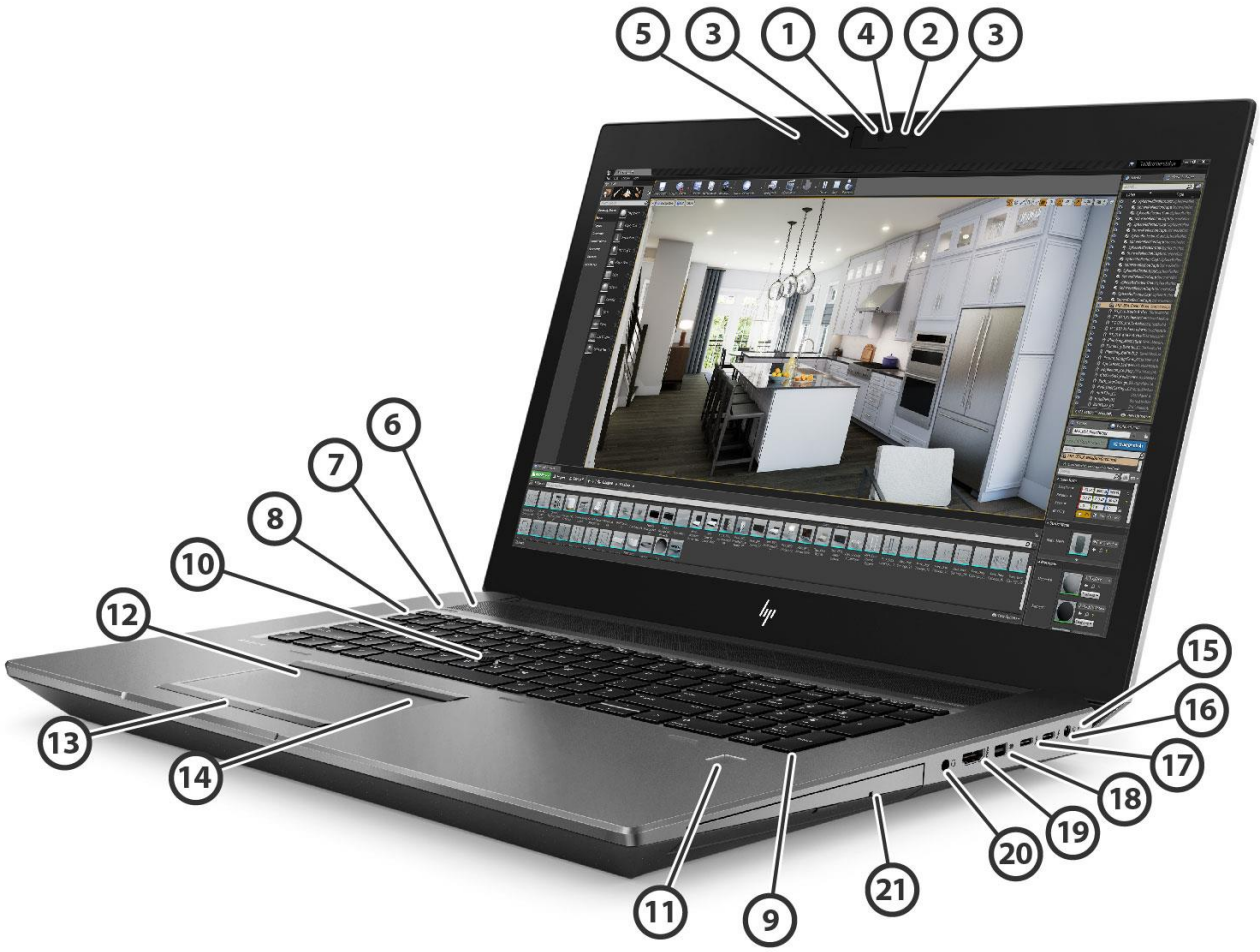
Overview

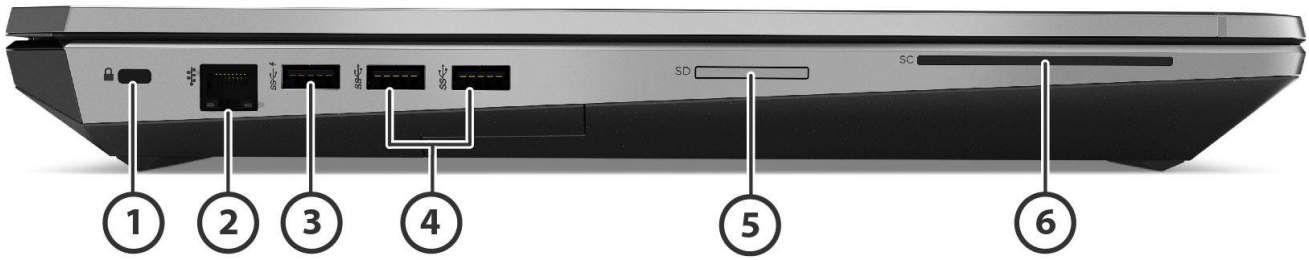
HP ZBook 17 G6 Mobile Workstation



Left

1. Webcam and IR Camera with Privacy shutter (optional)
2. Webcam LED (optional)
3. Internal microphones
4. IR Camera LEDs (optional)
5. Ambient light sensor (optional)
6. Speakers with discrete amps
7 Power button
8. Collaboration Keys
9. Numeric Keypad
10. Pointstick
11. Fingerprint Sensor
12. Clickpad
13. 3-button Touchpad
14. Integrated Color Calibration Sensor
15. Indicator LEDs: Power light, Wireless light, Storage usage light
16. Power connector
17. 2 USB Type-C™ with Thunderbolt™
18. Mini DisplayPort
19. HDMI port (cable not included)
20. Audio combo jack
21. Optical Disk Drive bay

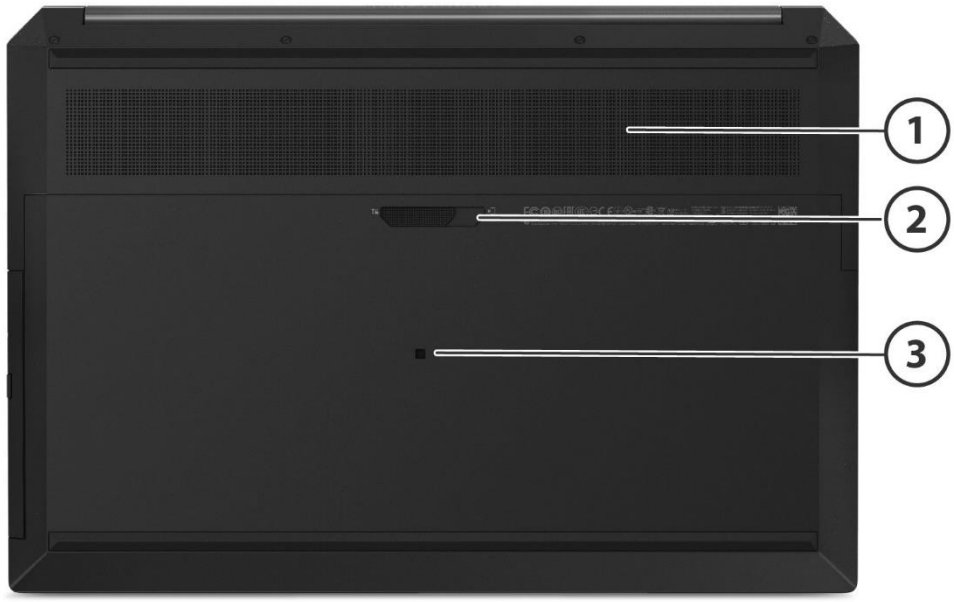
Overview



Right

1. Security lock slot (lock sold separately)
2. Ethernet port
3. USB 3.1 Gen 1 charging port
4. 2 USB 3.1 Gen 1
5. SD UHS-II flash media slot
6. Smart Card Reader

Overview



Bottom

1. Fan Venting
2. Tool less access
3. Keyboard liquid drain

Overview

At A Glance

- Work anywhere without compromising on performance or security with Windows 10 Pro [1], powered by HP's collaboration and connectivity technology.
- Harness the power of virtual reality to accelerate your workflows with in-process walkthroughs & viewing, interactive VR content and ad-hoc design reviews. [2]
- Accelerate your workflow. Power through projects with up to 128 GB RAM [3] for fast rendering, editing and visual effects performance.
- Take multitasking to the next level with the 9th gen Intel® Core™ i9 processor [4] designed to handle complex, multithreaded apps like Adobe Premier Pro, and with fast clock speeds you can boost your speed on single threaded apps like Autodesk 3ds Max.[5]
- Run demanding professional apps with the newest generation Intel® Xeon® processors [4] for powerful performance and productivity.
- Experience high-end visualization and seamlessly render your biggest projects with the next generation VR-ready NVIDIA Quadro® graphics.
- Strenuously tested to meet software certification and deliver superb performance with leading software providers, including Autodesk, Adobe and SolidWorks.
- Protect your work with industry-leading security features. And RAID 1 maintains a backup copy of all your files in case you ever need them.
- Bring your projects to life with one billion colors on the stunning 600 nit, 4K UHD HP DreamColor display [7]. Maintain color accuracy with a built-in color calibration system.
- Blitz through multiple tasks and ditch external drives with up to 10 TB storage and 5 drives. Four (4) dedicated drive slots, three (3) M.2 slots, and one (1) 2.5" drive bays[8]; Optical disk drive bay with option for extra M.2 Storage module. Optional RAID 1 (mirroring) configuration from HP.
- Our ZBooks are designed to undergo extensive MIL-STD 810G testing. [9]
- Enhanced transfer and upload speeds via dual Thunderbolt™ 3 ports. Get wide-ranging connectivity options to ensure maximum device interaction: USB 3.0, HDMI, mDP, SD card, Smart Card Reader and more.
- Plug in to greater connectivity at your desktop with the HP Thunderbolt Dock for lightning-fast Thunderbolt™ 3 [10] transfers and the flexibility to run up to two external 4K displays. [11]
- Accidents happen - which is why we designed our keyboard with a drain hole, so minor spills flow out the bottom for easy cleanup.
- Easy-to-remove rear panel allows for future expansion via 3 (2x M.2, 1x 2.5) storage slots. 4 million separate custom configurations to choose from will meet the demands of engineers and designers to ensure extended device lifetime.
- State-of-the-art thermal design keeps your processor and graphics card cool and quiet even under the most heavy workloads, so you get maximum performance for the long haul.
- HP Extended Range Wireless LAN isolates the wireless antenna to improve signal integrity and range, minimizing interruptions so you can work all day without a hitch.
  No need to risk riding someone else's network when you have your own. Built-in 4G LTE leverages the SIM card from your wireless provider for enhanced security. Leave password-only authentication behind with HP Client Security Manager Gen4 [12] and Windows Hello.

[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 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] Requires optional VR-ready NVIDIA Quadro® graphics.

[3] Up to 128GB memory is an optional, configurable feature.

[4] 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."

[5] Adobe Premier Pro and Autodesk 3ds Max sold separately.

Overview

[7] DreamColor display required for 1 billion colors and is an optional or add on feature.

[8] For hard drives, GB = 1 billion bytes. TB = 1 trillion bytes. Actual formatted capacity is less. Up to 30GB (for Windows 10) of system disk is reserved for system recovery software.

[9] MIL-STD-810G testing is pending. Testing is not intended to demonstrate fitness of U.S. Department of Defense (DoD) 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.

[10] HP ZBook Dock with Thunderbolt™ 3 sold separately.

[11] WWAN module is an optional feature, requires configuration at purchase and requires separately purchased service contract. Check with service provider for coverage and availability in your area. Connection speeds will vary due to location, environment, network conditions, and other factors. 4G LTE not available on all products, in all regions.

[12] HP Client Security Manager Gen4 requires Windows and Intel® or AMD 8th generation processors.

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

Features

OPERATING SYSTEM

Preinstalled OS	Windows 10 Pro 64 – HP recommends Windows 10 Pro[1] Windows 10 Pro for Workstations 64[1] Windows 10 Home 64[1] Windows 10 Home Single Language 64[1] Windows 10 China Government Edition[1] FreeDOS
Web support OS	Red Hat® Enterprise Linux® 8[2] Ubuntu Linux 18.04[2]

[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 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]Web support only. For detailed Linux® OS/hardware support information, see: http://h20195.www2.hp.com/v2/GetDocument.aspx?docname=4AA7-6280ENW

PROCESSOR

9th Generation Intel® Core™ i5-9300H with Intel® UHD Graphics 630 (2.4 GHz base frequency, up to 4.1 GHz with Intel® Turbo Boost Technology, 8 MB cache, 4 cores)[2,3,4,5]

9th Generation Intel® Core™ i5-9400H vPro™ with Intel® UHD Graphics 630 (2.5 GHz base frequency, up to 4.3 GHz with Intel® Turbo Boost Technology, 8 MB cache, 4 cores) [2,3,4,5,6]

9th Generation Intel® Core™ i7-9750H with Intel® UHD Graphics 630 (2.6 GHz base frequency, up to 4.5 GHz with Intel® Turbo Boost Technology, 12 MB cache, 6 cores) [2,3,4,5]

9th Generation Intel® Core™ i7-9850H vPro™ with Intel® UHD Graphics 630 (2.6 GHz base frequency, up to 4.6 GHz with Intel® Turbo Boost Technology, 12 MB cache, 6 cores) [2,3,4,5,6]

9th Generation Intel® Core™ i9-9880H vPro™ with Intel® UHD Graphics 630 (2.3 GHz base frequency, up to 4.8 GHz with Intel® Turbo Boost Technology, 16 MB cache, 8 cores) [2,3,4,5,6]

9th Generation Intel® Xeon® E-2286M vPro™ with Intel® UHD Graphics 630 (2.4 GHz base frequency, up to 5.0 GHz with Intel® Turbo Boost Technology, 16 MB cache, 8 cores) [2,3,4,5,6]

[2] Multicore is designed to improve performance of certain software products. Not all customers or software applications will necessarily benefit from use of this technology. Performance and clock frequency will vary depending on application workload and your hardware and software configurations. Intel's numbering, branding and/or naming is not a measurement of higher performance.
[3] Processor speed denotes maximum performance mode; processors will run at lower speeds in battery optimization mode.
[4] Intel® Turbo Boost performance varies depending on hardware, software and overall system configuration. See http://www.intel.com/technology/turboboost for more information.
[5] 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.
[6] Some functionality of vPro, such as Intel Active management technology and Intel Virtualization technology, requires additional 3rd party software in order to run. Availability of future "virtual appliances" applications for Intel vPro technology is dependent on 3rd party software providers. Compatibility with future "virtual appliances" is yet to be determined.

Features

CHIPSET

CM 246 Chipset is integrated with processor

INTEL® CORE™ I5 WITH VPRO/CORE I7 WITH VPRO/XEON® WITH VPRO TECHNOLOGY CAPABLE

Intel® Core™ i5 with vPro™, Core™ i7 with vPro™, Core™ i9 with vPro™ and Xeon® with vPro™ technology is a selectable feature that is available on units configured with select processors, a qualified Intel® WLAN module and a preinstalled Windows® operating system. It provides advances in remote manageability, security, energy efficient performance, and wireless connectivity. Intel® Active Management Technology (iAMT) offers built-in manageability and proactive security for networked mobile workstations, even when they are powered off* or when the operating system is inoperable. It can help identify threats before they reach the network, isolate infected systems, and update regardless of their power state.

[1] Requires a Windows operating system, network hardware and software, connection with a power source, and a direct (non-VPN) corporate network connection which is either cable or wireless LAN.
[2] Some functionality of Intel® Core™ i5 with vPro™/Core™ i7 with vPro™/Core™ i9 with vPro™/Xeon® with vPro™ technology, such as Intel® Active Management technology and Intel® Virtualization technology, requires additional third- party software in order to run. Availability of future "virtual appliances" applications for Intel® Core™ i5 with vPro™/Core i7 with vPro™/Core™ i9 with vPro™/XEON® with vPro™ technology is dependent on third- party software providers. Compatibility with future "virtual appliances" is yet to be determined.

GRAPHICS

Integrated

Intel® UHD Graphics 630

Discrete

NVIDIA® Quadro® T1000 with 4 GB dedicated GDDR5 video memory
NVIDIA® Quadro® RTX3000 with 6 GB dedicated GDDR6 video memory
NVIDIA® Quadro® RTX4000 with 8 GB dedicated GDDR6 video memory
NVIDIA® Quadro® RTX5000 with 16 GB dedicated GDDR6 video memory

Multi-Display Support

Without HP Thunderbolt Dock G2:

HP ZBook 17 with hybrid graphics and without the use of HP Thunderbolt™ Dock G2 supports up to a maximum of four independent displays. These four displays are the internal panel plus three external displays connected to Mini DisplayPort™ or HDMI and two Thunderbolt™ 3 ports. HP ZBook 17 configuration with Intel® integrated graphics supports up to a maximum of three independent displays. These three displays are connected to Mini DisplayPort™ or HDMI and two Thunderbolt™ 3 ports.

With HP Thunderbolt™ Dock G2:

The HP Thunderbolt™ Dock G2 has Thunderbolt™ 3 port, VGA, two DisplayPort™ and a USB-C™ port. When used together with the HP ZBook 17 configuration with hybrid graphics, a maximum of five independent displays are supported or three, UHD displays. These five displays include the internal panel, or external display connected to the system's HDMI port or mDP and three external displays connected to HP Thunderbolt™ Dock G2's Thunderbolt™ 3, VGA or USB-C, and two DisplayPort™ ports. When used together with the HP ZBook 17 configuration with Intel® integrated graphics, a maximum of 3 independent displays are supported. Any three display combination of the system panel, system ports and ZBook Dock ports may be used.

Features

DISPLAY

Non-touch

- HP Dream Color display 17.3" diagonal UHD anti-glare WLED-backlit 400 nits, 100% AdobeRGB (3840 x 2160) [1,2]
- 17.3" diagonal FHD eDP anti-glare WLED-backlit 300 nits, 72% sRGB (1920 x 1080) with Ambient Light Sensor [1,2]

Touch

- 17.3" diagonal UHD eDP + PSR anti-glare WLED-backlit Corning® Gorilla® Glass 5 touch, 400 nits, 95% sRGB with Ambient Light Sensor (3840 x 2160) [1,2]

[1] UHD content required to view UHD images.
[2] Resolutions are dependent upon monitor capability, and resolution and color depth settings.

STORAGE AND DRIVES*

M.2 SATA Solid State Drive
512 GB M.2 SATA FIPS-140-2 Solid State Drive

M.2 NVMe PCIe SSD
256 GB PCIe (NVMe) M.2 Solid State Drive
512 GB PCIe (NVMe) M.2 Solid State Drive
1 TB PCIe (NVMe) M.2 Solid State Drive
2 TB PCIe (NVMe) M.2 Solid State Drive
512 GB PCIe (NVMe) TLC SED Solid State Drive

2.5" Storage Bay Drives
500 GB 7200rpm SATA FIPS 140-2 SED HDD
500 GB 7200 rpm SATA HDD
1 TB 7200 rpm SATA HDD
2 TB 5400 rpm SATA HDD
256 GB SATA TLC SSD
1 TB SATA TLC SSD

Optical Bay
Blu-ray R/RE DVD +/-RW SuperMulti DL Drive / M.2 SATA storage module Carrier

Cache Memory
16 GB PCIe® NVMe™ Intel® Optane™ Memory for storage acceleration [1,2]

[1] Intel® Optane™ memory is sold separately. Intel® Optane™ memory system acceleration does not replace or increase the DRAM in your system. Available for HP commercial desktops and notebooks and for select HP workstations (HP Z240 Tower/SFF, Z2 Mini, ZBook Studio, 15 and 17 G5) and requires a SATA HDD, 7th Gen or higher Intel® Core™ processor or Intel® Xeon® processor E3-1200 V6 product family or higher, BIOS version with Intel® Optane™ supported, Windows 10 version 1703 or higher, M.2 type 2280-S1-B-M connector on a PCH Remapped PCIe Controller and Lanes in a x2 or x4 configuration with B-M keys that meet NVMe™ Spec 1.1, and an Intel® Rapid Storage Technology (Intel® RST) 15.5 driver.
[2] Intel® Optane™ memory system acceleration does not replace or increase the DRAM in your system.

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

DRIVE CONTROLLERS

M.2 Storage Bay (SATA):	SATA-3 or SATA-2 for HDD and SATA-3 for SSD

Features

PCIe NVMe SSD:	PCIe Gen 3 x 4 lanes NVMe Solid State Drive
RAID 0:	support on PCIe Gen 3x4*
RAID 1:	support on PCIe Gen 3x4

*RAID 0 is configured through BIOS. Not available through factory.

Features

MEMORY

Maximum Memory[4]
128 GB DDR4-2667 non-ECC SDRAM[1]
64 GB DDR4-2667 ECC SDRAM[1]
DDR4 SODIMMS[3]
Supports Dual Channel Memory[2]
Slots 3 and 4 are customer accessible / upgradeable

[1] 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.
[2] Maximized dual-channel performance requires SODIMMs of the same size and speed in both memory channels.
[3] Intel® allows architectures designed with four DIMM slots to run at 2400 MT/s
[4] Maximum memory capacities assume Windows 64-bit operating systems. With Windows 32-bit operating systems, memory above 3 GB may not all be available due to system resource requirements.

NETWORKING/COMMUNICATIONS

LAN[1]
Integrated Intel® I219-LM GbE, vPro™
Integrated Intel® I219-V GbE, non-vPro™

[1]GbE - 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.

WLAN[1]

Intel® Dual Band Wi-Fi 6 AX200 (2x2) and Bluetooth® 5 combo, vPro™
Intel® Dual Band Wi-Fi 6 AX200 (2x2) and Bluetooth® 5 combo, non-vPro™

[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. Only available in countries where 802.11ax is supported.

WWAN[1]

Intel® XMM™ 7360 LTE-Advanced

[1] WWAN is an optional feature and requires factory configuration and separately purchased service contract. Check with service provider for coverage and availability in your area. Connection speeds will vary due to location, environment, network conditions, and other factors. 4G LTE not available on all products, and in all regions.

Optional Near Field Communication (NFC) module

AUDIO/MULTIMEDIA

Audio
HP tuned Bang & Olufsen, dual stereo speakers, HP World Facing Microphone supporting HP Noise Reduction software, dual array digital microphone, functions keys for volume up and down, combo microphone/headphone jack, HD audio, HP Clear Sound Amp

Features

Webcam[1, 2, *]
Optional HP Privacy Camera (1080p FHD webcam) with IR camera

Optional HP Privacy Camera (720p HD webcam)

[1] FHD and HD content required to view HD images respectively.
[2] Windows Hello face authentication utilizes a camera specially configured for near infrared (IR) imaging to authenticate and unlock Windows devices as well as unlock your Microsoft Passport.

*Optional or add-on feature.

KEYBOARDS/POINTING DEVICES/BUTTONS & FUNCTION KEYS

Keyboard
HP Collaboration Keyboard, full-size, spill-resistant, backlit, with drain and DuraKeys, clickpad with glass surface, multi-touch gestures and taps enabled.

Pointing Devices
Dual pointstick
Clickpad with multi-touch gestures enabled, taps enabled as default;
Microsoft Precision Touchpad Default Gestures Support

SOFTWARE AND SECURITY

Software
Bing search for IE11
Buy Office
HP Connection Optimizer[7]
HP Hotkey Support
HP JumpStart
HP Mobile Connect Pro [4]
HP Noise Cancellation Software
HP Performance Advisor [6]
HP Recovery Manager
HP Cloud Recovery
HP Remote Graphics Software (via download) [2]
HP Support Assistant [1]
Native Miracast support [5]
Skype for Business Certified [3]

Security Management
Absolute persistence module [9]
HP Client Security Suite Gen 5[12]
HP Device Access Manager
HP FingerPrint Sensor
HP Manageability Integration Kit[21]
HP Power On Authentication
HP Security Manager
HP BIOSphere Gen5 [8,10]
HP Sure Start Gen5[17]
HP Sure Sense[20]

Features

Master Boot Record security
Pre-boot authentication
HP Sure Recover Gen2[19]
Secure Erase [18]
Security lock slot[13]
Trusted Platform Module TPM 2.0 (version: 7.85) Embedded Security Chip **(FIPS 140-2 Compliant), Model SLB9670 VQ2.0**
Microsoft Defender[11]
Smartcard Reader - Alcor AU9560 (FIPS 201 Compliant)

For more information on HP Client Security Software Suite, refer to http://www.hp.com/go/clientsecurity.

1. HP Support Assistant requires Windows and Intel® 8th generation processors.

2. HP Remote Graphics Software - The remote desktop solution for serious workstation users and their most demanding applications. Download at: http://www.hp.com/go/RGS.

3. Skype is not offered in China.

4. HP Mobile Connect Pro is only available on preconfigured devices with WWAN. For geographic availability refer to http://www.hp.com/go/mobileconnect.

5. Miracast is a wireless technology your PC can use to project your screen to TVs, projectors, and streaming media players that also support Miracast. You can use Miracast to share what you're doing on your PC and present a slide show. For more information: http://windows.microsoft.com/en-us/windows-8/project-wireless-screen-miracast.

6. HP Performance Advisor Software - HP Performance Advisor is ready and waiting to help you get the most out of your HP Workstation from day one—and every day after. Learn more or download at: https://www8.hp.com/us/en/workstations/performance-advisor.html

7. HP Connection Optimizer requires Windows 10.

8. HP BIOSphere - Requires Intel® 8th generation processors. HP Sure Start Gen5 - Available on HP Elite and HP Z Workstation products equipped with Intel® 8th generation processors.

9. Absolute agent is shipped turned off,and will be activated when customers activate a purchased subscription. Subscriptions can be purchased for terms ranging multiple years. Service is limited, check with Absolute for availability outside the U.S. The Absolute Recovery Guarantee is a limited warranty. Certain conditions apply. For full details visit: http://www.absolute.com/company/legal/agreements/computrace-agreement. Data Delete is an optional service provided by Absolute Software. If utilized, the Recovery Guarantee is null and void. In order to use the Data Delete service, customers must first sign a Pre-Authorization Agreement and either obtain a PIN or purchase one or more RSA SecurID tokens from Absolute Software.

10. HP BIOSphere Gen5 is available on select HP Pro and Elite PCs. See product specifications for details. Features may vary depending on the platform and configurations.

11. Microsoft Defender Opt in and internet connection required for updates.

12. HP Client Security Manager Gen5 requires Windows and is available on select HP Pro, Elite and Z PCs. See product specifications for details.

13. Security lock slot is Lock sold separately.

16. Requires Windows and Internet Access

17 HP Sure Start Gen4 is available on select HP PCs with Intel processors. See product specifications for availability.

18. For the methods outlined in the National Institute of Standards and Technology Special Publication 800-88 "Clear" sanitation method. HP Secure Erase does not support platforms with Intel® Optane™.

19. HP Sure Recover Gen2: See product specifications for availability. Requires an open, wired network connection. Not available on platforms with multiple internal storage drives. You must back up important files, data, photos, videos, etc. before using HP Sure Recover to avoid loss of data. HP Sure Recover (Gen1) does not support platforms with Intel® Optane™.

20. HP Sure Sense requires Windows 10. See product specifications for availability.

21. HP Manageability Integration Kit can be downloaded from http://www.hp.com/go/clientmanagement.

POWER

Features

Power Supply

Up to 17 hours[1]

HP Long Life 6-cell, 95.6 Wh Li-ion polymer[2]

200 W Slim Smart external AC power adapter

[1]Battery life will vary depending on the 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 MobileMark14 battery benchmark https://bapco.com/products/mobilemark-2014/ for additional details.

[2]Supports HP Fast Charge Technology

ENVIRONMENTAL

ENERGY STAR® 7.1 certified and EPEAT® 2019 registered [1]

Low halogen[2]

[1] Based on US EPEAT® registration according to IEEE 1680.1-2018 EPEAT®. Status varies by country. Visit www.epeat.net for more.
[2] External power supplies, power cords, cables and peripherals are not low halogen. Service parts obtained after purchase may not be low halogen.

WEIGHTS, DIMENSIONS & MATERIAL

Dimensions (w x d x h)
41.6 x 28.84 x 3.38 cm
16.4 x 11.35 x 1.32 in

Weights
Starting at 3.2 kg
Weight varies by configuration and components.
Starting at 7.04 lb
Weight varies by configuration and components.

A deck: Magnesium Aluminum
B deck: Magnesium frame with Aluminum and bond with plastic antenna cover
C deck: Magnesium frame with Aluminum Anodized cover
D deck: magnesium powder coat
Metal Alloy Hinges

Features

PORTS/SLOTS

1 smart card reader
1 SD media card reader

Left side
Security lock slot (lock sold separately)
1 RJ-45
1 USB 3.1 Gen 1 charging port
2 USB 3.1 Gen 1

Right side
1 Power connector
2 USB Type-C™ (Thunderbolt™ 3, pass through support DisplayPort™ 1.4[2], USB3.1 Gen 2, with BC 1.2)
1 Mini DisplayPort™ 1.4[2]
1 HDMI 2.0b[1,2]
1 headphone/microphone combo
1 Optical Disk Drive bay

[1] HDMI port-cable not included
[2] Mini DisplayPort 1.4 with discrete, 1.2 with UMA
[3] HDMI 2.0b with discrete, 1.4 with UMA

SERVICE AND SUPPORT

HP Services offers 3-year or 1-year limited warranties and 90 day software limited warranty options depending on country. Batteries have a default one year limited warranty except for Long Life batteries which will have same 1-year or 3-year limited warranty as the platform. 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.

[1]Sold separately or as an optional feature. 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. 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. Consult your local HP Customer Support Center for details.

Technical Specifications – System Unit

SYSTEM UNIT

Stand-Alone Power Requirements (AC Power)	**Nominal Operating Voltage**	19.5V
	Max Operating Power	<200W
Temperature	**Operating**	32° to 95° F (0° to 35° C)
	Non-operating	-40° to 140° F (-40° to 60° C)
Relative Humidity	**Operating**	10% to 90%, non-condensing
	Non-operating	5% to 95%, 101.6° F (38.7° C) maximum wet bulb temperature
Shock	**Operating**	40 G, 2 ms, half-sine
	Non-operating	200 G, 2 ms, half-sine
Random Vibration	**Operating**	0.75 grms
	Non-operating	1.50 grms
Altitude (unpressurized)	**Operating**	-50 to 10,000 ft (-15.24 to 3,048 m)
	Non-operating	-50 to 40,000 ft (-15.24 to 12,192 m)
Planned Industry Standard Certifications	**UL**	Yes
	CSA	Yes
	FCC Compliance	Yes
	ENERGY STAR®	Yes
	EPEAT® 2019	Yes
	ICES	Yes
	Australia / NZ A-Tick Compliance	Yes
	CCC	Yes
	Japan VCCI Compliance	Yes
	KCC	Yes
	BSMI	Yes
	CE Marking Compliance	Yes
	MIL STD 810G	Yes
	BNCI or BELUS	Yes
	GOST	Yes
	Saudi Arabian Compliance (ICCP)	Yes
	UKRSERTCOMPUTER	Yes

[1]Configurations of the HP ZBOOK 17 G6 that are ENERGY STAR® qualified are identified as HP ZBOOK 17 G6 ENERGY STAR® on HP websites and on http://www.energystar.gov.

[2] Based on US EPEAT® registration according to IEEE 1680.1-2018 EPEAT®. Status varies by country. Visit www.epeat.net for more information.

Technical Specifications – Displays

DISPLAYS

HP 17.3" diagonal FHD flat LED backlit Ultra-Wide Viewing Angle with Ambient Light Sensor (1920 x 1080)	**Outline Dimensions** (W x H)	399.95 x 251.01 mm (max)	
	Active Area	381.89 x 214.81 mm	
	Weight	550 g (max)	
	Diagonal Size	17.3 inch	
	Thickness	4.0 mm (max)	
	Interface	eDP 1.3	
	Surface Treatment	Anti-Glare	
	Touch enabled	No	
	Contrast Ratio	600:1 (typ.)	
	Refresh Rate	60 Hz	
	Brightness	300 nits	
	Pixel Resolution	**Format**	1920 x 1080 (FHD)
		Configuration	RGB
	Backlight	LED	
	PPI	127	
	Color Gamut Coverage	72%	
	Color Depth	6 bits + Hi FRC	
	Viewing Angle	UWVA 85/85/85/85	
		All specifications represent the typical specifications provided by HP's component manufacturers; actual performance may vary either higher or lower.	
HP 17.3" diagonal UHD flat LED backlit Ultra-Wide Viewing Angle with Ambient light sensor (3840 x 2160)	**Diagonal Size**	17.3 inch	
	Interface	eDP 1.4a + PSR (4 lane / 5.4Gbps) (MBO support)	
	Surface Treatment	Anti-Glare (AG)	
	Touch enabled	No	
	Contrast Ratio	1000:1 (typ.)	
	Refresh Rate	60Hz	
	Brightness	400 nits (typ.)	
	Pixel Resolution	**Format**	3840 x 2160 (UHD)
		Configuration	RGB
	Backlight	LED	
	PPI	254	
	Color Gamut Coverage	Adobe RGB 100% STD (95.5% NTSC)	
	Color Depth	8 bits	
	Viewing Angle	UWVA 85/85/85/85	
HP Dream Color 17.3" diagonal UHD flat RG phosphors and BLED backlit Ultra-Wide Viewing Angle	**Outline Dimensions** (W x H)	398.6 x 253 mm (max) (w/ bracket & PCB)	
	Active Area	382.12 x 214.94 mm	
	Weight	550 g (max)	
	Diagonal Size	17.3 inch	

Technical Specifications – Displays

(3840 x 2160)	**Thickness**	4.0 mm (max)	
	Interface	eDP 1.4a + PSR (4 lane / 5.4Gbps) (MBO support)	
	Surface Treatment	Anti-Glare	
	Touch enabled	No	
	Contrast Ratio	1000:1 (typ.)	
	Refresh Rate	60Hz	
	Brightness	400 nits (typ.)	
	Pixel Resolution	**Format**	3840 x 2160 (UHD)
		Configuration	RGB
	Backlight	LED	
	PPI	254	
	Color Gamut Coverage	Adobe RGB 100% STD (95.5% NTSC)	
	Color Depth	8 bits	
	Viewing Angle	UWVA 85/85/85/85	

Technical Specifications – Storage

STORAGE AND DRIVES*

512GB SATA-3 TLC M.2 2280 Solid State Drive - FIPS-140-2	**Form Factor**	M.2 2280	
	Drive Weight	0.02 lb (10 g)	
	Capacity	512GB	
	Generation	1100	
	NAND Type	TLC	
	Height	2.6 mm Max	
	Width	0.87 in (22 mm)	
	Interface	ACS-3, SATA 3.2	
	Performance	**Maximum Sequential Read**	**Maximum Sequential Write**
		530	400
	Logical Blocks	1,000,215,216	
	Operating Temperature	32° to 158°F (0° to 70°C) [ambient temp]	
	Features	"ATA Security; TCG Opal 2.0; FIPS	
		Note: 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.	
256GB PCIe NVMe TLC M.2 2280 Solid State Drive	**Form Factor**	M.2 2280	
	Drive Weight	0.02 lb (10 g)	
	Capacity	256GB	
	NAND Type	TLC	
	Height	0.09 in (2.3 mm)	
	Width	0.87 in (22 mm)	
	Interface	PCIe NVMe Gen3X4	
	Performance	**Maximum Sequential Read**	**Maximum Sequential Write**
		Up to 3000 MB/s	Around 1300 ~ 1600 MB/s
	Logical Blocks	500,118,192	
	Operating Temperature	32° to 158°F (0° to 70°C) [ambient temp]	
	Features	ATA Security; TRIM; L1.2	
		Note: 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.	
512GB PCIe NVMe TLC M.2 2280 Solid State Drive	**Form Factor**	M.2 2280	
	Drive Weight	0.02 lb (10 g)	
	Capacity	512GB	
	NAND Type	TLC	
	Height	0.09 in (2.3 mm)	
	Width	0.87 in (22 mm)	
	Interface	PCIe NVMe Gen3X4	
	Performance	**Maximum Sequential Read**	**Maximum Sequential Write**
		Around 2700 ~ 3400 MB/s	Around 1390 ~ 2500 MB/s
	Logical Blocks	1,000,215,215	
	Operating Temperature	32° to 158°F (0° to 70°C) [ambient temp]	
	Features	ATA Security; TRIM; L1.2	

Technical Specifications – Storage

		Note: 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.	
1TB PCIe NVMe TLC M.2 2280 Solid State Drive	**Form Factor**	M.2 2280	
	Drive Weight	0.02 lb (10 g)	
	Capacity	1TB	
	NAND Type	TLC	
	Height	0.09 in (2.3 mm)	
	Width	0.87 in (22 mm)	
	Interface	PCIe NVMe Gen3X4	
	Performance	**Maximum Sequential Read**	**Maximum Sequential Write**
		Around 3200 ~ 3480 MB/s	Around 2400 ~ 2800 MB/s
	Logical Blocks	2,000,409,264	
	Operating Temperature	32° to 158°F (0° to 70°C) [ambient temp]	
	Features	ATA Security; TRIM; L1.2	
		Notes: 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. RAID 1 Configuration requires 2 NVMe PCIe M.2 drives; both drives must be the same capacity and only available on NVMe technology.	
2TB PCIe NVMe TLC M.2 2280 Solid State Drive	**Form Factor**	M.2 2280	
	Drive Weight	0.02 lb (10 g)	
	Capacity	2TB	
	NAND Type	TLC	
	Height	0.09 in (2.3 mm)	
	Width	0.87 in (22 mm)	
	Interface	PCIe NVMe Gen3X4	
	Performance	**Maximum Sequential Read**	**Maximum Sequential Write**
		3000 MB/s	2100 MB/s
	Logical Blocks	3,907,029,168	
	Operating Temperature	32° to 158°F (0° to 70°C) [ambient temp]	
	Features	TRIM; L1.2	
		Notes: 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. RAID 1 Configuration requires 2 NVMe PCIe M.2 drives; both drives must be the same capacity and only available on NVMe technology.	
128GB PCIe Gen3 NVMe Optane Solid State Drive	**Form Factor**	M.2 2280	
	Drive Weight	0.02 lb (10 g)	
	Capacity	118GB	
	NAND Type	3D Xpoint	
	Height	0.09 in (2.3 mm)	
	Width	0.87 in (22 mm)	
	Interface	PCIe NVMe Gen3X4	

Technical Specifications – Storage

	Performance	**Maximum Sequential Read**	**Maximum Sequential Write**
		1200 MB/s	600 MB/s
	Logical Blocks	231,270,400	
	Operating Temperature	0° to 85°C [ambient temp]	
	Features	DIPM; TRIM; DEVSLP	
		Note: 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.	
500GB 7200 rpm SATA 2.5" Self-Encrypting Hard Disk Drive - FIPS-140-2	**Form Factor**	2.5”	
	Drive Weight	0.20 lbs (92 g) ~ 0.21 lbs (95 g)	
	Capacity	500 GB	
	NAND Type	RosewoodX BP FIPS	
	Height	0.28 in (7 mm)	
	Width	2.75 in (69.85 mm)	
	Interface	ATA-8, SATA 3.0	
	Transfer Rate	**Synchronous (maximum)**	600 MB/s
	Seek Time (typical reads, including settling)	**Single Track**	1.5ms
		Average	13ms
		Maximum	32ms
	Cache	128MB	
	Rotational Speed	7200rpm	
	Logical Blocks	976,773,168	
	Operating Temperature	32° to 140° F (0° to 60° C) [case temp]	
	Features	S.M.A.R.T., NCQ, Ultra DMA, TRIM	
		Note: 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.	
500GB 7200 rpm SATA 2.5" Hard Disk Drive	**Form Factor**	2.5”	
	Drive Weight	0.20 lbs (92 g) ~ 0.21 lbs (95 g)	
	Capacity	500 GB	
	Height	0.28 in (7 mm)	
	Width	2.75 in (69.85 mm)	
	Interface	ATA-8, SATA 3.0	
	Transfer Rate	**Synchronous (maximum)**	600 MB/s
	Seek Time (typical reads, including settling)	**Single Track**	2 ~ 1.5 ms
		Average	11 ~ 13 ms
		Maximum	18 ~ 22 ms
	Cache	Up to 32 MB	
	Rotational Speed	7200rpm	
	Logical Blocks	976,773,168	
	Operating Temperature	32° to 140° F (0° to 60° C) [top cover temp]	
	Features	S.M.A.R.T., NCQ, Ultra DMA	

Technical Specifications – Storage

		Note: 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.	
1TB 7200 rpm SATA 2.5" Hard Disk Drive	**Form Factor**	2.5”	
	Drive Weight	0.198 lbs (90g)	
	Capacity	1TB	
	NAND Type	RosewoodX BP	
	Height	0.28 in (7 mm)	
	Width	2.75 in (69.85 mm)	
	Interface	ATA-8, SATA 3.0	
	Transfer Rate	**Synchronous (maximum)**	600 MB/s
	Seek Time (typical reads, including settling)	**Single Track**	1.5ms
		Average	13ms
		Maximum	32ms
	Cache	128MB	
	Rotational Speed	7200rpm	
	Logical Blocks	1,953,525,168	
	Operating Temperature	32° to 140° F (0° to 60° C) [top cover temp]	
	Features	S.M.A.R.T., NCQ, Ultra DMA, TRIM	
		Note: 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.	
256GB SATA TLC 2.5" Solid State Drive	**Form Factor**	2.5”	
	Drive Weight	0.17 lb (78 g)	
	Capacity	256GB	
	NAND Type	TLC	
	Height	0.28 in (7 mm)	
	Width	2.75 in (69.85 mm)	
	Interface	ATA-8, SATA 3.0	
	Performance	**Maximum Sequential Read**	**Maximum Sequential Write**
		560 MB/s	530 MB/s
	Logical Blocks	500,118,192	
	Operating Temperature	32° to 158°F (0° to 70°C) [ambient temp]	
	Features	DIPM; TRIM; DEVSLP	
		Note: 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.	
1TB SATA TLC 2.5" Solid State Drive	**Form Factor**	2.5"	
	Drive Weight	0.17 lb (78 g)	
	Capacity	1TB	
	NAND Type	TLC	
	Height	0.28 in (7 mm)	
	Width	2.75 in (69.85 mm)	

Technical Specifications – Storage

Interface	ATA-8, SATA 3.0	
Performance	**Maximum Sequential Read**	**Maximum Sequential Write**
	560 MB/s	530 MB/s
Logical Blocks	2,000,409,264	
Operating Temperature	32° to 158°F (0° to 70°C) [ambient temp]	
Features	DIPM; TRIM; DEVSLP	
	Note: 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 – Networking

NETWORKING/COMMUNICATION

Intel i219LM 10/100/1000 Integrated NIC	**Connector**	RJ-45
	System Interface	PCI(Intel proprietary) + SMBus
	IEEE Compliance	IEEE 802.1p QoS (Quality of Service) Support IEEE 802.1q VLAN support IEEE 802.3x Flow Control (IEEE 802.3 clauses 31-32; configurable) IEEE 802.3az EEE (Energy Efficient Ethernet)
	Performance	TCP/IP/UDP Checksum Offload (configurable) Protocol Offload (ARP & NS) Large send offload and Giant send offload Receiving Side Scaling Jumbo Frame 9K
	Power consumption	Cable Disconnetion: 25mW 100Mbps Full Run: 450mW 1000bp Full Run: 1000mW WoL Enable(S3/S4/S5): 50mW WoL Disable(S3/S4/S5): 25mW
	Power Management	ACPI compliant – multiple power modes Situation-sensitive features reduce power consumption Advanced link down power saving for reducing link down power consumption
	Management Interface	Auto MDI/MDIX Crossover cable detection
	IT Manageability	Wake-on-LAN from standby and hibernation (Magic Packet and Microsoft Wake-Up Frame); Wake-on-LAN from off (Magic Packet only) PXE 2.1 Remote Boot Statistics Gathering (SNMP MIB II, Ethernet-like MIB, Ethernet MIB (802.3x, clause 30)) Comprehensive diagnostic and configuration software suite Virtual Cable Doctor for Ethernet cable status
	Security & Manageability	Intel® vPro™ support with appropriate Intel® chipset components
Intel i219v 10/100/1000 Integrated NIC	**Connector**	RJ-45
	System Interface	PCI(Intel proprietary) + SMBus
	IEEE Compliance	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
	Performance	IEEE 802.1p QoS (Quality of Service) Support IEEE 802.1q VLAN support IEEE 802.3x Flow Control (IEEE 802.3 clauses 31-32; configurable) IEEE 802.3az EEE (Energy Efficient Ethernet)
	Power consumption	TCP/IP/UDP Checksum Offload (configurable) Protocol Offload (ARP & NS) Large send offload and Giant send offload Receiving Side Scaling Jumbo Frame 9K

Technical Specifications – Networking

	Power Management	Cable Disconnetion: 25mW 100Mbps Full Run: 450mW 1000bp Full Run: 1000mW WoL Enable(S3/S4/S5): 50mW WoL Disable(S3/S4/S5): 25mW
	Management Interface	ACPI compliant – multiple power modes Situation-sensitive features reduce power consumption Advanced link down power saving for reducing link down power consumption
	IT Manageability	Auto MDI/MDIX Crossover cable detection

Intel® Dual Band Wi-Fi 6 AX200 (2x2) and Bluetooth® 5 combo 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: 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[1]	• 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

Technical Specifications – Networking

	• Cisco Certified Extensions, all versions through CCX4 and CCX Lite • 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 • 802.11ac 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 10mW • Radio disabled 8 mW
Power Management	ACPI and PCI Express compliant power management 802.11 compliant power saving mode
Receiver Sensitivity[3]	•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
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)

Technical Specifications – Networking

Altitude	Operating Non-operating	0 to 10,000 ft (3,048 m) 0 to 50,000 ft (15,240 m)

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)
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 + 9.5 dBm for BR and EDR.
Power Consumption	Peak (Tx): 330 mW Peak (Rx): 230 mW Selective Suspend: 17 mW
Bluetooth Software Supported Link Topology	Microsoft Windows Bluetooth Software
Power Management	Microsoft Windows ACPI, and USB Bus Support
Certifications	FCC (47 CFR) Part 15C, Section 15.247 & 15.249
Power Management Certifications	ETS 300 328, ETS 300 826 Low Voltage Directive IEC950 UL, CSA, and CE Mark
Bluetooth Profiles Supported	BT4.1-ESR 5/6/7 Compliance LE Link Layer Ping LE Dual Mode LE Link Layer LE Low Duty Cycle Directed Advertising LE L2CAP Connection Oriented Channels Train Nudging & Interlaced Scan BT4.2 ESR08 Compliance LE Secure Connection- Basic/Full LE Privacy 1.2 –Link Layer Privacy LE Privacy 1.2 –Extended Scanner Filter Policies LE Data Packet Length Extension FAX Profile (FAX) Basic Imaging Profile (BIP)2 Headset Profile (HSP) Hands Free Profile (HFP) Advanced Audio Distribution Profile (A2DP)
Security & Manageability	Intel® vPro™ support with appropriate Intel® chipset components

Technical Specifications – Networking

Intel® Dual Band Wi-Fi 6 AX200 (2x2) and Bluetooth® 5 combo, 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: 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[1]	•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 •Cisco Certified Extensions, all versions through CCX4 and CCX Lite •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

	• 802.11ac VHT160(5GHz) : +11.5dBm minimum • 802.11ax HT40(2.4GHz) : +10dBm minimum • 802.11ax VHT160(5GHz) : +10dBm minimum
Power Consumption	•Transmit mode2.0 W •Receive mode1.6 W •Idle mode (PSP)180 mW(WLAN Associated) •Idle mode50 mW(WLAN unassociated) •Connected Standby 10mW •Radio disabled8 mW
Power Management	ACPI and PCI Express compliant power management 802.11 compliant power saving mode
Receiver Sensitivity[3]	•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
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 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 White – 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)
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

Technical Specifications – Networking

	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.
Power Consumption	Peak (Tx): 330 mW Peak (Rx): 230 mW Selective Suspend: 17 mW
Bluetooth Software Supported Link Topology	Microsoft Windows Bluetooth Software
Power Management	Microsoft Windows ACPI, and USB Bus Support
Certifications	FCC (47 CFR) Part 15C, Section 15.247 & 15.249
Power Management Certifications	ETS 300 328, ETS 300 826 Low Voltage Directive IEC950 UL, CSA, and CE Mark
Bluetooth Profiles Supported	BT4.1-ESR 5/6/7 Compliance LE Link Layer Ping LE Dual Mode LE Link Layer LE Low Duty Cycle Directed Advertising LE L2CAP Connection Oriented Channels Train Nudging & Interlaced Scan BT4.2 ESR08 Compliance LE Secure Connection- Basic/Full LE Privacy 1.2 –Link Layer Privacy LE Privacy 1.2 –Extended Scanner Filter Policies LE Data Packet Length Extension FAX Profile (FAX) Basic Imaging Profile (BIP)2 Headset Profile (HSP) Hands Free Profile (HFP) Advanced Audio Distribution Profile (A2DP)

Intel® XMM™ 7360 LTE-Advanced (CAT9)

Technology/Operating bands	FDD LTE: 2100 (Band 1), 1900 (Band 2), 1800 (Band 3), 1700/2100 (Band 4), 850 (Band 5), 2600 (Band 7), 900 (Band 8), 1400 (Band 11), 700 (Band 12 lower), 700 (Band 13 upper), 700 (Band 17 lower), 850 (Band 18 lower), 850 (Band 19 upper), 800 (Band 20), 1400 (Band 21), 850 (Band 26), 700 (Band 28), 700 (Band 29 RX only), 2300 (Band 30), 1700/2100 (Band 66). TDD LTE: 2600 (Band 38), 1900 (Band 39), 2400 (Band 40), 2500 (Band 41). HSPA+: 2100 (Band 1), 1900 (Band 2), 1700/2100 (Band 4), 850 (Band 5), 900 (Band 8) MHz
Wireless protocol standards	3GPP Release 11 LTE Specification CAT.9, DL 60MHz BW throughput up to 450Mbps; UL 20MHz throughput up to 50Mbps WCDMA R99, 3GPP Release 5, 6, 7 and 8 UMTS Specification
GPS	Standalone, A-GPS (MS-A, MS-B)
GPS Bands	1575.42 MHz ± 1.023 MHz, GLONASS 1596-1607MHz, Beidou 1561.098 MHz

Technical Specifications – Networking

Maximum Data Rates	LTE: 450 Mbps (Download), 50 Mbps (Upload) DC-HSPA+: 42 Mbps (Download), 5.76 Mbps (Upload) HSPA+: 21Mbps (Download), 5.76 Mbps (Upload)
Maximum Output Power	LTE: 23 dBm HSPA+: 23.5 dBm
Maximum Power Consumption	LTE: 1,200 mA (peak); 900 mA (average) HSPA+: 1,100 mA (peak); 800 mA (average)
Form Factor	M.2, 3042-S3 Key B
Weight	5.8 g
Dimensions (Length x Width x Thickness)	42 x 30 x 2.3 mm

* Mobile Broadband is an optional feature and requires factory configuration. Connection requires wireless data service contract, network support, and is not available in all areas. Contact service provider to determine the coverage area and availability. Connection speeds will vary due to location, environment, network conditions, and other factors. 4G LTE not available on all products or in all countries.

NXP NPC300 Near Field Communication module

Dimensions (L x W x H)	Module 25 mm by 10 mm by 2.0 mm	
Chipset	NPC300	
System interface	I2C	
NFC RF standards	ISO/IEC 14443 A ISO/IEC 14443 B ISO/IEC 15693 ISO/IEC 18092 ECMA-340 NFCIP-1 Target and Initiator ECMA-320 NFCIP-2	
NFC Forum Support	Tag Type 1, Type 2, Type3 and Type 4, NFCIP-1 and NFCIP-2	
Reader (PCD-VCD) Mode(1)	ISO/IEC 14443 A ISO/IEC 14443 B ISO/IEC 15693 MIFARE 1K MIFARE 4K MIFARE DESFire FeliCa Jewel and Topaz cards	
Card Emulation (PICC-VICC) Mode(1)	ISO/IEC 14443 A ISO/IEC 14443 B and B' MIFARE FeliCa	
Frequency	13.56 MHz	
NFC Modes Supported	Reader/Writer, Peer-to-Peer	
Raw RF Data Rates	106, 212, 424, 848 kbps	
Operating temperature	0°C to 70°C	
Storage temperature	-20°C to 125°C	
Humidity	10-90% operating 5-95% non-operating	
Supply Operating voltage	4.35 to 5.25 Volts	
I/O Voltage	1.8V or 3.3V	
Power Consumption	**Booster enable, VCC_BOOST = 5V) Mode Power Consumption,**	VBAT= 3.3V, Typical Polling 7.3 mA Detected Test Tag Type 1 Total 283.8 mA Net Module 236.8 mA Detected Test Tag Type 2 Total 288.8 mA Net Module 241.8 mA Detected Test Tag Type 3 Total 287.7 mA Net Module 240.7 mA Detected Test Tag Type 4 Total 282.3 mA Net Module 235.3 mA
Antenna	Antenna connector, 0.5mm pitch, 7 connector FPC. Antenna matching is external to module.	

POWER

Technical Specifications – Networking

200 Watt Slim Smart AC Adapter	**Dimensions**	165x79x25.4mm	
	Weight	unit: 530g +/- 10g	
	Input	**Input Efficiency**	88% at 115 Vac and 89% at 230Vac
		Input frequency range	47 ~ 63 Hz
		Input AC current	2.9 A at 90 Vac and Maximum Load
	Output	**Output power**	200W
		DC output	19.5V
		Hold-up time	5ms at 115 Vac input
		Output current limit	<16.0A
	Connector	C14	
	Environmental Design	**Operating temperature**	32° to 95° F (0° to 35° C)
		Non-operating (storage) temperature	-4° to 185° F (-20° to 85° C)
		Altitude	0 to 16,400 ft (0 to 5,000 m)
		Humidity	5% to 95%
		Storage Humidity	5% to 95%
	EMI and Safety Certifications	Eg: *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 100,000 hours at 25°C ambient condition.	

Technical Specifications – Networking

HP Long Life 6-cell Polymer (95.6Wh) Battery	**Dimensions (H x W x L)**	L 261.6mm x W 105.7mm x 18.44mm	
	Weight	405.5 (+/-10)	
	Cells/Type	6-cell; Polymer	
	Energy	Voltage	11.55V
		Amp-hour capacity	7.965Ah/8.310Ah
		Watt-hour capacity	95.9Wh
	Temperature	Operating (Charging)	0˚ to 50˚ C
		Operating (Discharging)	-20˚ to 70˚ C
	Fuel Gauge LED	NA	
	Warranty[1]	Refer to http://www.hp.com/support/batterywarranty/ for battery warranty information.	
	Optional Travel Battery Available	No	

[1] Batteries have a default one-year limited warranty except for Long Life batteries which will have same1-year or 3-year limited warranty as the platform.

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®
- EPEAT®2019 Gold registered in the United States*

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".

*Based on US EPEAT® registration according to IEEE 1680.1-2018 EPEAT®. EPEAT® status varies by country. Visit www.epeat.net for more information.

Energy Consumption (in accordance with US ENERGY STAR® test method)	**115VAC, 60Hz**	**230VAC, 50Hz**	**100VAC, 60Hz**
Normal Operation (Short idle)	21.1 W	22.5 W	21.12 W
Normal Operation (Long idle)	7.17 W	7.68 W	7.21 W
Sleep	1.88 W	1.89 W	1.87 W
Off	0.31 W	0.39 W	0.32 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, 60Hz**
Normal Operation (Short idle)	72 BTU/hr	76 BTU/hr	72 BTU/hr
Normal Operation (Long idle)	24 BTU/hr	26 BTU/hr	24 BTU/hr
Sleep	6 BTU/hr	6 BTU/hr	6 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	2.3	26
Fixed Disk – Random writes	3.8	30

Longevity and Upgrading

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

Spare parts are available throughout the warranty period and or for up to "5" years after the end of production.

Batteries

This battery(s) in this product comply with EU Directive 2006/66/EC

Batteries used in the product do not contain:
Mercury greater the1ppm by weight

Technical Specifications – Environmental

Cadmium greater than 20ppm by weight

Battery description: CR2032 (coin cell)
Battery type: Lithium

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 contains 9.0% post-consumer recycled plastic (by wt.)
- This product is 96.9% recycle-able when properly disposed of at end of life.
-

Packaging Materials

External:	PAPER/Corrugated	373 g
Internal:	PLASTIC/Polyethylene Expanded - EPE	92 g
	PLASTIC/Polypropylene - PP	33 g
	PLASTIC/Polyethylene low density - LDPE	64 g

The plastic packaging material contains at least 50% recycled content.
The corrugated paper packaging materials contains at least 70% recycled content.

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/pdf/gse.pdf):

- Asbestos
- Certain Azo Colorants
- Certain Brominated Flame Retardants – may not be used as flame retardants in plastics
- Cadmium
- Chlorinated Hydrocarbons
- Chlorinated Paraffins
- 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, has been voluntarily removed from most applications.
- Radioactive Substances
- Tributyl Tin (TBT), Triphenyl Tin (TPT), Tributyl Tin Oxide (TBTO)

Technical Specifications – Environmental

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

Hewlett-Packard 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://www.hp.com/hpinfo/globalcitizenship/environment/pdf/PC_GBU_Product_Design_ISO_14K_Certificate.pdf

and
http://www.hp.com/hpinfo/globalcitizenship/environment/pdf/cert.pdf

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

Type	Description	Part #
Displays	HP Z32 31.5” 4k UHD Display	1AA81A8#XXX
	HP Z38c 37.5” Curved Display	Z4W65A8#ABA
Case	HP Business Backpack (up to 17.3")	2SC67AA
	HP Business Slim Top Load (up to 17.3")	2UW02AA
	HP Exec 17.3 Midnight Backpack	1KM17AA
Docking Accessories	HP Adjustable Dual Monitor Stand	AW664AA
	HP Adjustable Display Stand	AW663AA
	HP Display and Notebook Stand II	E8G00AA
	HP Monitor Stand	M9X76AA
	HP Dual Hinge II Notebook Stand	E8F99AA
	HP Hot Desk Stand (up to 32" monitor)	W3Z73AA
	HP Hot Desk Stand Monitor Arm (for use with W3Z73AA; supports two 24" monitors	W3Z74AA
	HP TB Audio Module (comp with TB Dock G2)	3AQ21AA
	HP TB dock G2 Combo Cable (for 230W) comp with TB Dock G2	3XB96AA
Docking station	HP TB Dock G2 230W	2UK38AA
	HP TB Dock G2 230W W/ Combo Cable	3TR87AA
	HP USB Travel Dock	T0K30AA
	HP USB-C™ Mini Dock - power not supported on Mobile Workstations	1PM64AA
	HP USB-C™ Universal Dock - power not supported on Mobile Workstations or USB-data only ports	1MK33AA
	HP USB-C™ Universal Dock Non-Flash with Power Splitter - power not supported on Mobile Workstations or USB-data only ports	3DV65AA
	HP USB-C™ Dock G4 - Power Not Supported on Mobile Workstations	3FF69AA
	HP USB-C/A Universal Dock G2 Power Not Supported on Mobile Workstations	5TW13AA
	HP USB-C™ Dock G5 Power Not Supported on Mobile Workstations	5TW10AA
Input/Output - Mice	HP Comfort Grip Wireless Mouse	H2L63AA
	HP 3-button USB Laser Mouse	H4B81AA
	HP Slim Bluetooth Mouse	F3J92AA
	HP USB Travel Mouse	G1K28AA
	HP Wireless Premium Mouse	1JR31AA
	HP Elite Presenter Mouse	2CE30AA
Input/Output - Keyboard	HP Slim USB Keyboard and Mouse	T6T83AA

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

	HP Slim Wireless Keyboard and Mouse	T6L04AA
Input/Output - Adapter	HP USB-C™ to USB-A Hub	Z6A00AA
	HDMI to VGA Adapter	H4F02AA
	HP HDMI to DVI Adapter	F5A28AA
	HP USB-C™ to USB 3.0 Adapter	N2Z63AA
	HP USB-C™ to DisplayPort Adapter	N9K78AA
	HP USB-C™ to VGA Adapter	N9K76AA
Collaboration	HP UC Wired Headset	K7V17AA
Memory	HP 8GB 2666Mhz DDR4	4VN06AA
	HP 16GB 2666Mhz DDR4	4VN07AA
	HP 8GB 2666MHz DDR4 ECC	4UY11AA
	HP 16GB 2666MHz DDR4 ECC	4UY12AA
Power - Adapter Dongle	HP 200W Smart AC Adapter (4.5mm)	4SC19AA
	ZBook 17 G5/G6 Battery	4ME80AA
	HP 7.4mm to 4.5mm DC Dongle	K0Q39AA
Security	HP Essential Combination Lock	T0Y16AA
	HP Keyed Cable Lock 10mm	T1A62AA
	HP Dual Head Keyed Cable Lock	T1A64AA
Storage - External	HP External USB DVDRW Drive	F2B56AA
Storage - SS M2	HP 256GB PCIe 3x4 NVMe SSD (2280)	V3K66AA
	HP 512GB PCIe 3x4 NVMe DS SSD (2280)	V3K67AA

Summary of Changes

Date of change:	Version History:		Description of change:
June 27, 2019	From v1 to v2	Added	Multi-Display Support section
July 8, 2019	From v2 to v3	Changed	Options and Accessories
July 23, 2019	From v3 to v4	Changed	Software and Service sections
August 5, 2019	From v4 to v5	Changed	ENVIRONMENTAL DATA section
September 5, 2019	From v5 to v6	Changed	Format pages 4, 10, 13 and 15
October 14, 2019	From v6 to v7	Removed	HP Sure View
November 21, 2019	From v7 to v8	Changed	OPERATING SYSTEM, CHIPSET, GRAPHICS, WEIGHTS, DIMENSIONS & MATERIAL sections
December 20, 2019	From v8 to v9	Removed	Intel HD P630 as Integrated Graphics