (BBP) - Dibutyl phthalate (DBP) - Diisobutyl phthalate (DIBP) - Formaldehyde - Halogenated Diphenyl Methanes - Lead carbonates and sulfates - Lead and Lead compounds - Mercuric Oxide Batteries - Nickel - finishes must not be used on the external surface designed to be frequently handled or carried by the user. - Ozone Depleting Substances - Polybrominated Biphenyls (PBBs) - Polybrominated Biphenyl Ethers (PBBEs) - Polybrominated Biphenyl Oxides (PBBOs) - Polychlorinated Biphenyl (PCB) - Polychlorinated Terphenyls (PCT) - Polyvinyl Chloride (PVC) - except for wires and cables, and certain retail packaging has been voluntarily removed from most applications. - Radioactive Substances - Tributyl Tin (TBT), Triphenyl Tin (TPT), Tributyl Tin Oxide (TBTO)		
Packaging Usage	HP follows these guidelines to decrease the environmental impact of product packaging:		

Technical Specifications

	• 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: http://www.hp.com/go/reuse-recycle 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: http://www.hp.com/go/recyclers. 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: Global Citizenship Report http://www.hp.com/hpinfo/globalcitizenship/gcreport/index.html Eco-label certifications http://www8.hp.com/us/en/hp-information/environment/ecolabels.html ISO 14001 certificates: http://h20195.www2.hp.com/V2/GetDocument.aspx?docname=c04755842 and http://www.hp.com/hpinfo/globalcitizenship/environment/pdf/cert.pdf
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.

COUNTRY OF ORIGIN

China

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

Category	Description	Part Number
Audio/Video	HP Wired USB-A Stereo Headset	428K6AA
	HP Wired 3.5mm Stereo Headset	428K7AA
Cases	HP Renew Business 17.3" Backpack	3E2U5AA
	HP Renew Business 17.3" Bag	3E2U6AA
Hub	HP USB-C to USB-A Hub	Z6A00AA
Adapter	HP USB 3.0 to Gigabit Adapter	N7P47AA
	HP USB-C to RJ45 Adapter	V7W66AA
	HP USB-C to USB 3.0 Adapter	N2Z63AA
	HP HDMI to VGA Adapter	H4F02AA
Keyboard/Combo	HP 125 WD USB Keyboard	266C9AA
	HP 320K WD USB Keyboard	9SR37AA
	HP 225 Wired Mouse and Keyboard Combo	286J4AA
	HP 655 Wireless Keyboard and Mouse Combo	4R009AA
	HP 225 Wired Mouse and Keyboard Combo	286J4AA
	HP 235 Wireless Mouse and Keyboard Combo	1Y4D0AA
	HP 155 Wired Mouse and Keyboard Combo	5B8C0AA#ACJ
Mouse	HP USB Premium Wireless Mouse	1JR31AA
	HP 125 USB-A Wired Mouse	265A9AA
	HP 128 USB Laser Wired Mouse	265D9AA
	HP 320M USB-A Wired Mouse	9VA80AA
	HP 435 Multi-Device Wireless Mouse	3B4Q5AA
	HP USB-A+Bluetooth Travel Bluetooth Mouse	6SP30AA
	HP 235 Slim Wireless Mouse	4E407AA
	HP 155 USB-A Wired Mouse	5B8B7AA#ACJ
	HP USB-A Travel USB Mouse	G1K28AA
	HP USB-A+Bluetooth Multi-Device 635 Wireless Mouse Black	1D0K2AA
Power	HP 65W Smart AC Adapter	H6Y89AA
	HP 45W 4.5 mm Smart AC Power Adapter	H6Y88AA
Commodity	HP USB DVD-Writer EXT ODD	F2B56AA

Summary of Changes

Date of change	Version History		Description of change
	V1 to V2		